TEST REPORT

Report number: Z071C-10250

Issue Date: October 1, 2010

The device, as described herewith, was tested pursuant to applicable test procedure indicated below and complies with the requirements of;

FCC Part15 Subpart C / IC RSS-210

The test results are traceable to the international or national standards.

Applicant	:	Wacom Co., Ltd.
Equipment under test (EUT)	:	LCD SIGNATURE TABLET
FCC ID	:	HV4STU520A
IC Certification Number	:	6888A-STU520A
Model Number	:	STU-520A
Serial Number	:	0IZQ00072
EUT Condition	:	Pre-production

Test procedure	:	ANSI C63.4-2003
Date of test	:	September 21, 22, 28, 2010
Test place	:	3m Semi-anechoic chamber, 10m Semi-anechoic chamber
Test results	:	Complied

Zacta Technology Corporation certifies that no party to the application is subject to a denial of federal benefits that include FCC benefits, pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988,21U.S.C. 853(a).

The results in this report are applicable only to the samples tested.
This report shall not be re-produced except in full without the written approval of ZACTA Technology Corporation.

This test report must not be used by client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Tested by: Hiroaki Suzuki / Yoshihiro Hanyu

Authorized by: Jun Shimanuki
General Manager of Technical Division

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NVLAP LAB CODE 200306-0

Table of contents

1. Summary of Test

1.1 Purpose of test

It is the original test in order to verify conformance to standards listed in section 1.2.

1.2 Standards

CFR47 FCC Part 15 Subpart C, RSS-210

1.3 Summary of test results

Test Items Section	Test Items Transmit mode [Tx]:	Condition	Result
RSS-Gen 4.6.1	99% Occupied Bandwidth	Radiated	**Pass**
15.209 RSS-210 2.2 RSS-Gen 4.9, 4.10, 4.11	Radiated Emissions	Radiated	**Pass**
15.207 RSS-Gen 7.2.2	AC Power Line Conducted Emissions 150kHz – 30MHz	Conducted	**Pass**

1.4 Deviation from the standard

None

1.5 Modification to the EUT by laboratory

None

2. Equipment description

2.1 General Description of equipment

The EUT is a LCD SIGNATURE TABLET, which is transceiver.

2.2 EUT information

Applicant	:	Wacom Co., Ltd. 2-510-1, Toyonodai, Kazo-shi, Saitama 349-1148, Japan Phone: + 81-480-78-1257 Fax: + 81-480-78-1404
Equipment under test (EUT)	:	LCD SIGNATURE TABLET
Trade name	:	WACOM
Model number	:	STU-520A
Serial number	:	0IZQ00072
EUT condition	:	Pre-production
Max. frequency	:	56MHz
Power ratings	:	DC 5V (USB)
Size	:	(W) 160 x (D) 177.3 x (H) 15.5 mm
Environment	:	Indoor use
Thermal limitation	:	5ºC to 35ºC
Operating mode	:	Normal Operation
Variation of the family model(s)	:	N/A

[RF Specification]

Frequency Range	:	562.5kHz
Modulation method	:	OOK (On-Off-Keying)
RF emission type designator	:	110KK1D

