APPLICATION FOR CERTIFICATION On Behalf of Wacom Co., Ltd. LCD TABLET Model No. : DTU-2235B FCC ID : HV4DTU2235B Brand : WACOM & SMART REF. No.: JS-11549

Prepared for : Wacom Co., Ltd. 2-510-1, Toyonodai, Kazo-shi, Saitama, 349-1148 Japan

Prepared by : AUDIX Technology Corporation EMC Department No. 53-11, Tin-Fu Tsun, Lin-Kou Hsiang, Taipei Hsien, Taiwan

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Date of Test	:	Jul. 07 ~ 08, 2010
Date of Report	:	Jul. 14, 2010

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TEST REPORT CERTIFICATION

Applicant	:	Wacom Co., Ltd.							
Manufacturer #1	:	Qisda Optronics (Suzhou) Co., Ltd.							
Manufacturer #2	:	Qisda Corporation							
EUT Description	:	LCD TABLET							
FCC ID	:	HV4DTU2235B							
		(A) Model No.	:	DTU-2235B					
		(B) Serial No.	:	N/A					
		(C) Brand	:	WACOM & SMART					
		(D) Ref. No.	:	JS-11549					
		(E) Power Supply : DC 12V							
		(F) Test Voltage	:	AC 120V/60Hz (Via AC Adapter)					

Measurement Procedure Used:

Industry Canada Rules and Regulations RSS-Gen (Issue 2), June 2007 and RSS-210 (Issue 7), June 2007

FCC RULES AND REGULATIONS PART 15 SUBPART C, Oct. 2009 AND ANSI C63.4/2003 (Canada RSS-210 §Annex 2.2 and FCC CFR 47 Part 15C, §15.207 and §15.209 and §15.209)

The device described above was tested by AUDIX Technology Corporation to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 Subpart C and Canada RSS-210 (Issue 7) Annex 2.2. limits.

The measurement results are contained in this test report and AUDIX Technology Corporation is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the requirements of FCC Part 15 and Industry Canada RSS-Gen, RSS-210 standards.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX Technology Corporation.

Date of Test: Jul. 07 ~ 08, 2010

Date of Report: Jul. 14, 2010

Producer:

Wang/Deputy Manager

Reviewer:

(Henning Chang/Supervisor)

Ben Cheng/Manager

Signatory:

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	LCD TABLET (The EUT is a LCD Tablet, which is transceive The pen will be sold together with the EUT)		
Model Number	:	DTU-2235B		
Serial Number	:	N/A		
Brand	:	WACOM & SMART		
Ref. No	:	JS-11549		
FCC ID	:	HV4DTU2235B		
Applicant	:	Wacom Co., Ltd. 2-510-1, Toyonodai, Kazo-shi, Saitama, 349-1148 Japan		
Manufacturer #1	:	Qisda Optronics (Suzhou) Co., Ltd. 169, Zhujiang Road, New District, Suzhou, Jiangsu Province, P.R. China		
Manufacturer #2	:	Qisda Corporation 157, Shan-Ying Road, Gueishan, Taoyuan, 333 Taiwan		
Frequency	:	531.25kHz、562.50kHz、593.75kHz		
Number of Channel	:	3		
LCD Panel (w/Touch Function)	:	AU Optronics (AUO), M/N M215HW01 (Qsida, M/N M215HW01)		
Pen	:	Wacom, M/N UP-818E (P/N: UP-818E-83A-1)		
DVI D-Sub Cable	:	Shielded, Detachable, 1.9m Bonded two ferrite cores		
USB Cable	:	Non-Shielded, Detachable, 2.0m		

AC Adapter	:	EDACPOWER, M/N: EA10521C-120 AC Input: AC 100-240V~, 1.8A, 50/60Hz DC Input: DC 12V, 5A Cord: Non-Shielded, Undetachable, 1.2m Bonded a ferrite core
Power Cord	:	Non-Shielded, Detachable, 1.8m
Date of Receipt of Sample	:	Jun. 09, 2010
Date of Test	:	Jul. 07 ~ 08, 2010

1.2. Tested Supporting System Details

1.2.1. PC SYSTEM

	Model Number Serial Number FCC ID BSMI ID Manufacturer Power Cord	::	VECTRA XE320 SG21101966 By DoC 3912A318 First International Computer (Brand: HP) Non-Shielded, Detachable, 1.8m
1.2.2.	PS2 MOUSE		, , ,
	Model Number Serial Number FCC ID BSMI ID Manufacturer Data Cable	:	M-S69 F6AB70S5BOY1NXP JNZ211443 R41126 LOGITECH (Brand: HP) Shielded, Undetachable, 1.8m
1.2.3.	PS2 KEYBOARD Model Number Serial Number FCC ID BSMI ID Manufacturer Data Cable	: : : : :	SDM4700P B69360HLPPD0R2 By DoC R33018 SAMSUNG (Brand: HP) Shielded, Undetachable, 1.8m

