FCC TEST REPORT

FCC ID : WSQAS-9116RDL

Applicant : Beijing Lanbe Tianhe Technologies&Develop CO., Ltd.
Address : Room 508,Guoxin Building,
SHOUT:Nan Rd. NO.20,Haidian District,Beijing,China

Equipment Under Test (EUT) :

Product description : LCD KVM
Model No. : AS-3100L, AS-3104UDL, AS-3108UDL, AS-3116UDL, AS-3104RDL, AS-3108RDL, AS-3116RDL, AS-7100L, AS-7104UDL, AS-7108UDL, AS-7116UDL, AS-7104RDL, AS-7108RDL, AS-7116RDL, AS-9100L, AS-9104UDL AS-9108UDL,AS-9116UDL, AS-9104RDL, AS-9108RDL, AS-9116RDL

Standards : FCC Part 15 Subpart B

Date of Test : Jan. 08, 2010

Test Engineer :Maikou.zhang

Reviewed By : Phillo zhong

Test Result :	**PASS ***

PERPARED BY:
Waltek Services (Shenzhen) Co., Ltd.
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.

1 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission (30MHz to 2GHz)	FCC PART 15, SUBPART B: 2007	ANSI C63.4: 2009	Class B	PASS
Conducted Emission (150KHz to 30MHz)	FCC PART 15, SUBPART B: 2007	ANSI C63.4: 2009	Class B	PASS

Contents

2 General Information

2.1 Client Information

Applicant:	Beijing Lanbe Tianhe Technologies&Develop CO., Ltd.
Address of Applicant:	Room 508,Guoxin Building, SHOUT:Nan Rd. NO.20,Haidian District,Beijing,China
Manufacturer:	Beijing Lanbe Tianhe Technologies&Develop CO., Ltd.
Address of manufacturer:	Room 508,Guoxin Building, SHOUT:Nan Rd. NO.20,Haidian District,Beijing,China

2.2 General Description of E.U.T.

Product description:	LCD KVM
Model No.:	AS-3100L, AS-3104UDL, AS-3108UDL, AS-3116UDL, AS-3104RDL, AS-3108RDL, AS-3116RDL, AS-7100L, AS-7104UDL, AS-7108UDL, AS-7116UDL, AS-7104RDL, AS-7108RDL, AS-7116RDL, AS-9100L, AS-9104UDL AS-9108UDL,AS-9116UDL, AS-9104RDL, AS-9108RDL, AS-9116RDL
Model Difference :	The PCB of all models are the same except that the difference of the size of LCD. And the model AS-3116UDL, AS-3116RDL, AS-7116UDL, AS-7116RDL, AS-9116UDL, AS-9116RDL are the test samples.

Remark:

RDL-with no external USB interface, with PS / 2 interface cable.
UDL-plug-in USB interface for mouse and keyboard. Equipped with USB cable!
3100 (08/16) - denote 15-inch screen LCD.
7100 (08/16) - denote 17-inch screen LCD.
9100 (08/16) - denote with 19-inch screen LCD.
00 - denote can connect to unit PC or server, and one operational control.
08 - denote can connect to eight units PC or server , one for operational control.
16 - denote can connect to sixteen units PC or server, one for operational control.

For more details of the test sample, please refer to the test data.

2.3 Details of E.U.T.

Power Supply: AC 100-240V 0.3A

2.4 Description of Support Units

The EUT has been tested as an independent unit.

2.5 Standards Applicable for Testing

The customer requested FCC tests for a LCD KVM . The standards used were FCC Part 15 Subpart B.

2.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC – Registration No.: 880581**

  Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 880581.June 24,2008.

- **IC – Registration No.:IC7760A**

  Waltek Services(Shenzhen) Co., Ltd. has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration IC7760A, July 24, 2008.

2.7 Test Location

All Emissions tests were performed at:-
1/F, Fukangtai Building,West Baima Rd.,Songgang Street, Baoan District, Shenzhen 518105,China

3 Equipment Used during Test

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
EMC Analyzer	Agilent/ E7405A	MY45114943	W2008001	9k-26.5GHz	Aug-09	Aug-10	Wws20081596	±1dB
Trilog Broadband Antenne 30-3000 MHz	SCHWARZBECK MESS-ELEKTROM / VULB9163	336	W2008002	30-3000 MHz	Aug-09	Aug-10		±1dB
Broad-band Horn Antenna 1-18 GHz	SCHWARZBECK MESS-ELEKTROM / VULB9163	667	W2008003	1-18GHz	Aug-09	Aug-10		f＜10 GHz：±1dB 10GHz＜f＜18 GHz：±1.5dB
Broadband Preamplifier 0.5-18 GHz	SCHWARZBECK MESS-ELEKTROM / BBV 9718	9718-148	W2008004	0.5-18GHz	Aug-09	Aug-10		±1.2dB
10m Coaxial Cable with N-male Connectors usable up to 18GHz,	SCHWARZBECK MESS-ELEKTROM / AK 9515 H	-	-	-	Aug-09	Aug-10		-
10m 50 Ohm Coaxial Cable with N-plug,individual length,usable up to 3(5)GHz, Connector	SCHWARZBECK MESS-ELEKTROM / AK 9513				Aug-09	Aug-10		
Positioning Controller	C&C LAB/ CC-C-IF				N/A	N/A		
Color Monitor	SUNSPO/ SP-14C				N/A	N/A		
Test Receiver	ROHDE&SCHWARZ/ ESPI	101155	W2005001	9k-3GHz	Aug-09	Aug-10	Wws20080942	±1dB
EMI Receiver	Beijingkehuan	KH3931		9k-1GHz	Aug-09	Aug-10		
Two-Line V-Network	ROHDE&SCHWARZ/ ENV216	100115	W2005002	50Ω/50μH	Aug-09	Aug-10	Wws20080941	±10%

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
Absorbing Clamp	ROHDE&SCHWARZ/ MDS-21	100205	W2005003	impandance50 Ω loss ：17 dB	Aug-09	Aug-10	Wws20080943	±1dB
10m 50 Ohm Coaxial Cable with N-plug,individual length,usable up to 3(5)GHz, Connectors	SCHWARZBECK MESS-ELEKTROM / AK 9514				Aug-09	Aug-10		
Digital Power Analyzer	Em Test AG/Switzerland/ DPA 500	V0745103095	W2008012	Power：2000VA Vol-range：0-300V Freq_range：10-80Hz	Aug-09	Aug-10	Wwd20081185	Voltage distinguish:0.025% Power_freq distinguish:0.02Hz
Power Source	Em Test AG/Switzerland/ ACS 500	V0745103096	W2008013	Vol-range：0-300V Power_freq：10-80Hz				
Electrostatic Discharge Simulator	Em Test AG/Switzerland/DITO	V0745103094	W2008005	Contact discharge：500V-10KV Air diacharge：500V-16.5KV	Aug-09	Aug-10	Wwc20082400	7.5A current will be changed in V_m=1.5V
RF Generator	TESEQ GmbH/ NSG4070	25781	W2008008	Fraq-range：9K-1GHz RF voltage：-60 dBm-+10dBm	Aug-09	Aug-10	Wws20081890	Power_freq distinguish0.1Hz RFeletricity distinguish 0.1 B
CDN M-Type	TESEQ GmbH/ CDN M016	25112	W2008009	Voltage correct factor 9.5 dB	Aug-09	Aug-10	Wwc20082396	150K-80MHz：±1dB 80-230MHz:-2-+3dB
EM-Clamp	TESEQ GmbH/ KEMZ 801	25453	W2008010	Freq_range：0.15-1000 MHz	Aug-09	Aug-10	Wwc20082397	0.3-400 MHz：±4dB Other freq：±5dB
Attenuator 6dB	TESEQ GmbH/ ATN6050	25365			Aug-09	Aug-10	Wws20081597	

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
All Modules Generator	SCHAFFNER/6150	34579	W2008006	voltage:200V-4.4KV Pulse current：100A-2.2KA	Aug-09	Aug-10	Wwc20082401	voltage: ±10% Pulse current：±10%
Capacitive Coupling Clamp	SCHAFFNER/ CDN 8014	25311			Aug-09	Aug-10	Wwc20082398	-
Signal and Data Line Coupling Network	SCHAFFNER/ CDN 117	25627	W2008011	1.2/50μS	Aug-09	Aug-10	Wwc20082399	-
AC Power Supply	TONGYUN/ DTDGC-4				Aug-09	Aug-10	Wws20080944	-
Exposure Level Tester ELT-400	Narda Safety TEST Solutions/2304/03	M-0155	w2008022	Test freq range：1—400kHz	Aug-09	Aug-10	Wwd20081191	Test uncertainly：1—120kHz:±1.83%, 120 kHz-400 kHz: ±4.06%
Magnetic Field Probe 100cm^2	Narda Safety TEST Solutions/2300/90.10	M-1070	w2008021	Test freq range：1—400kHz				Test uncertainly：1Hz-10Hz: ±16.2%, 10Hz - 120kHz:±2.2%, 120 kHz-400 kHz: ±4.7%
Active Loop Antenna Charger 10kHz-30MHz	Beijing Dazhi / ZN30900A	-	-	10kHz-30MHz	Aug-09	Aug-10		±1dB
Other								
PC	acer	AG1720	/	/	/	/		
Notebook	IBM	X3	/	/	/	/		

4 Emissions Test Results

4.1 Conducted Emission Data

Test Requirement:	FCC Part15.107 Class B
Test Method:	ANSI C63.4:2009
Frequency Range:	150kHz to 30MHz
Class:	Class B
Limit:	66-56 dBμV between 0.15MHz & 0.5MHz
	56 dBμV between 0.5MHz & 5MHz
	60 dBμV between 5MHz & 30MHz
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)
	Quasi-Peak & Average if maximised peak within 6dB of Average Limit

4.1.1 E.U.T. Operation

Operating Environment:

Temperature:	25.5 °C
Humidity:	51 % RH
Atmospheric Pressure:	1012 mbar

EUT Operation :