2.3 Operating mode

【Normal Operation】
i) Sign Pad Test 17 set up

ii) Image Transmitter set up

iii) Start test mode

3. Configuration information

3.1 EUT and Peripheral(s) used

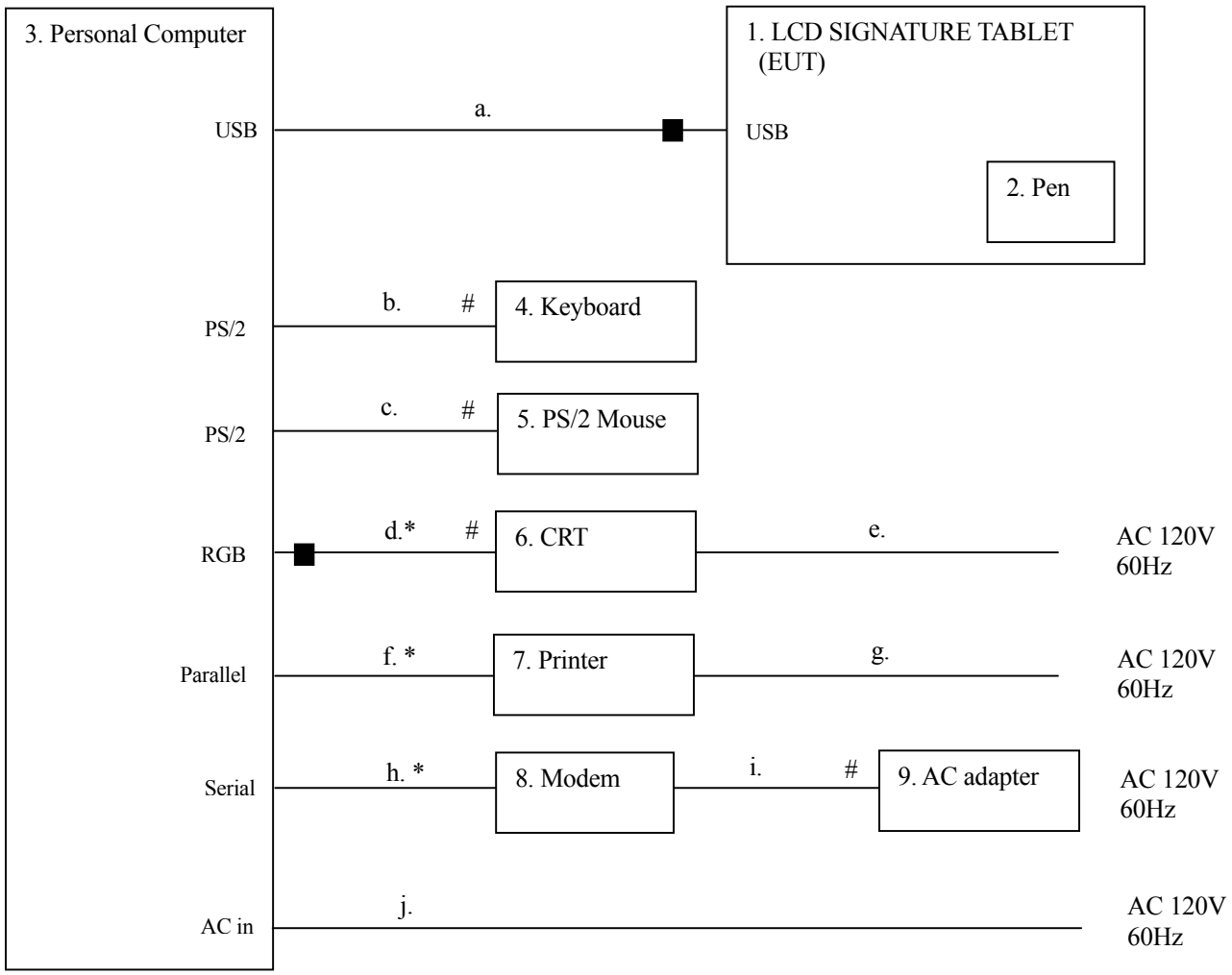
No.	Equipment	Company	Model No.	Serial No.	FCC ID/DoC	Comment
1	LCD SIGNATURE TABLET	Wacom	STU-520A	0IZQ00072	FCC ID: HV4STU520A IC: 6888A-STU520A	EUT
2	Pen	Wacom	UP-610-88A-1	N/A	-	Accessory
3	Personal Computer	DELL	DCM	1HZY31X	DoC	Below 30MHz
		HP	Compaq nx6320	CNU7071D2W	DoC	Above 30MHz
4	Keyboard	DELL	SK-8110	CN-07N247-38 844-293-0337	DoC	-
5	PS/2 Mouse	DELL	M-SAW34	LZB23459449	DZL211029	-
6	CRT	DELL	E771p	CN-0540NK-47803-1BC-CRDF	A3KM076	-
7	Printer	HP	C4555A	SG69A1425N	B94C4555X	-
8	Modem	US. Robotics	Sport_Ster33.6 Kbps	000839032BK 6YV4J	DoC	-
9	AC adapter for Modem	US. Robotics	N/A	N/A	-	-
10	USB Mouse	Logitech	M-BT85	LNA43400219	DoC	-
11	AC adapter for PC	HP	PA-1650-02HC	7118525901	-	-

3.2 Cable(s) information

No.	Cable	Length [m]	Shield	Connector	Comment
a	USB cable	1.5	Yes	Metal	Accessory
b	Keyboard cable	2.1	No	Metal	-
c	Mouse cable	1.8	No	Metal	-
d	RGB cable	1.8	Yes	Metal	-
e	AC cable	1.9	No	Plastic	-
f	Parallel cable	2.1	Yes	Metal	-
g	AC cable	2.6	No	Plastic	-
h	Serial cable	3.0	Yes	Metal	-
i	DC cable	1.8	No	Plastic	-
j	AC cable	1.6	No	Plastic	-
k	Mouse cable	1.9	Yes	Metal	-
l	DC cable for PC AC adapter	1.8	No	Plastic	-
m	AC cable for PC AC adapter	1.7	No	Plastic	-