1.3. Description of Test Facility

Name of Firm	:	AUDIX Technology Corporation EMC Department No. 53-11, Tin-Fu Tsun, Lin-Kou Hsiang, Taipei Hsien, Taiwan
Test Location & Facility : (C2/AC)		No. 2 Shielded Room No. 53-11, Tin-Fu Tsun, Lin-Kou Hsiang, Taipei Hsien, Taiwan.
		Semi-Anechoic Chamber No. 53-11, Tin-Fu Tsun, Lin-Kou Hsiang, Taipei Hsien, Taiwan.
		Federal Communication Commission Registration Number: 90993 Filing on May 14, 2009
NVLAP Lab. Code	:	200077-0
TAF Accreditation No	:	1724

1.4. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
Conduction Test	150kHz~30MHz	±1.73dB
Radiation Test	30MHz~300MHz	± 2.91dB
(Distance: 3m)	300MHz~1000MHz	± 2.74dB

Remark : Uncertainty = $ku_c(y)$

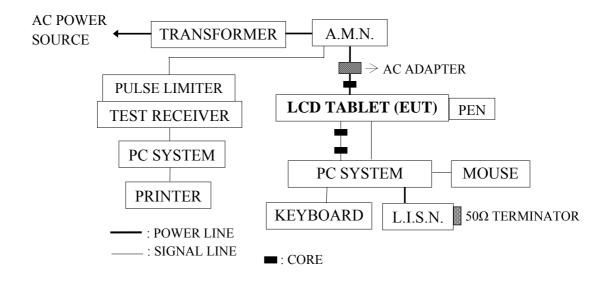
2. POWERLINE CONDUCTED EMISSION MEASUREMET

2.1. Test Equipment

The following test equipment were used during the conducted measurement: (No. 2 Shielded Room)

Item	Туре	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCS30	100339	Mar. 10, 10'	Mar. 09, 11'
2.	A.M.N.	R & S	ESH2-Z5	890485/023	Jan. 05, 10'	Jan. 04, 11'
3.	L.I.S.N.	Kyoritsu	KNW-407	8-855-9	Mar. 10, 10'	Mar. 09, 11'
4.	Pulse Limiter	R&S	ESH3-Z2	001	Feb. 08, 10'	Feb. 07, 11'

2.2. Block Diagram of Test Setup



2.3. Powerline Conducted Emission Limit (§15.207)

Frequency	Maximum RF Line Voltage		
	Quasi-Peak Level	Average Level	
$150 \text{kHz} \sim 500 \text{kHz}$	$66 \sim 56 \text{ dB}\mu\text{V}$	$56 \sim 46 \ dB\mu V$	
$500 \text{kHz} \sim 5 \text{MHz}$	56 dBµV	46 dBµV	
5MHz ~ 30MHz	60 dBµV	50 dBµV	

Remark1.: If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.

2.: The lower limit applies at the band edges.

2.4. Operating Condition of EUT

- 2.4.1. Set up the EUT and simulator as shown on 2.2.
- 2.4.2. To turn on the power of all equipment.
- 2.4.3. The EUT was continuously transmitting frequency to pen during testing.
- 2.4.4. The other peripheral devices were driven and operated in turn during all testing.

2.5. Test Procedure

The EUT was put on table which was above the ground by 80cm and AC adapter's power cord connected to the AC mains through an Artificial Mains Network (A.M.N.). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provided a 50 ohm coupling impedance for the measuring equipment. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions simulators of the interface cables should be manipulated according to FCC ANSI C63.4-2003 during conducted measurement.

The bandwidth of the R&S Test Receiver ESCS30 was set at 9kHz.

The frequency range from 150kHz to 30MHz was checked.

All the final readings from Test Receiver were measured with the Quasi-Peak detector and Average detector. (Remark: If the Average limit is met when using a Quasi-Peak detector, the Average detector is unnecessary)

2.6. Powerline Conducted Emission Measurement Results

PASSED.

(All the emissions not reported below are too low against the prescribed limits.)

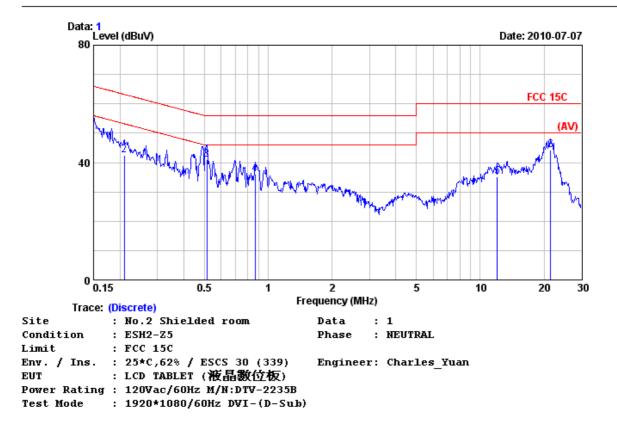
EUT was performed during this section testing and all the test results are attached in next pages.