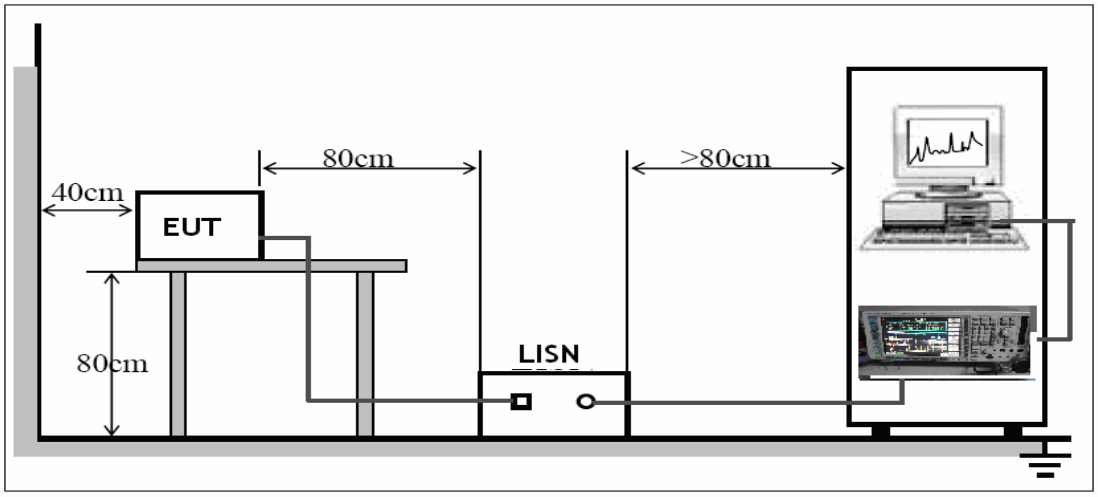
The EUT was tested according to ANSI C63.4:2009. The frequency spectrum from 150kHz to 30MHz was investigated. The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

4.1.2 EUT Setup

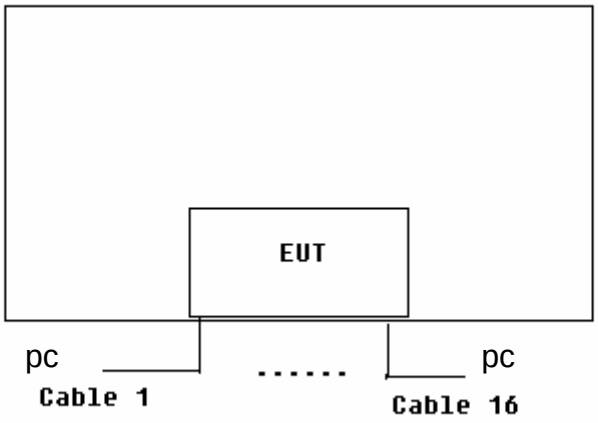
The conducted emission tests were performed using the setup accordance with the ANSI C63.4:2009, The specification used in this report was the FCC Part15.107 Class B limits.

The EUT was placed on the test table in normal working mode.

Note 1: Test setup is shown as follow



Note 2: The EUT test setup block diagram is shown as follow:

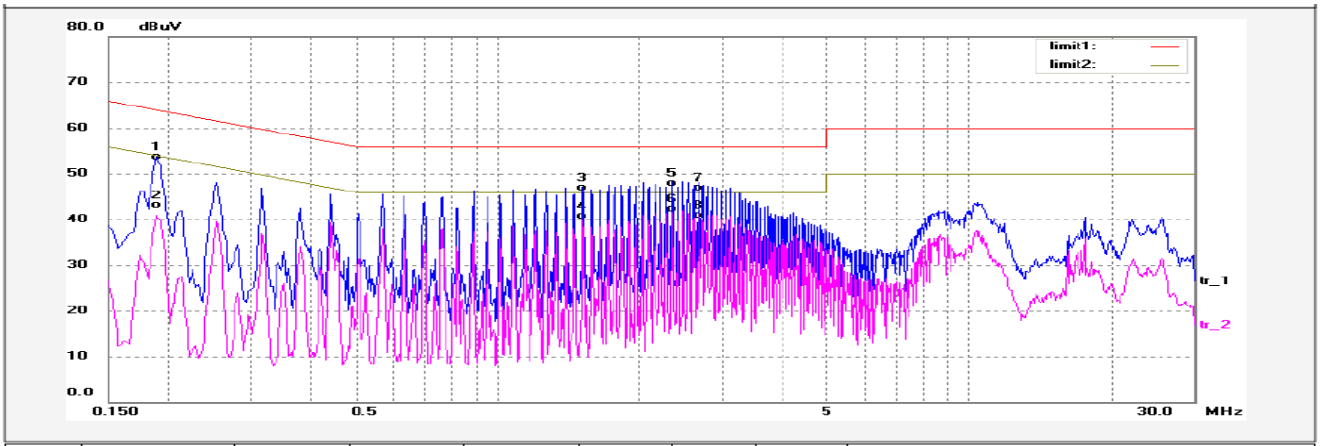


Remark: Cable 1 to Cable 16 are the unshield VGA cables and the length is 2 meter with core.

4.1.3 Conducted Emission Test Data

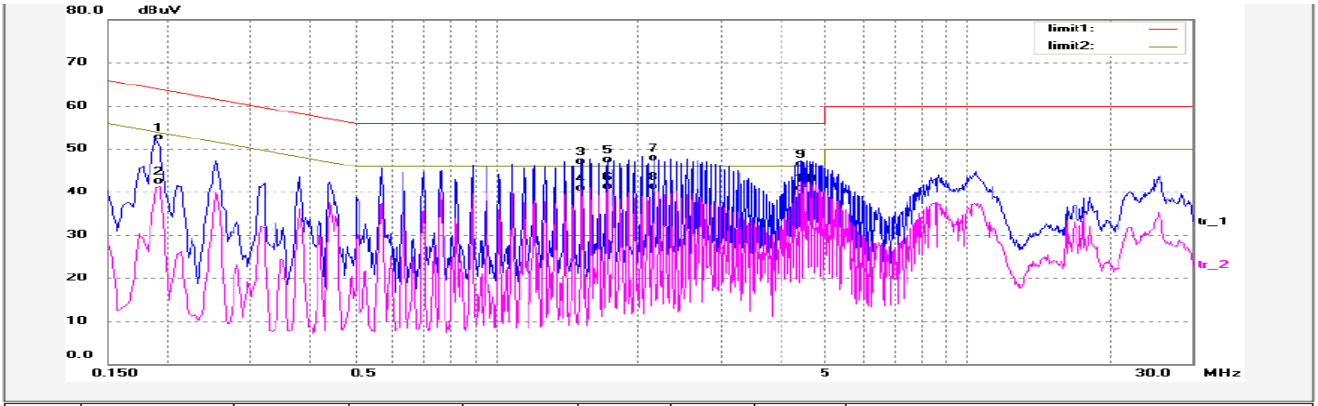
Note: The model AS-3116UDL, AS-3116RDL, AS-7116UDL, AS-7116RDL, AS-9116UDL and AS-9116RDL were the test samples. The pre_test found that the AS-9116RDL was the worst case model ,which worked in the screen resolution was 2048*1536 60Hz , displayed full screen a pattern of scolling H's. the EUT was connected to 2 PC,the other ports add the loading can be directly on the HD15 connector and the 1/2/3 feet connect 75-ohm resistor. And the software is LCD liquid crystal display driver control platform, the version is 2621V2.0. For more details of the test data ,please refer to the following.

Live Line:



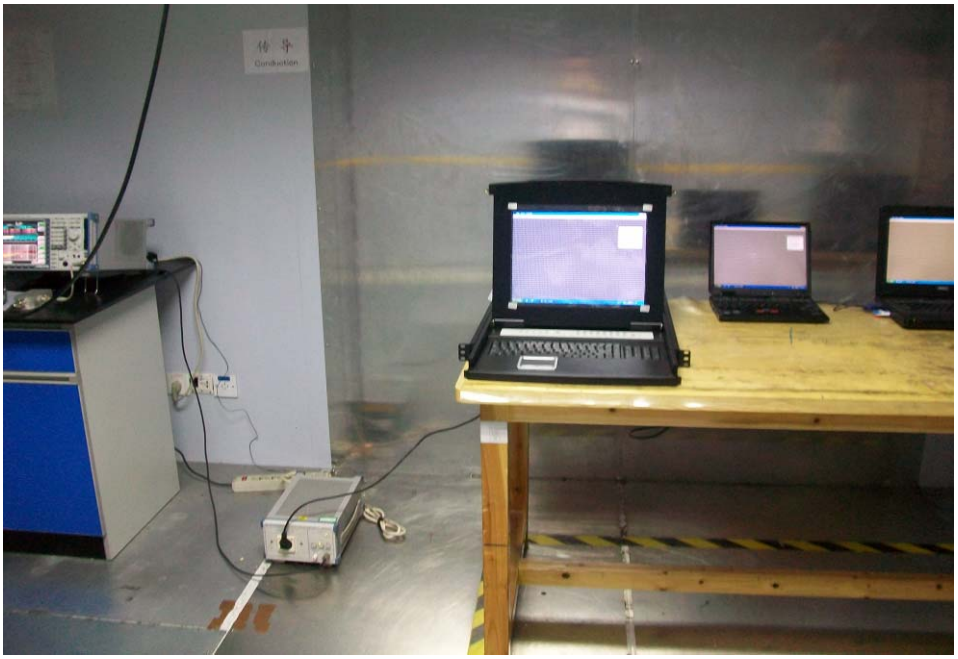
No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1900	42.50	10.35	52.85	64.03	-11.18	QP	
2	0.1900	31.98	10.35	42.33	54.03	-11.70	AVG	
3	1.5260	35.68	10.37	46.05	56.00	-9.95	QP	
4	1.5260	29.60	10.37	39.97	46.00	-6.03	AVG	
5	2.3540	36.65	10.37	47.02	56.00	-8.98	QP	
6	2.3540	31.10	10.37	41.47	46.00	-4.53	AVG	
7	2.6740	35.65	10.38	46.03	56.00	-9.97	QP	
8	2.6740	29.64	10.38	40.02	46.00	-5.98	AVG	