3.3 System configuration

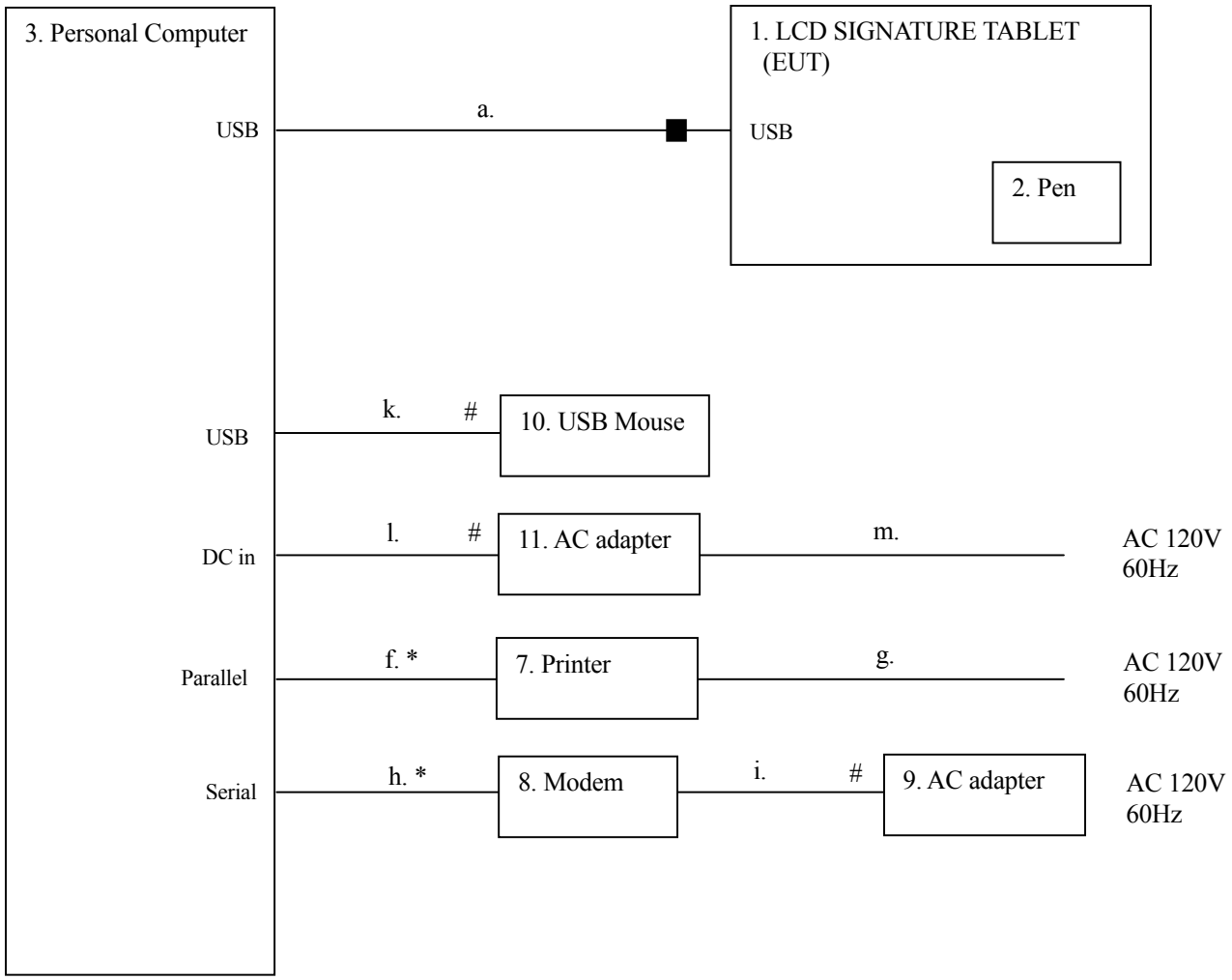
Below 30MHz



: Un-detachable cable
■ : Ferrite core
* : Bundled excess cable

Note1: Numbers assigned to equipment or cables on this diagram are corresponded to the list in "3.1 EUT and Peripheral(s) used" and "3.2 Cable(s) information".
Note2: USB cable(No.a) with one ferrite core is accessory for EUT(No.1).
Note3: RGB cable(No.d) with one ferrite core is accessory for CRT(No.6).

Above 30MHz



: Un-detachable cable
■ : Ferrite core
* : Bundled excess cable

Note1: Numbers assigned to equipment or cables on this diagram are corresponded to the list in "3.1 EUT and Peripheral(s) used" and "3.2 Cable(s) information".
Note2: USB cable(No.a) with one ferrite core is accessory for EUT(No.1).

4. Test Type and Results

4.1 99% Occupied Bandwidth

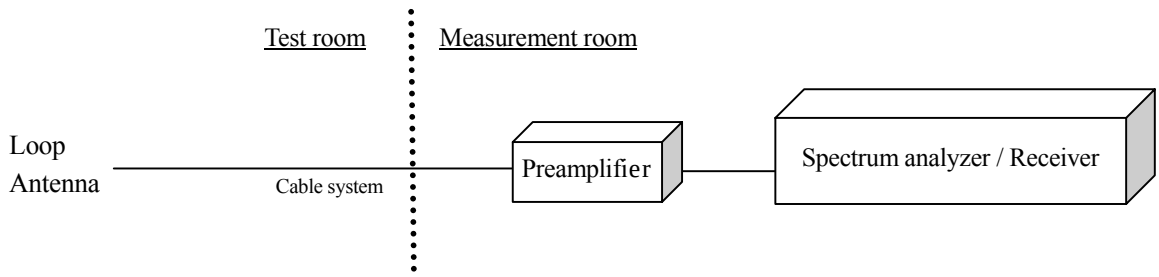
4.1.1 Test Procedure [IC RSS-210 A8.1(a)]

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99% bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.
The spectrum analyzer is set to:
- RBW=3kHz, VBW=10kHz, Span=300kHz, Sweep=auto

The test mode of EUT is as follows.
- Normal Operation

4.1.2 Measurement Setup

Test configuration for 99% Occupied Bandwidth



4.1.3 Limit of Bandwidth at 99% Occupied Bandwidth

None

4.1.4 Measurement Result

[Normal Operation]