EUT: LCD TABLET	M/N:DTU-2235B	
Test Date: Jul. 07, 2010	Temperature: 25	Humidity: 62%

Reference Test Data No.: Neutral: #1; Line: #2



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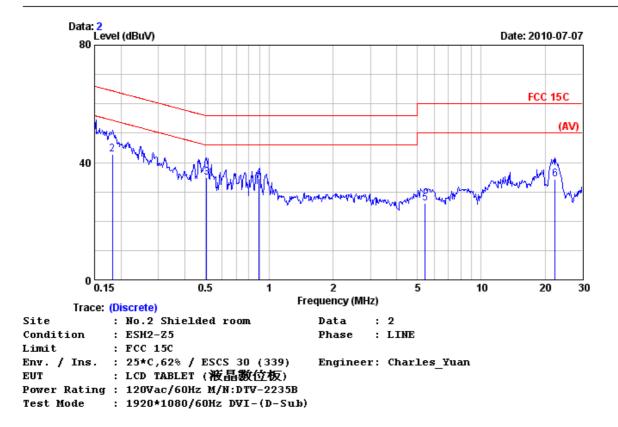
		AMN	Cable		Emission			
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)	
1	0.150	0.10	0.24	51.54	51.88	66.00	14.12	QP
2	0.209	0.10	0.26	42.11	42.47	63.23	20.76	QP
3	0.514	0.13	0.34	40.52	40.99	56.00	15.01	QP
4	0.866	0.18	0.39	35.57	36.14	56.00	19.86	QP
5	12.060	0.35	0.70	33.99	35.04	60.00	24.96	QP
6	21.490	0.50	0.70	43.01	44.21	60.00	15.79	QP

Remarks: 1.Emission Level= AMN Factor + Cable Loss + Reading.

2.If the average limit is met when using a quasi-peak detector ,the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



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		AMN	Cable		Emission			
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)	
1	0.150	0.10	0.24	46.17	46.51	66.00	19.49	QP
2	0.182	0.10	0.25	42.35	42.70	64.39	21.69	QP
3	0.507	0.13	0.34	34.55	35.02	56.00	20.98	QP
4	0.894	0.19	0.39	33.98	34.56	56.00	21.44	QP
5	5.450	0.23	0.50	25.41	26.14	60.00	33.86	QP
6	22.300	0.79	0.70	32.73	34.22	60.00	25.78	QP

Remarks: 1.Emission Level= AMN Factor + Cable Loss + Reading.

2.If the average limit is met when using a quasi-peak detector ,the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

The following test equipment was used during the radiated emission measurement:

3.1.1. For Frequency Range 9kHz~30MHz (at Semi-Anechoic Chamber)

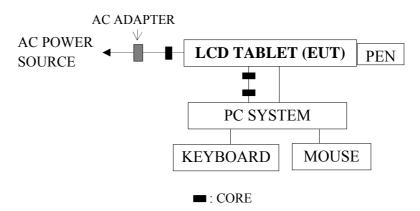
Item	Туре	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	HP	8593EM	3826A00272	Jun. 29, 10'	Jun. 28, 11'
2.	Test Receiver	R&S	ESCS30	100265	Aug. 28, 09'	Aug. 27, 10'
3.	Loop Antenna	R & S	HFH2-Z2	891847/27	Jul. 22, 09'	Jul. 21, 10'

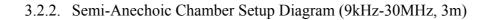
3.1.2. For Frequency Range 30MHz~1000MHz (at Semi-Anechoic Chamber)

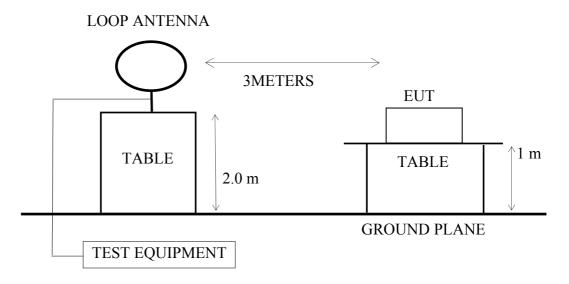
Item	Туре	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	HP	8593EM	3826A00272	Jun. 29, 10'	Jun. 28, 11'
2.	Test Receiver	R&S	ESCS30	100265	Aug. 28, 09'	Aug. 27, 10'
3.	Pre-Amplifier	HP	8447D	2944A06305	Feb. 03, 10'	Feb. 02, 11'
4.	Biconical Antenna	CHASE	VBA6106A	1264	Mar. 13, 10'	Mar. 12, 11'
5.	Log Periodic Antenna	Schwarzbeck	UHALP910 8-A	0810	Mar. 13, 10'	Mar. 12, 11'