Neutral Line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1900	41.49	10.35	51.84	64.03	-12.19	QP	
2	0.1900	31.45	10.35	41.80	54.03	-12.23	AVG	
3	1.5260	35.93	10.37	46.30	56.00	-9.70	QP	
4	1.5260	29.73	10.37	40.10	46.00	-5.90	AVG	
5	1.7180	36.25	10.37	46.62	56.00	-9.38	QP	
6	1.7180	30.17	10.37	40.54	46.00	-5.46	AVG	
7	2.1619	36.66	10.37	47.03	56.00	-8.97	QP	
8	2.1619	30.08	10.37	40.45	46.00	-5.55	AVG	
9	4.4540	35.34	10.40	45.74	56.00	-10.26	QP	
10	4.4540	29.67	10.40	40.07	46.00	-5.93	AVG	

4.1.4 Photographs – Conducted Emission Test Setup



4.2 Radiation Emission Data

Test Requirement:	FCC Part15 B
Test Method:	Based on ANSI C63.4:2009
Frequency Range:	30MHz to 2GHz
Measurement Distance:	3m
Class:	Class B
Limit:	40.0 dBμV/m between 30MHz & 88MHz
	43.5 dBμV/m between 88MHz & 216MHz
	46.0 dBμV/m between 216MHz & 960MHz
	54.0 dBμV/m zbove 960MHz
Detector:	Peak for pre-scan (120kHz resolution bandwidth)
	Quasi-Peak if maximised peak within 6dB of limit

4.2.1 Measurement Uncertainty

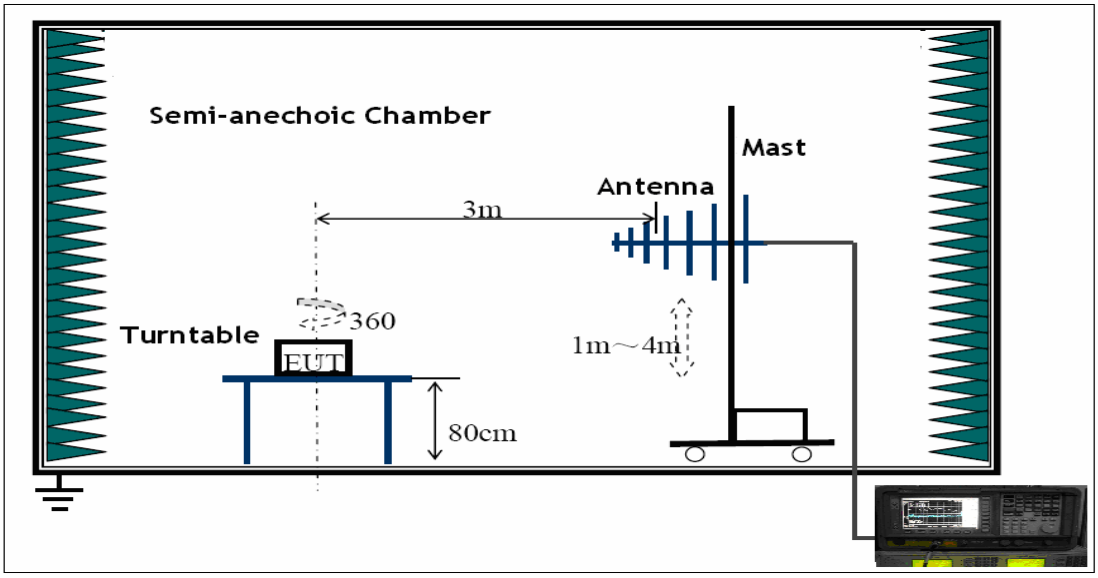
All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on ANSI C63.4:2009, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Waltek EMC lab is ±5.03 dB.

4.2.2 EUT Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4:2009, The specification used in this report was the FCC Part15 B 15.109 limits.

Note 1: Test setup was shown as follow:



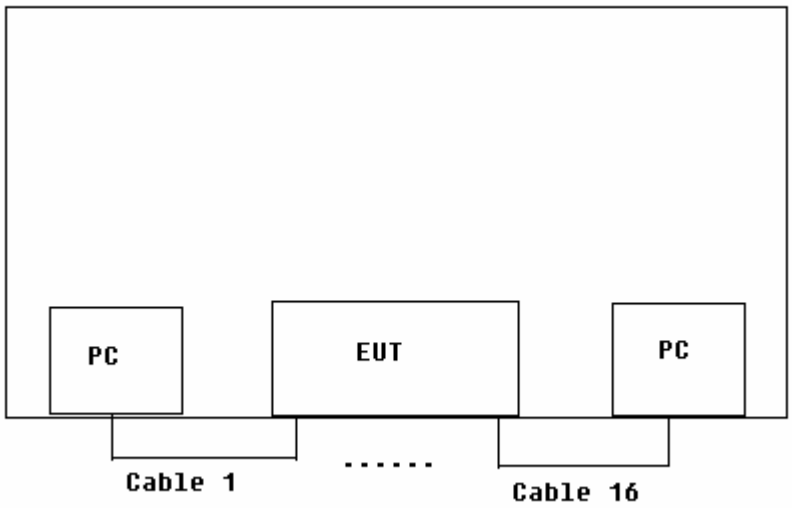
4.2.3 Test Procedure

The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.

Note: The model AS-3116UDL, AS-3116RDL, AS-7116UDL, AS-7116RDL, AS-9116UDL and AS-9116RDL were the test samples. The pre_test found that the AS-9116RDL was the worst case model ,which worked in the screen resolution was 2048*1536 60Hz , displayed

full screen a pattern of scolling H's. the EUT was connected to 2 PC,the other ports add the loading can be directly on the HD15 connector and the 1/2/3 feet connect 75-ohm resistor. And the software is LCD liquid crystal display driver control platform, the version is 2621V2.0. For more details of the test data ,please refer to the following.

For the actual test configuration, please refer to the related Item –EUT Test Photos.
Note 2: The EUT test setup block diagram is shown as follow:



Remark: Cable 1 to Cable 16 are the unshield VGA cables and the length is 2 meter with core.

4.2.4 Spectrum Analyzer Setup

According to FCC Part15 B Rules, the system was tested 30 to 2000MHz.
Below 1G

Start Frequency..... 30 MHz
Stop Frequency..... 1000 MHz
Sweep Speed Auto
IF Bandwidth ..... 120 kHz
Video Bandwidth..... 100KHz
Quasi-Peak Adapter Bandwidth ..... 120 kHz
Quasi-Peak Adapter Mode ..... Normal
Resolution Bandwidth 100KHz

Above 1G

Start Frequency..... 1000 MHz
Stop Frequency..... 2000MHz
Sweep Speed Auto
IF Bandwidth ..... 120 kHz
Video Bandwidth..... 1MHz
Resolution Bandwidth 1MHz

4.2.5 ThCorrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

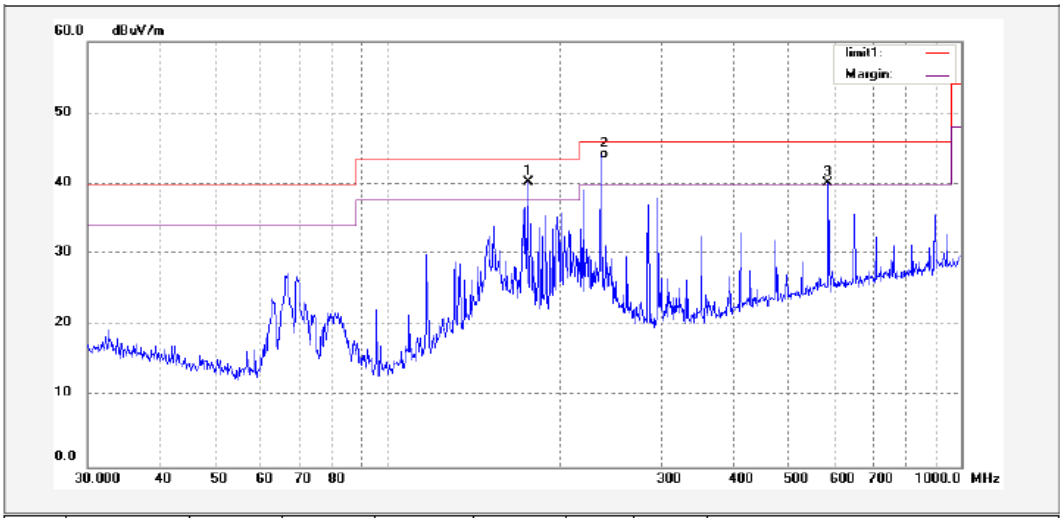
The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:
Margin = Corr. Ampl. – Class B Limit

4.2.6 Summary of Test Results

According to the data in this section, the EUT complied with the FCC Part15 B standards.

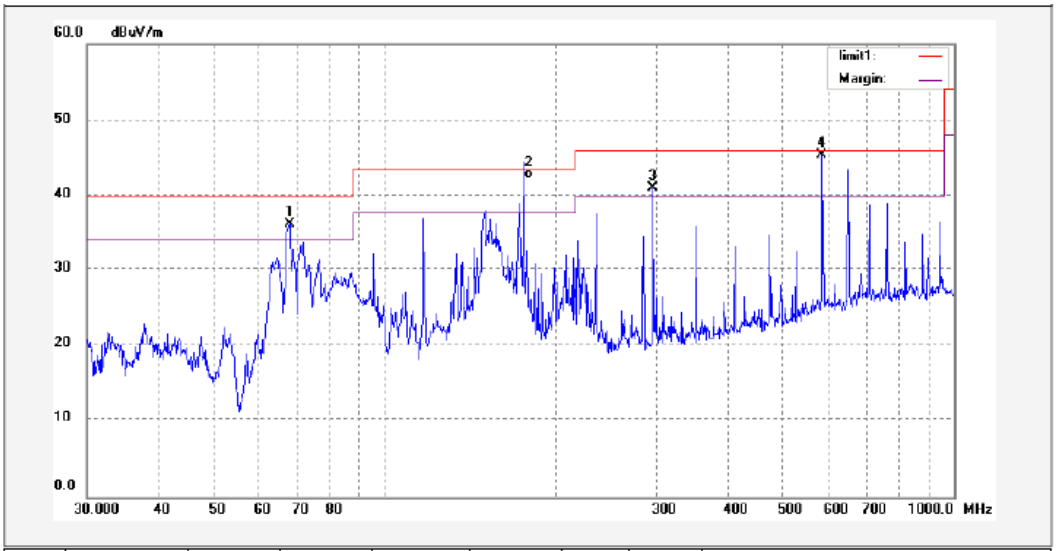
Below 1G

Test Antenna Polarization: **Horzontal**



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	175.6566	28.25	12.08	40.33	43.50	-3.17	peak	
2	238.4000	26.80	16.84	43.64	46.00	-3.36	peak	
3	586.2172	16.06	24.10	40.16	46.00	-5.84	peak	