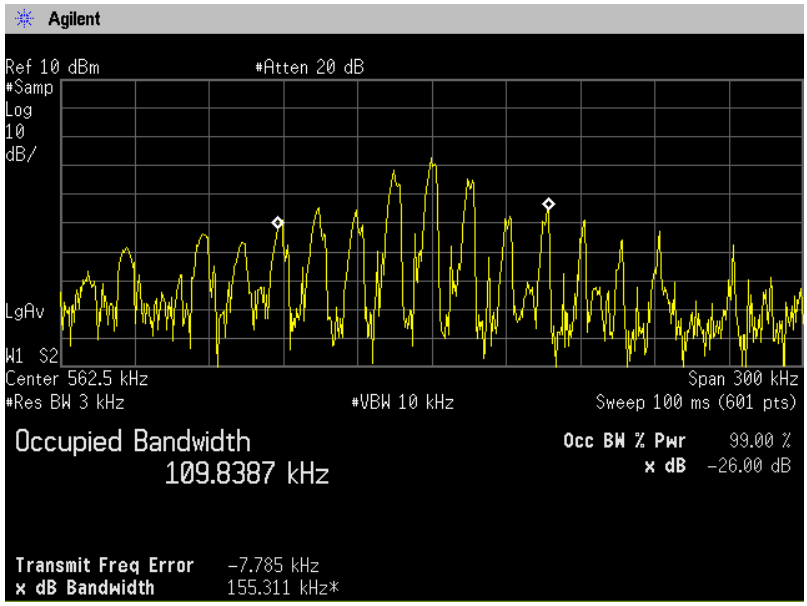
Frequency [MHz]	Occupied Bandwidth [kHz]
0.563	109.8387

4.1.5 Trace Data

Test Personnel:

Tested by: Hiroaki Suzuki

Date : Sep. 28, 2010
Temperature : 24.1 [ºC]
Humidity : 56.3 [%]
Test place : 3m Semi-anechoic chamber



4.2 Radiated Emissions (9kHz to 30MHz)

4.2.1 Test Procedure [FCC 15.209, IC RSS-210 2.2, RSS-Gen 4.9, 4.10, 4.11]

Radiated emission measurements are performed at 3m distance with the Loop antenna.
The antenna is positioned with its plane vertical, and the center of the Loop is 1.0meter above the ground plane.
Frequency Range: 9kHz to 30MHz is scanned and investigated with the test receiver.
The detector function of the test receiver is set to CISPR Quasi-peak mode and the bandwidth is set to 200Hz (9kHz to 150kHz) and 9kHz (150kHz to 30MHz).
The EUT and support equipment are placed on a 1 meter x 2.0 meter surface, 0.8 meter height FRP table. The turntable and the loop antenna are rotated by 360 degrees and stopped at azimuth of producing the maximum emission.
Interconnecting cables, which hanging closer than 40cm to the horizontal metal ground plane are bundled its excess in center. The test results represent the worst-case emission for each emission with manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation.
Sufficient time for the EUT, support equipment, and test equipment are allowed in order for them to warm up to their normal operating condition.

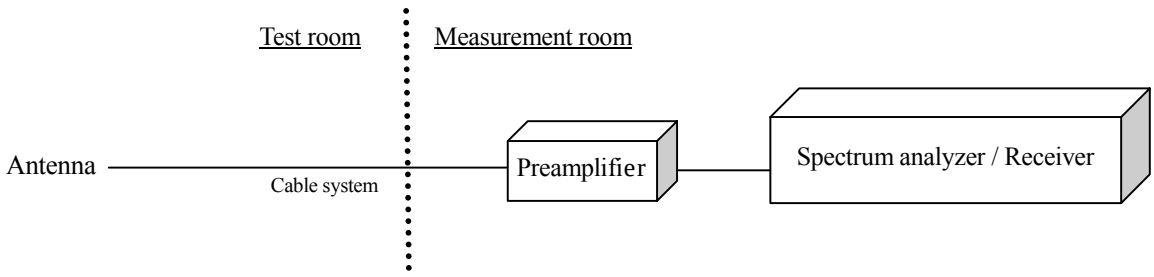
Frequency range:
- 9kHz to 30MHz

The Test receiver is set to:
Detector: Quasi-peak
Bandwidth: 200Hz, 9kHz

The test mode of EUT is as follows.
- Normal Operation

4.2.2 Measurement Setup

Test configuration for Radiated emissions



4.2.3 Limit of Spurious Emission Measurement

Frequency [MHz]	Field Strength		Distance [m]
	[uV/m]	[dBuV/m]	
0.009 – 0.490	2400 / F [kHz]	20logE [uV/m]	300
0.490 – 1.705	24000 / F [kHz]	20logE [uV/m]	30
1.705-30	30	29.5	30
30 – 88	100	40.0	3
88 – 216	150	43.5	3
216 – 960	200	46.0	3
Above 960	500	54.0	3

NOTE:
1. The lower limit shall apply at the transition frequencies.
2. Emission level [dBuV/m] = 20 log Emission [uV/m]
3. Measurements were corrected to 30m using 40log (3/30) = -40.0dB

4.2.4 Calculation Method

Emission level = Reading + c.f (Ant. factor + Cable system loss – Amp. Gain)
Margin = Limit – Emission level