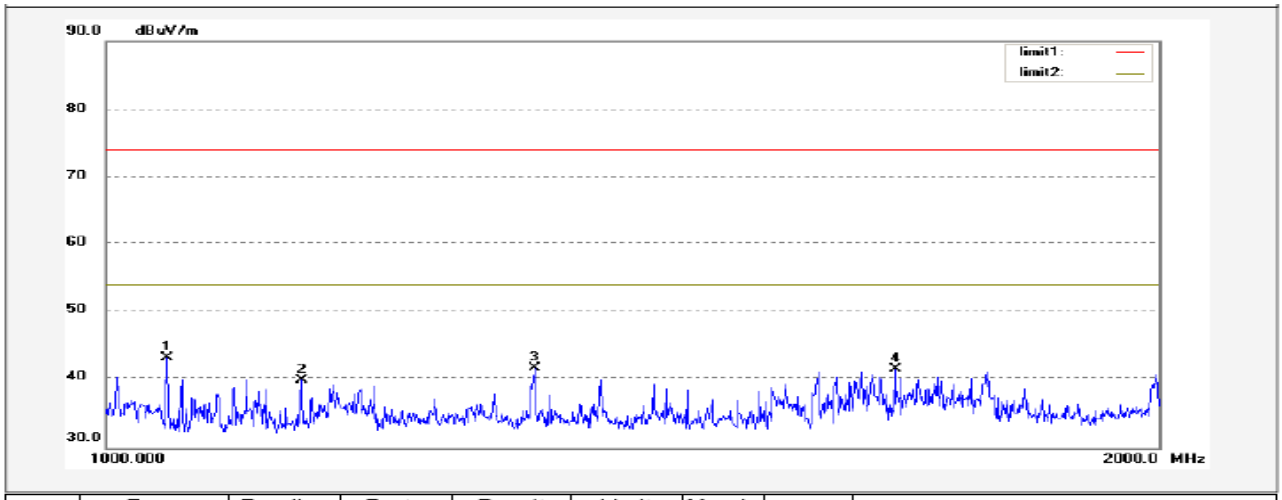
Test Antenna Polarization: **Vertical**



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	68.0241	25.67	10.38	36.05	40.00	-3.95	peak	
2	178.8000	19.13	12.11	41.24	43.50	-3.86	peak	
3	296.5023	22.73	18.34	41.07	46.00	-4.93	peak	
4	586.2172	20.27	24.10	44.37	46.00	-4.03	peak	

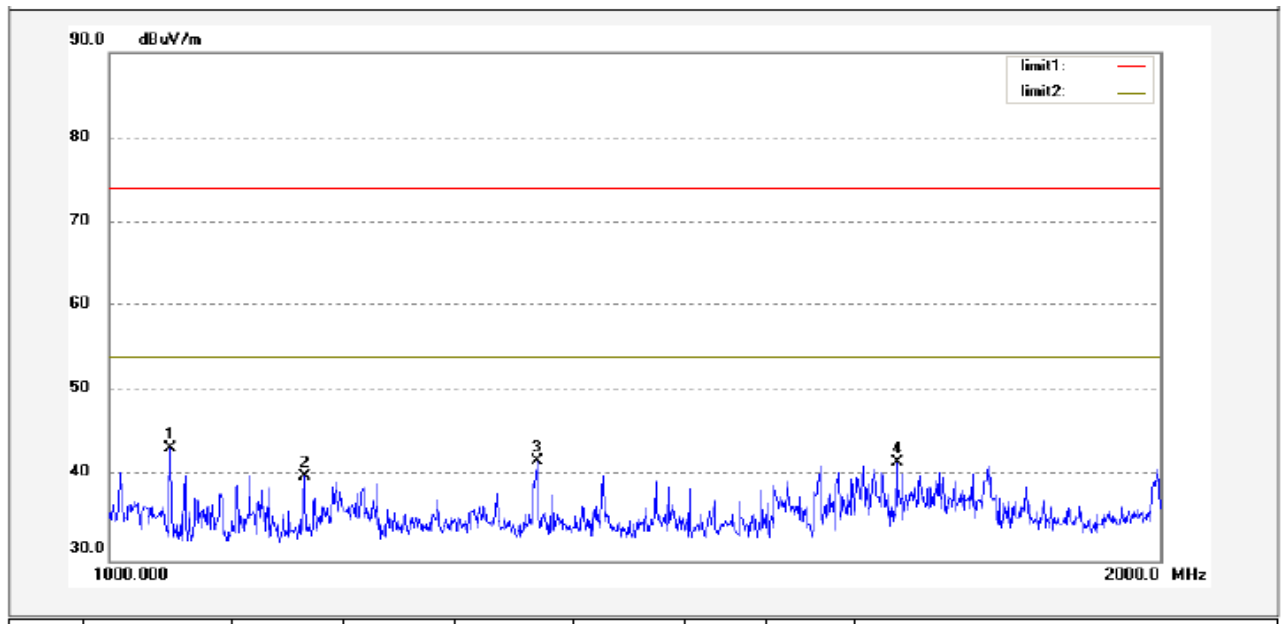
Above 1 G

Test Antenna Polarization: **Horzontal**



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1041.105	49.99	-6.73	43.26	74.00	-30.74	peak	
2	1137.109	46.34	-6.33	40.01	74.00	-33.99	peak	
3	1325.755	46.79	-5.00	41.79	74.00	-32.21	peak	
4	1681.209	46.98	-5.39	41.59	74.00	-32.41	peak	

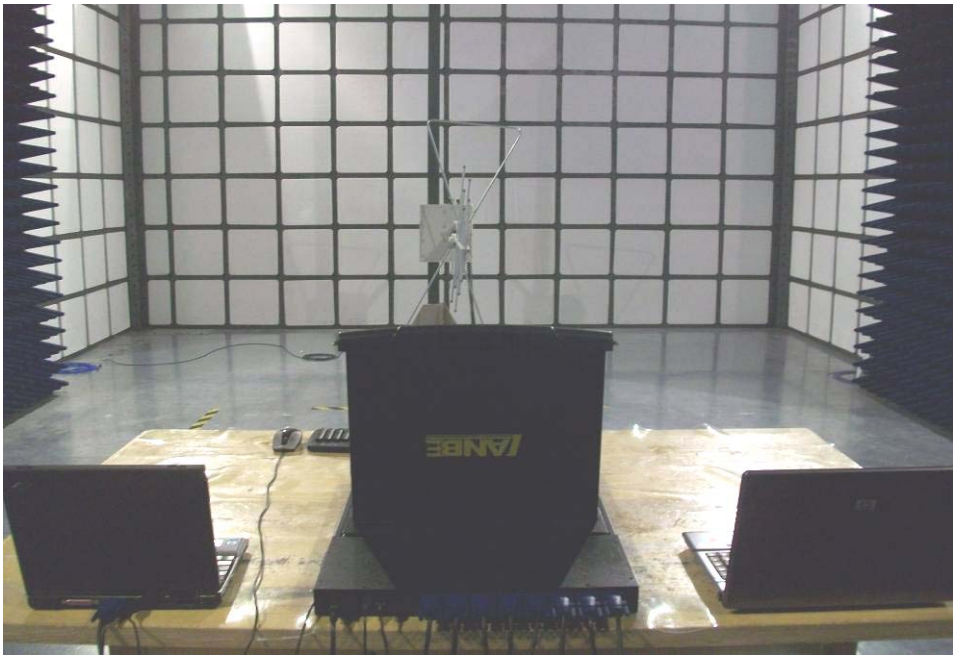
Test Antenna Polarization: **Vertical**



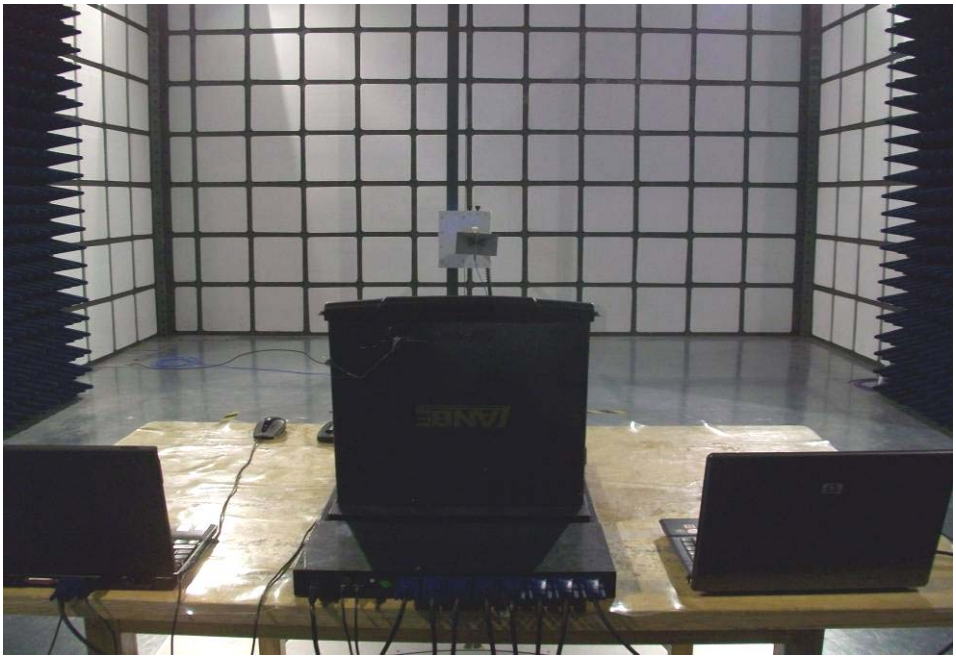
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1041.105	49.99	-6.73	43.26	74.00	-30.74	peak	
2	1137.109	46.34	-6.33	40.01	74.00	-33.99	peak	
3	1325.755	46.79	-5.00	41.79	74.00	-32.21	peak	
4	1681.209	46.98	-5.39	41.59	74.00	-32.41	peak	

4.2.7 Photographs – Radiation Emission Test Setup

Below 1G



Above 1G



5 Photographs - Constructional Details

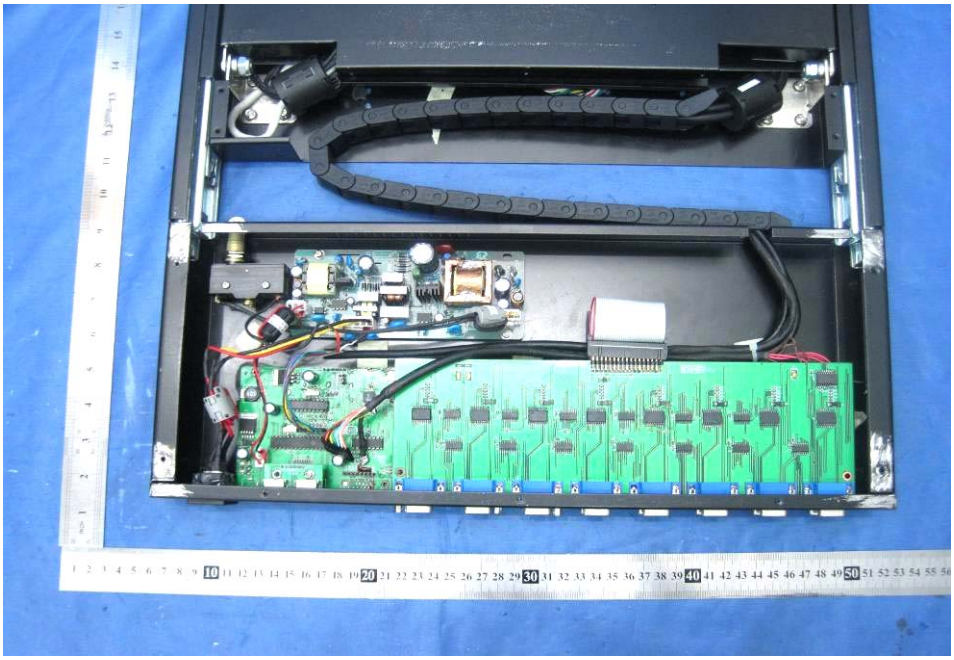
5.1 EUT - Top View(AS-9116RDL)

5.2 EUT – Bottom View(AS-9116RDL)

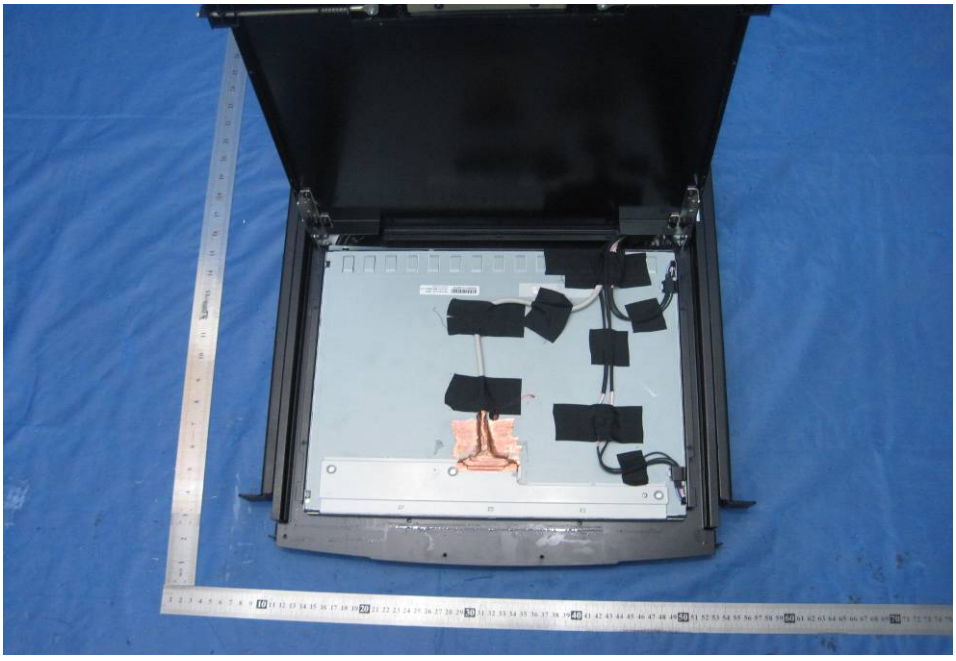
5.3 EUT - Front View(AS-9116RDL)