4.2.5 Measurement Results

Test Personnel:

Tested by: Hiroaki Suzuki

Date : Sep. 28, 2010
Temperature : 24.1 [ºC]
Humidity : 56.3 [%]
Test place : 3m Semi-anechoic chamber

Frequency [MHz]	Reading [dBuV] at 3m	c.f [dB(1/m)]	Result [dBuV/m] at 3m	Result [dBuV/m] at 30m	Limit [dBuV/m] at 30m	Margin [dB]	Result
0.563	43.5	-10.2	33.3	-6.7	32.6	39.3	PASS
1.125	33.9	-10.2	23.7	-16.3	26.6	42.9	PASS
1.688	33.5	-10.2	23.3	-16.7	23.1	39.8	PASS
2.250	35.5	-10.1	23.4	-16.6	29.5	46.1	PASS

4.3 Radiated Emissions (30MHz to 1000MHz)

4.3.1 Test Procedure [FCC 15.209, IC RSS-210 2.2, RSS-Gen 4.9, 4.10, 4.11]

Radiated emission measurements are performed at 10m distance with the TRILOG antenna.
The antenna is positioned both the horizontal and vertical planes of polarization and height is varied 1 to 4 meters and stopped at height producing the maximum emission. Frequency Range: 30MHz to 1000MHz is scanned and investigated with the test receiver. The detector function of the test receiver is set to CISPR Quasi-peak mode and the bandwidth is set to 120kHz.
The EUT and support equipment are placed on a 1 meter x 2.0 meter surface, 0.8 meter height FRP table. The turntable and the loop antenna are rotated by 360 degrees and stopped at azimuth of producing the maximum emission.
Interconnecting cables, which hanging closer than 40cm to the horizontal metal ground plane are bundled its excess in center. The test results represent the worst-case emission for each emission with manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation.
Sufficient time for the EUT, support equipment, and test equipment are allowed in order for them to warm up to their normal operating condition.

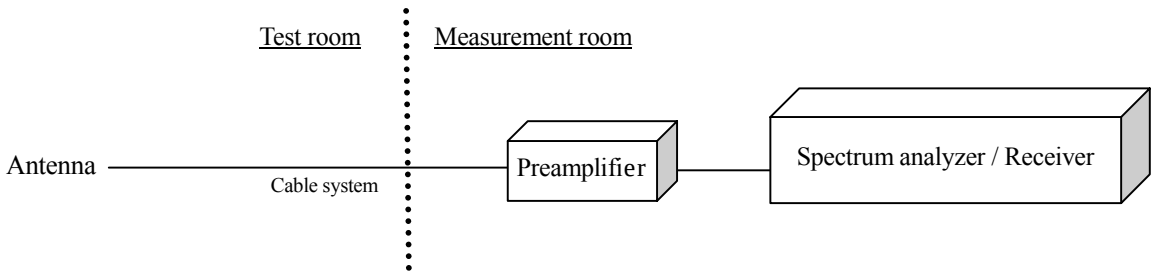
Frequency range:
- 30MHz to 1000MHz

The Test receiver is set to:
Detector: Quasi-peak
Bandwidth: 120kHz

The test mode of EUT is as follows.
- Normal Operation

4.3.2 Measurement Setup

Test configuration for Radiated emissions



4.3.3 Limit of Spurious Emission Measurement

Frequency [MHz]	Limit [dBuV/m]	Distance [m]
30 – 300	30	10
300 – 1000	37	10

NOTE:
1. CISPR 22 limit was applied to Radiated emission measurements as prescribed in FCC part 15 section 15.109(g).
2. Emission level [dBuV/m] = 20 log Emission [uV/m]

4.3.4 Calculation Method

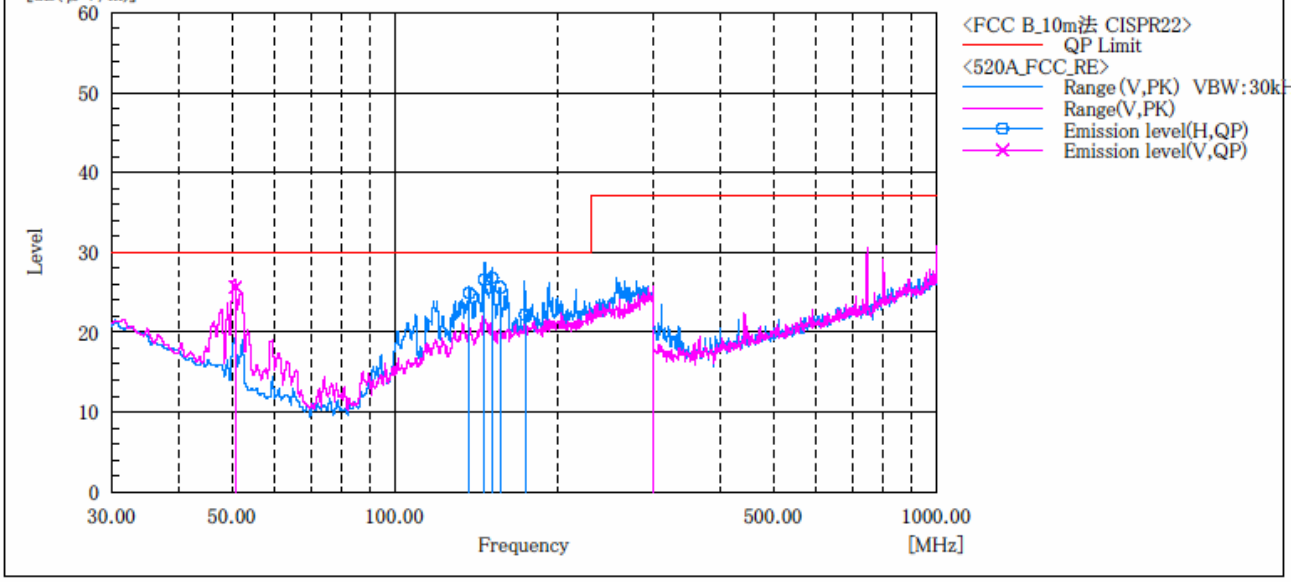
Emission level = Reading + c.f (Ant. factor + Cable system loss – Amp. Gain)
Margin = Limit – Emission level