5.4 EUT - Back View(AS-9116RDL)

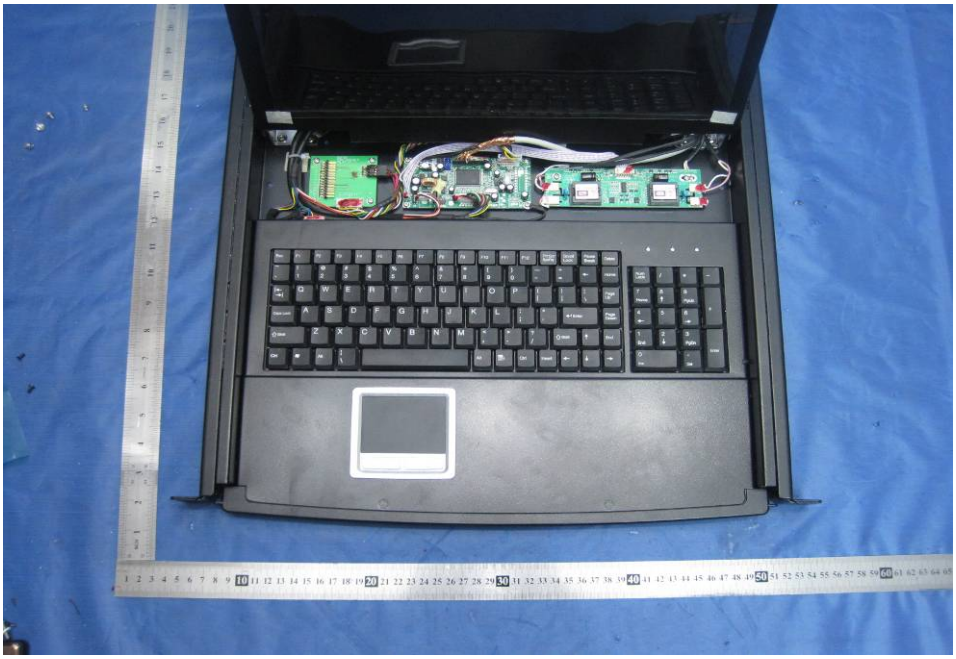
5.5 EUT- Open View(AS-9116RDL)1



5.6 EUT- Open View(AS-9116RDL)2

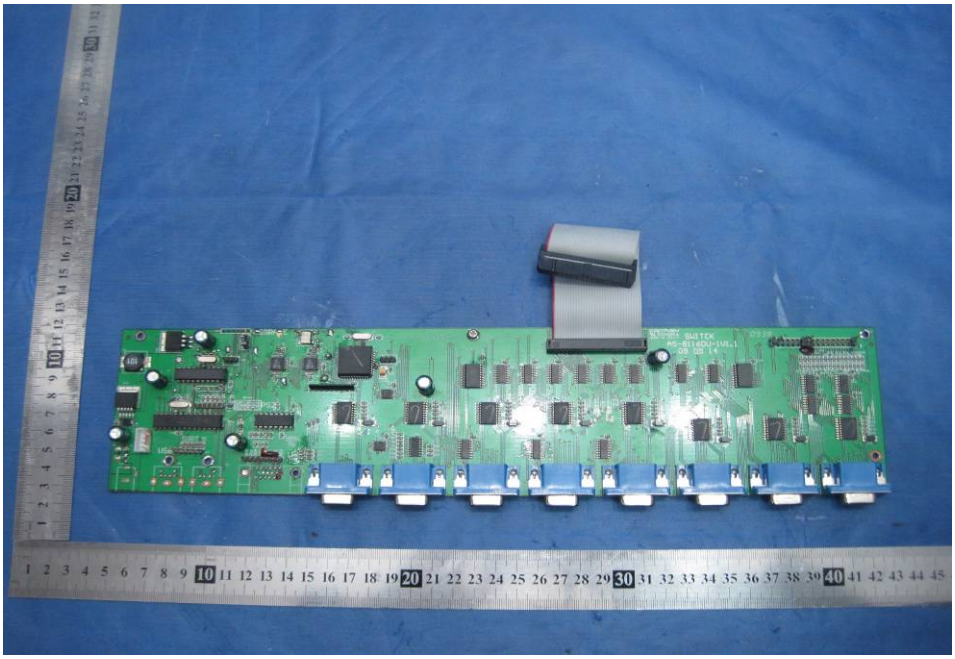


5.7 EUT - Open View(AS-9116RDL)3



5.8 EUT - Open View(AS-9116RDL)4

5.9 PCB 1 -Front View(AS-9116RDL)



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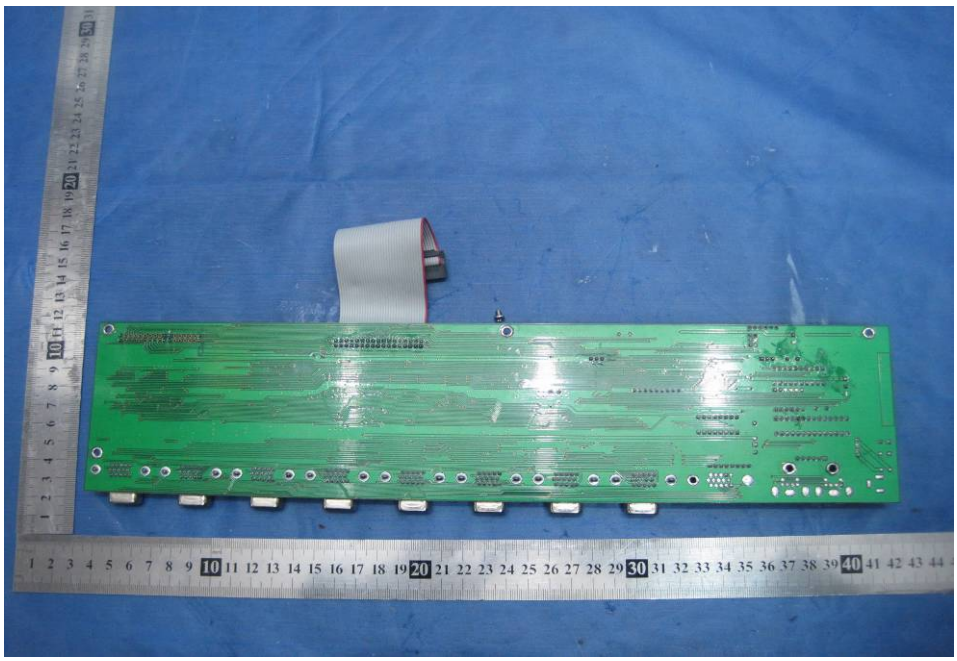
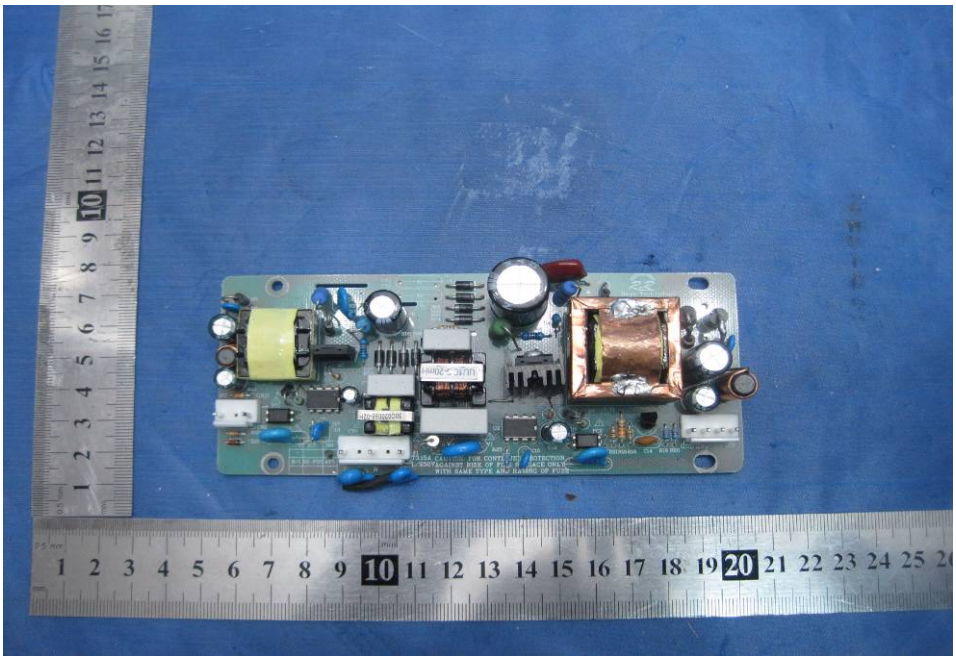
5.10 PCB 1 - Back View(AS-9116RDL)

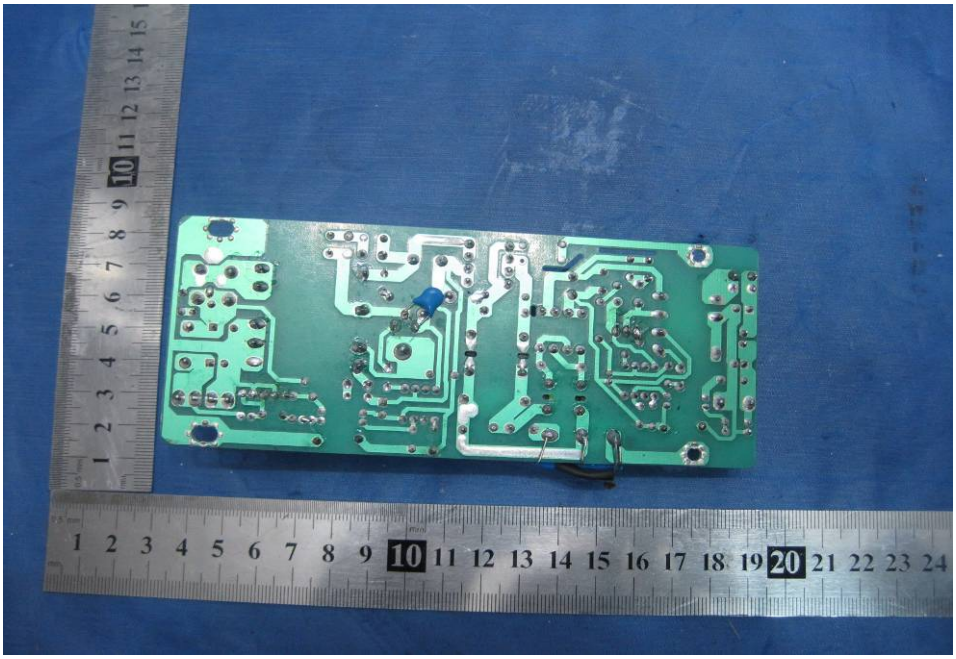


Note: pcb1 installed in the top of the pcb3.

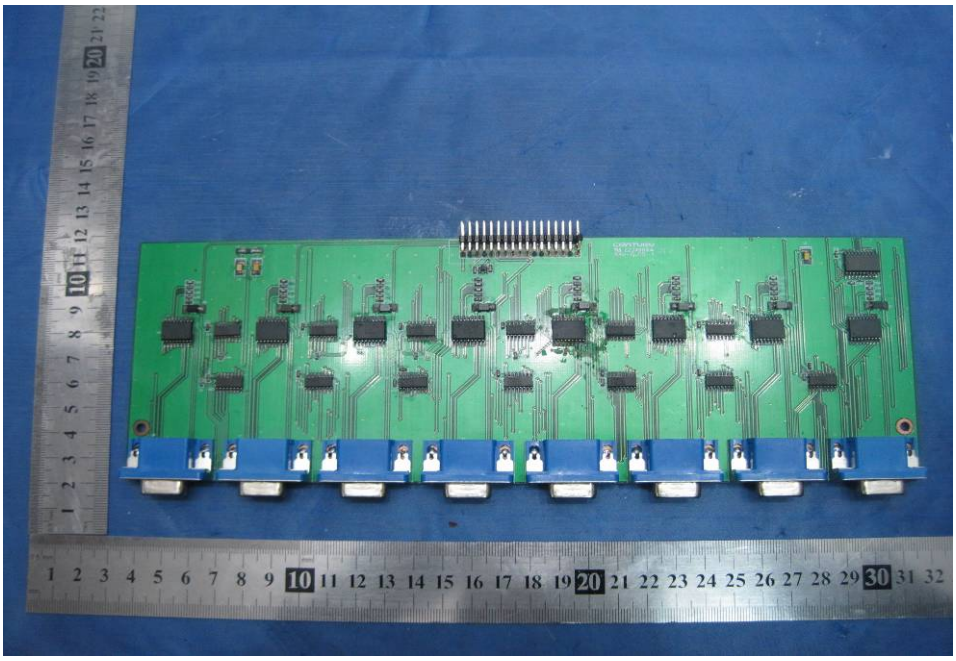
5.11 PCB 2 -Front View(AS-9116RDL)



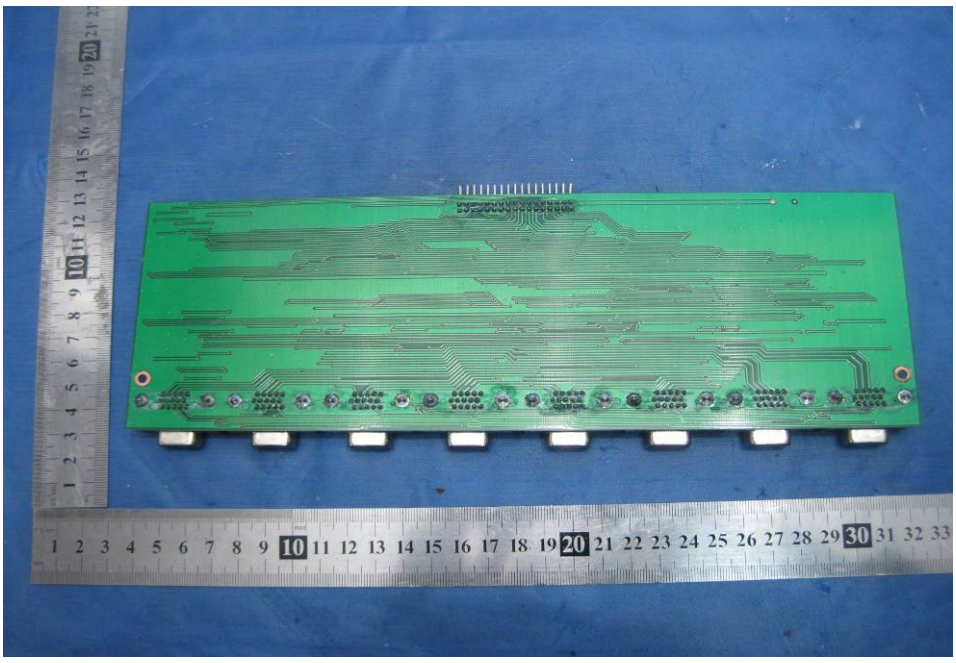
5.12 PCB 2 –Back View(AS-9116RDL)



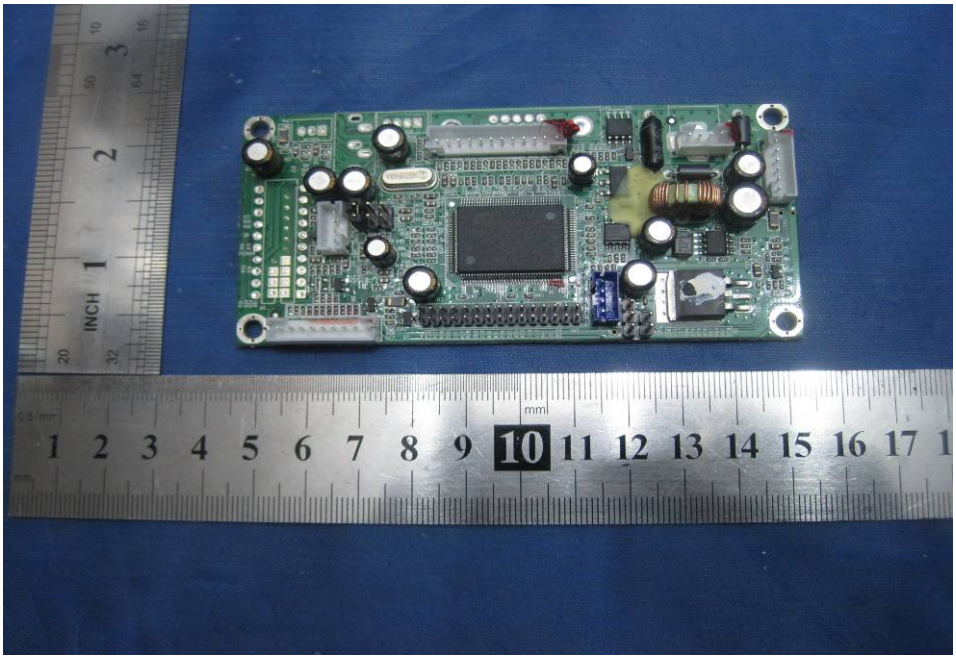
5.13 PCB 3 -Front View(AS-9116RDL)



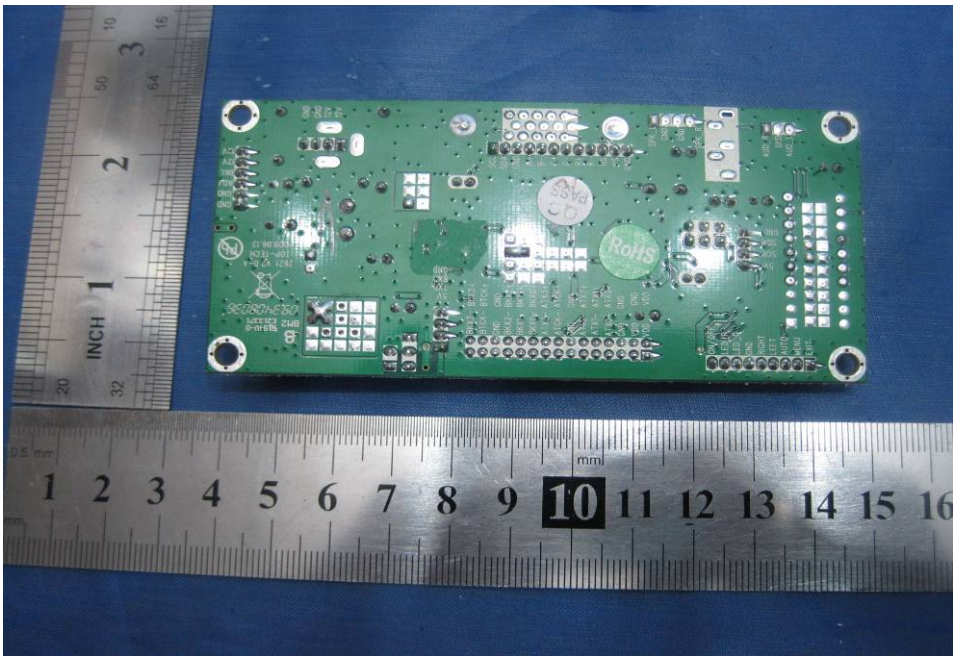
5.14 PCB 3 -Back View(AS-9116RDL)



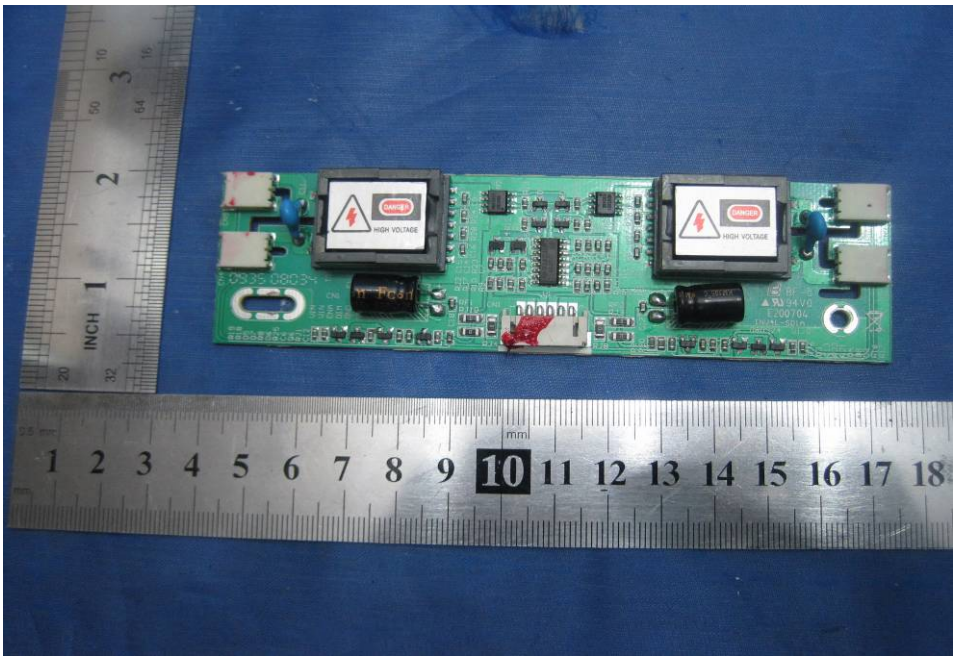
5.15 PCB 4 -Front View(AS-9116RDL)



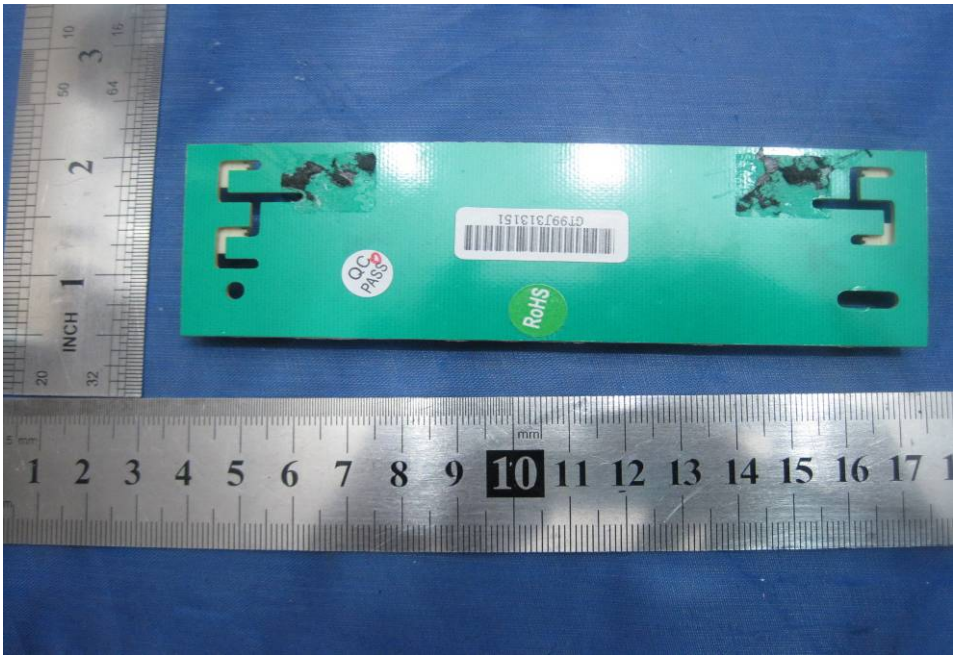
5.16 PCB 4 -Back View(AS-9116RDL)



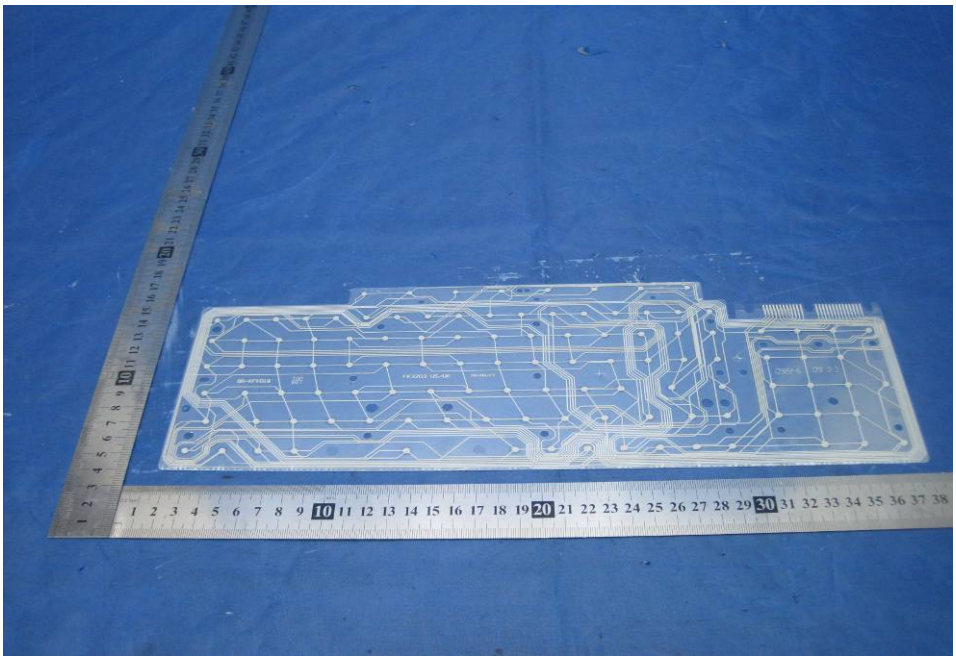
5.17 PCB 5 -Front View(AS-9116RDL)