4.3.5 Measurement Results

ZACTA <<Data Sheet No.1>> 21 September,2010 21:56

Company name : Wacom Co., Ltd.
EUT : LCD SIGNATURE TABLET
Model No. : STU-520A
Serial No. : 0IZQS00072
Test mode : Normal Operation

Limit : FCC Part.15 Class B 10m CISPR22
Operater : Y.Hanyu
Temp,Hum : 22.3[℃] 66.5[%]
Note1 :
Note2 :



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [°]
1	50.843	V	37.9	-12.2	25.7	30.0	4.3	100.0	126.0
2	146.670	H	33.7	-7.1	26.6	30.0	3.4	400.0	187.0
3	137.490	H	32.6	-7.7	24.9	30.0	5.1	400.0	197.0
4	151.670	H	33.6	-6.8	26.8	30.0	3.2	400.0	178.0
5	156.750	H	32.2	-6.6	25.6	30.0	4.4	400.0	192.0
6	174.220	H	28.0	-5.8	22.2	30.0	7.8	329.0	186.0

4.4 AC power line Conducted Emissions

4.4.1 Test Procedure [FCC 15.207, IC RSS-Gen 7.2.2]

Conducted emission at AC mains port measurements are performed at 10m Semi-anechoic chamber according to ANSI C63.4 section 7.
EUT and support equipment are placed on FRP table of 2.0m(W) × 1.0m(D) × 0.8m(H) in size. EUT is connected to 50Ω/50μH Line impedance stabilization network (LISN) which is placed on reference ground plane, and was placed 80cm away from EUT. Excess of AC power cable is bundled in center. Vertical Metal Reference Plane 2.0m (W) × 2.0m (H) in size is placed 0.4m away from EUT. LISN for peripheral is terminated in 50Ω.
EUT operating mode is selected to emit the maximum noise. Overall frequency range is investigated with spectrum analyzer using peak detector. Maximum emission configuration is determined by manipulating the EUT, support equipment, interconnecting cables. Then, emission measurements are performed with test receiver in above setting to each current-carrying conductor of the mains port. Sufficient time for EUT, support equipment and test equipment are provided in order for them to warm up to their normal operating condition.

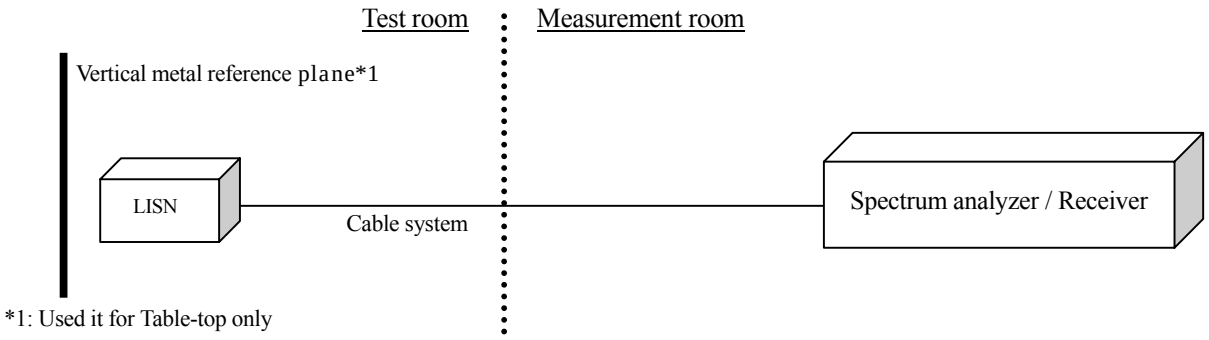
Frequency range:
- 0.15MHz to 30MHz

The Test receiver is set to:
Detector: Quasi-peak, Average
Bandwidth: 9kHz

The test mode of EUT is as follows.
- Normal Operation

4.4.2 Measurement Setup

Test configuration for AC power line Conducted Emissions



*1: Used it for Table-top only

4.4.3 Limit of AC power line Conducted Emissions Measurement

Frequency	Limit	
	QP(dBμV)	AV(dBμV)
0.15MHz to 0.5MHz	66 to 56*	56 to 46*
0.5MHz to 5MHz	56	46
5MHz to 30MHz	60	50

*: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

4.4.4 Calculation method

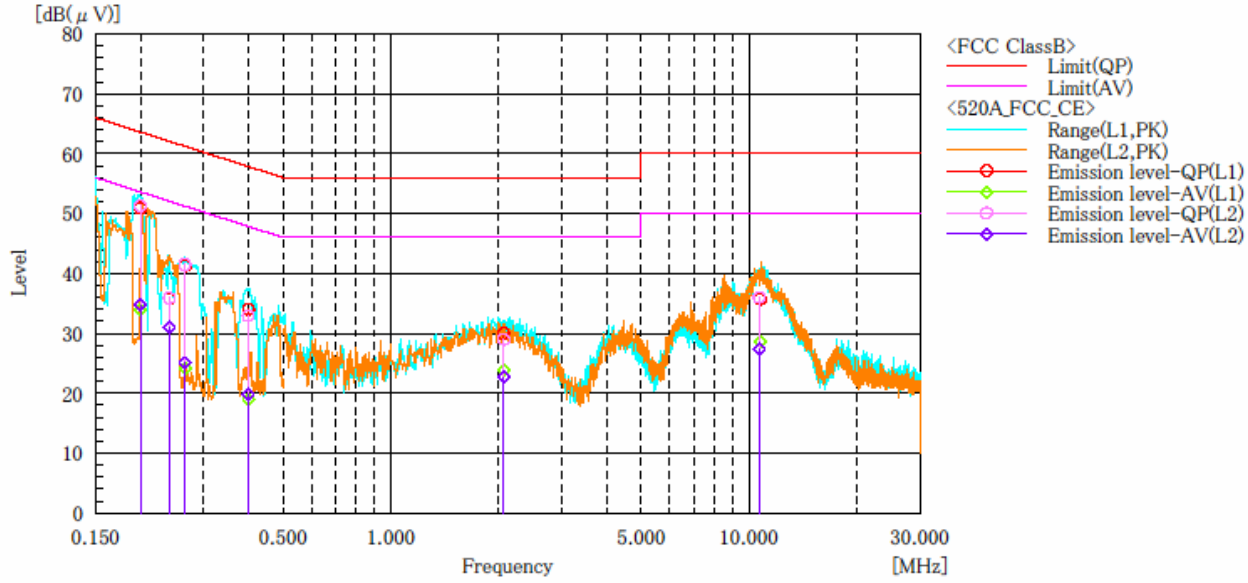
Emission level = Reading + (LISN. factor + Cable system loss)
Margin = Limit – Emission level

4.4.5 Measurement Result

ZACTA <<Data Sheet No.1>> 22 September,2010 16:01

Company Name : Wacom Co., Ltd.
EUT : LCD SIGNATURE TABLET
Model No. : STU-520A
Serial No. : 0IZQS00072
Test mode : Normal Operation

Standard : FCC 15C
Operator : Y.Hanyu
Temp.Hum. : 23.4[℃] 52.1[%]
Note1 :
Note2 :



Final Result

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.200	40.8	23.9	10.1	50.9	34.0	63.6	53.6	12.7	19.6
2	0.241	25.8	21.0	10.0	35.8	31.0	62.1	52.1	26.3	21.1
3	0.267	31.3	14.2	10.0	41.3	24.2	61.2	51.2	19.9	27.0
4	0.401	24.0	8.9	10.0	34.0	18.9	57.8	47.8	23.8	28.9
5	2.064	19.8	13.6	10.2	30.0	23.8	56.0	46.0	26.0	22.2
6	10.753	25.0	18.0	10.7	35.7	28.7	60.0	50.0	24.3	21.3

--- L2 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.200	41.2	24.6	10.1	51.3	34.7	63.6	53.6	12.3	18.9
2	0.241	25.9	21.0	10.0	35.9	31.0	62.1	52.1	26.2	21.1
3	0.266	31.5	15.1	10.0	41.5	25.1	61.2	51.2	19.7	26.1
4	0.400	22.9	9.9	10.0	32.9	19.9	57.9	47.9	25.0	28.0
5	2.067	18.8	12.5	10.2	29.0	22.7	56.0	46.0	27.0	23.3
6	10.674	25.3	16.7	10.7	36.0	27.4	60.0	50.0	24.0	22.6

5. Uncertainty of measurement

Expanded uncertainties stated were calculated with a coverage Factor k= 2.
Please note that these results are not taken into account when determining compliance or non-compliance with test result.