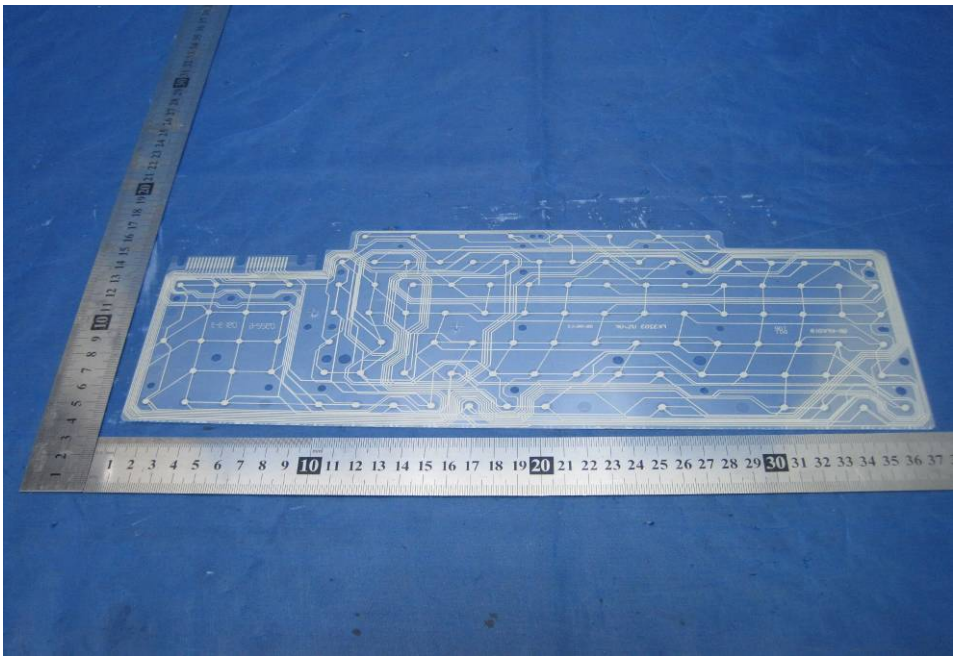
5.18 PCB -Back View(AS-9116RDL)



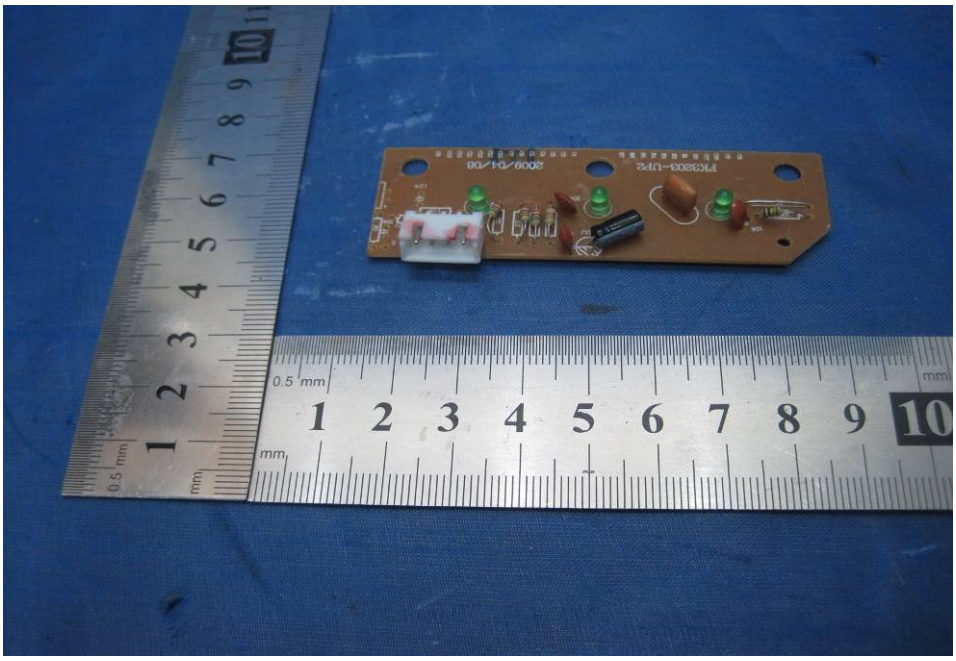
5.19 PCB 6 -Front View(AS-9116RDL)



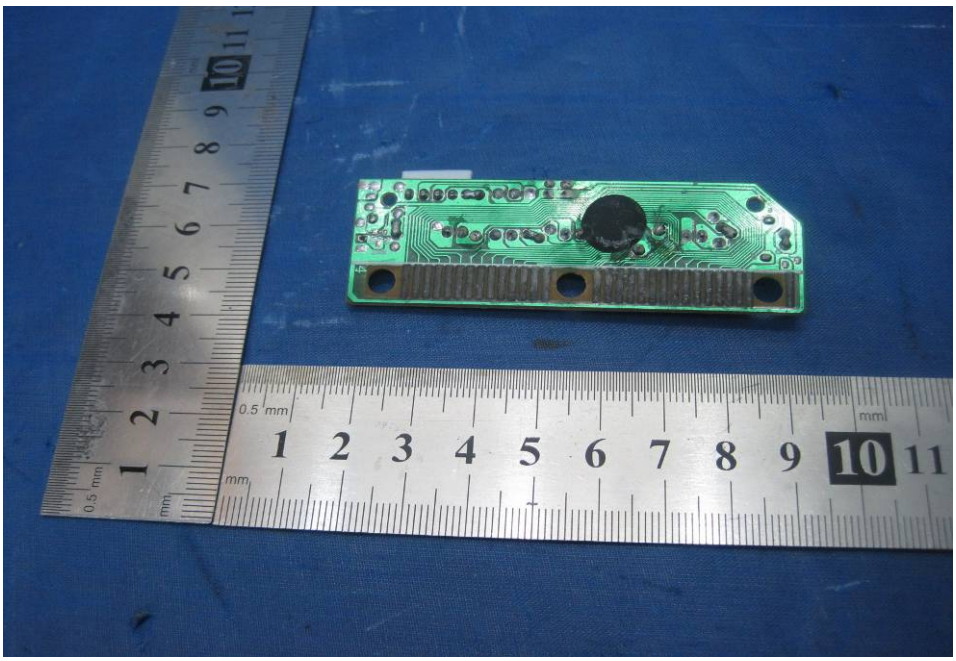
5.20 PCB 6 -Back View(AS-9116RDL)



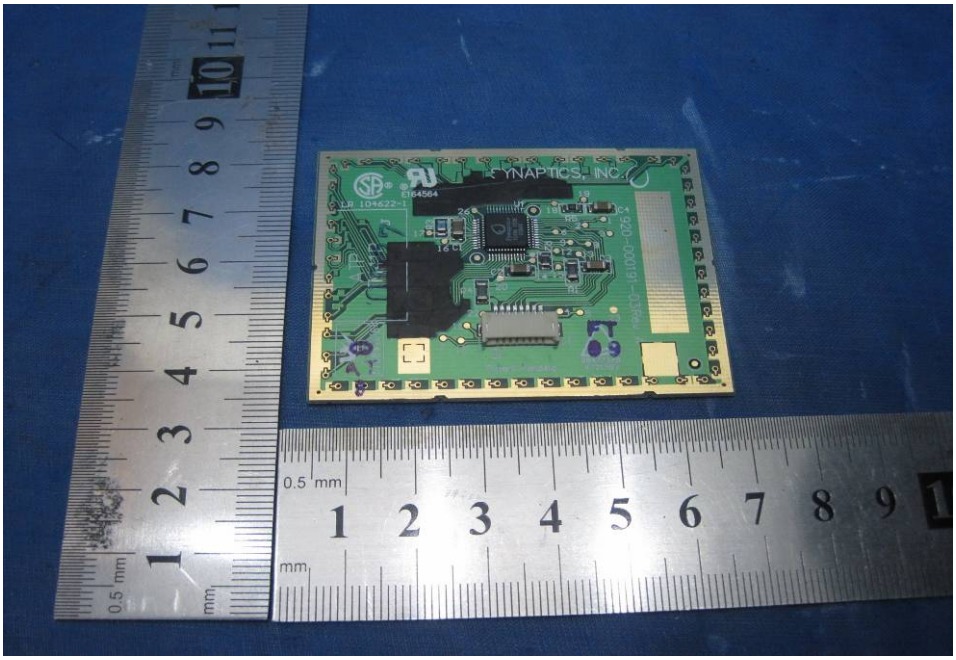
5.21 PCB 7 -Front View(AS-9116RDL)



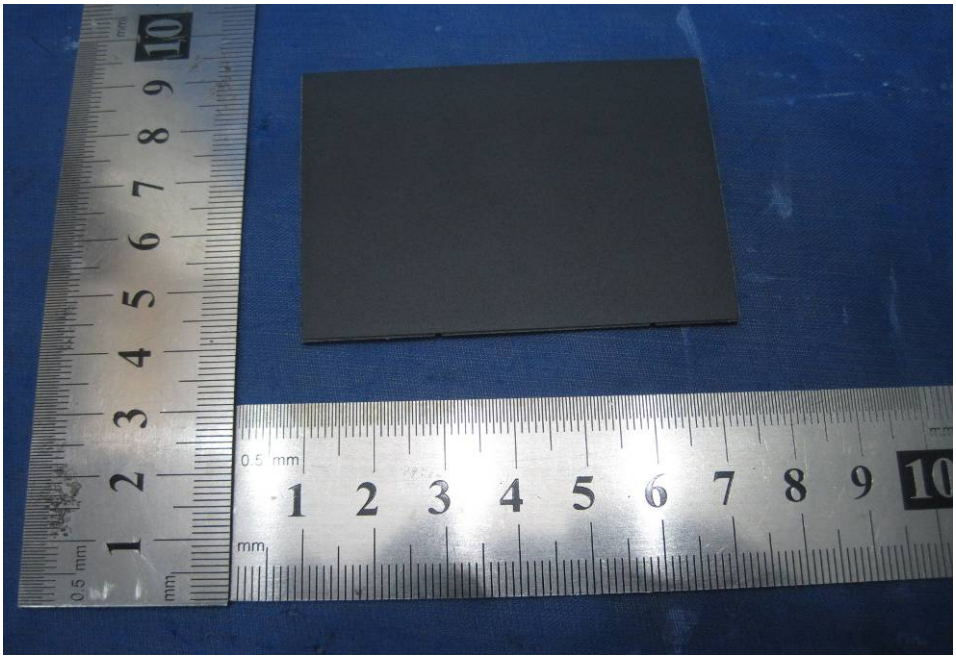
5.22 PCB 7 -Back View(AS-9116RDL)



5.23 PCB 8 -Front View(AS-9116RDL)



5.24 PCB 8 -Back View(AS-9116RDL)



FCC ID Label

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1)this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The Label must not be a stick-on paper. The Label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Proposed Label Location on EUT

EUT Top View/ proposed FCC Label Location