Test item	Measurement uncertainty
Conducted emission at mains port (150kHz - 30MHz)	±3.0dB
Radiated emission (9kHz - 30MHz)	±4.4dB
Radiated emission (30MHz – 1000MHz)	±4.5dB
Radiated emission (1000MHz – 26GHz)	±3.9dB

6. Laboratory description

6.1 Location: ZACTA Technology Corporation Yonezawa Testing Center
4149-7 Hachimanpara 5-chome Yonezawa-shi Yamagata 992-1128 Japan
Phone: +81-238-28-2880 Fax: +81-238-28-2888

6.2 Facility filing information:

1) NVLAP accreditation: NVLAP Lab. code: 200306-0

2) FCC filing:

Site name	Registration Number	Expiry Date
Site 2, Site3	91065	November 19, 2011
3m Semi-anechoic chamber 10m Semi-anechoic chamber	540072	February 16, 2013

3) Industry Canada Oats site filing:

Site name	Sites on file: Oats 3m/10m	Expiry Date
Site 2	4224A-2	February 16, 2012
Site 3	4224A-3	February 16, 2012
3m Semi-anechoic chamber	4224A-4	February 16, 2012
10m Semi-anechoic chamber	4224A-5	February 16, 2012

4) VCCI site filing:

Site name	Radiated emission	Conducted Emission for mains port	Expiry Date	Conducted emission for telecom port	Expiry Date
Site 2	R-137	C-133	Nov. 16, 2011	T-1477	Oct. 8, 2011
Site 3	R-138	C-134	Nov. 16,2011	T-1478	Oct. 8, 2011
10m Semi-anechoic chamber	R-2480	C-2722	Jul. 3, 2011	T-1474	Oct. 8, 2011
3m Semi-anechoic chamber	R-2481	C-2723	Jul. 3, 2011	T-1475	Oct. 8, 2011
Shielded room No.1	R-137	C-2724	Jul. 3, 2011	T-1476	Oct. 8, 2011

5) ETL SEMKO authorization:

Authorized as an EMC test laboratory.

6) TUV Rheinland authorization:

Authorized as an EMC test laboratory.

7) BUREAU VERITAS certification:

Certified as an EMC test laboratory.

Appendix A: Test equipment

List of Measuring Instruments

Equipment	Company	Model No.	Serial No.	Cal. due	Cal. date
EMI Receiver	ROHDE&SCHWARZ	ESCI	100451	May 2011	May 28, 2010
Spectrum Analyzer (3Hz-42.98GHz)	Agilent Technologies	E4447A	MY46180188	Mar. 2011	Mar. 4, 2010
Preamplifier (100kHz-1.2GHz)	ANRITSU	MH648A	M08067	Jun. 2011	Jun. 12, 2010
Attenuator	TYC	BA-PJ-10	N/A (S345)	Apr.. 2011	Apr. 26, 2010
Line impedance stabilization network for EUT	Kyoritsu Electrical Works, Ltd.	KNW-407F	8-2003-1	May 2011	May 28, 2010
Line impedance stabilization network for peripheral	Kyoritsu Electrical Works, Ltd.	KNW-242F	8-1973-1	May 2011	May 12, 2010
50Ω terminator	HRS	UG-88/U	N/A	Mar. 2011	Mar. 5, 2010
Loop antenna	ROHDE&SCHWARZ	HFH2-Z2	892246/010	Feb.2011	Feb. 25, 2010
Biconical antenna	Schwarzbeck	VHA9103/BBA9106	1627	Jun. 2011	Jun. 12, 2010
Log Periodic antenna	Schwarzbeck	UHALP9108A	0437	Jun. 2011	Jun. 12, 2010
Attenuator	TME	CFA-01NPJ-6	N/A	Jun. 2011	Jun. 12, 2010
Attenuator	TME	CFA-01NPJ-3	N/A	Jun. 2011	Jun. 12, 2010
Coaxial cable	Fujikura	5D-2W/10m	#AEC3R-001	Feb. 2011	Feb. 5, 2010
		5D-2W/1.5m	#AEC3R-003	Feb. 2011	Feb. 5, 2010
		5D-2W/0.5m	#AEC3R-004	Feb. 2011	Feb. 5, 2010
	SUHNER	SUCOFLEX_106/7m	#AEC3R-002	Feb. 2011	Feb. 5, 2010
Coaxial cable	Fujikura	5D-2W/10m	#AEC10R-001	Feb. 2011	Feb. 5, 2010
		5D-2W/1m	#AEC10R-002	Feb. 2011	Feb. 5, 2010
		5D-2W/0.5m	#AEC10R-005	Feb. 2011	Feb. 5, 2010
	SUHNER	SUCOFLEX_106/12m	#AEC10R-003	Feb. 2011	Feb. 5, 2010
		SUCOFLEX_106/13m	#AEC10R-004	Feb. 2011	Feb. 5, 2010
Coaxial cable	Fujikura	5D-2W/4m	#AEC10C-001	Feb. 2011	Feb. 5, 2010
		5D-2W/1.5m	#AEC10C-002	Feb. 2011	Feb. 5, 2010
	SUHNER	RG214/U/25m	#AEC10C-003	Feb. 2011	Feb. 5, 2010
PC	DELL	DIMENSION E521	75465BX	N/A	N/A
PC	DELL	DIMENSION E521	85465BX	N/A	N/A
Software	TOYO Corporation	EP5/RE-AJ	0611193/V3.4	N/A	N/A
3m Semi-anechoic chamber	TOKIN	N/A	N/A (9002-NSA)	May 2011	May 18, 2010
10m Semi-anechoic chamber	TOKIN	N/A	N/A (9001-NSA10m)	May 2011	May 20, 2010

*The calibrations of the above equipment are traceable to NIST or equivalent standards of the reference organizations.