3.2. Test Setup

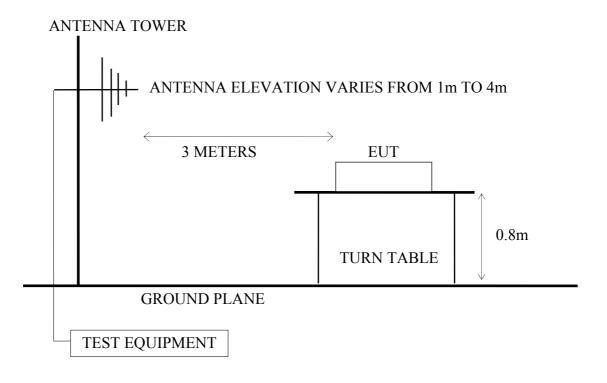
3.2.1. Block Diagram of connection between EUT and simulators







3.2.3. Semi-Anechoic Chamber (3m) Setup Diagram for 30-1000MHz



3.3. Radiated Emission Limits (§15.209)

3.3.1. Frequency 9kHz-30MHz

FREQUENCY	DISTANCE	FIELD STRENGTHS LIMITS
MHz	Meters	μV/m
0.009-0.490	300	2400/F(kHz)
0.490-1.705	30	24000/F(kHz)
1.705-30.0	30	30

Remark : (1) Limit (dBµV/m)=20log [24000/F(kHz)] (The measurement distance at 30m)+40log(30/3)(The measurement distance at 3m)

- (2) The tighter limit applies at the edge between two frequency bands.
- (3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
- 3.3.2. Frequency Above 30MHz

FREQUENCY	DISTANCE	FIELD STRENGTHS LIMITS			
MHz	Meters	μV/m	dBµV/m		
30 ~ 88	3	100	40.0		
88~216	3	150	43.5		
216~960	3	200	46.0		
Above 960	3	500	54.0		

Remark : (1) Emission level ($dB\mu V/m$) = 20log Emission level ($\mu V/m$)

(2) The tighter limit applies at the edge between two frequency bands.

(3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3.4. Operating Condition of EUT

Same as powerline conducted measurement which is listed in 2.4. except the test set up replaced by section 3.2.

3.5. Test Procedure

3.5.1. For Frequency Range 9kHz-30MHz which measurement distance was 3m at Semi-Anechoic Chamber:

The EUT was placed on a turn table which was 1 meter above the ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set to 3 meters away from the Loop Antenna which is mounted on table. The antenna is fixed, with the lower edge of the loop at 2m height above the floor to find out the maximum emission level.

The bandwidth of the R&S Test Receiver ESCS30 & the HP Spectrum Analyzer was set at 200Hz. (Frequency range 9kHz-150kHz)

The bandwidth of the R&S Test Receiver ESCS30 & the HP Spectrum Analyzer was set at 9kHz. (Frequency range 150kHz-30MHz)

The frequency range from 9kHz to 30MHz was pre-scanned with a peak detector. All the final readings from test receiver were measured with Quasi-Peak detector.

3.5.2. For Frequency Range 30-1000MHz which measurement distance was 3m at Semi-Anechoic Chamber:

The EUT and its simulators were placed on a turn table which was 0.8 meter above the ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set 3 meters away from the receiving antenna which was mounted on an antenna tower. The antenna moved up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna such as calibrated biconical and log-periodical antenna were used as a receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to FCC ANSI C63.4-2003 regulation.

The bandwidth of the R&S Test Receiver ESCS30 was set at 120kHz.

3.6. Test Results

PASSED.

(All emissions not reported below are too low against the prescribed limits.)

EUT: LCD TABLET M/N: DTU-2235B

For Frequency Range 9kHz-30MHz:

The EUT with following test frequency was measured at Semi-Anechoic Chamber and all the test results are listed in section 3.6.1.

Test Date : Jul. 08, 2010 Temperature : 28 Humidity : 57%

No.	Test Frequency
1.	531.25kHz
2.	562.50kHz
3.	593.75kHz

For Frequency Range 30~1000MHz:

The EUT was measured at Semi-Anechoic Chamber and all the test results are listed in section 3.6.2.

Test Date : Jul. 08, 2010 Temperature : 29 Humidity : 52%

Reference Test Data No.: Horizontal: # 5 ; Vertical: # 6

3.6.1. Frequency Range 9kHz-30MHz Radiated Emission Measurement Results

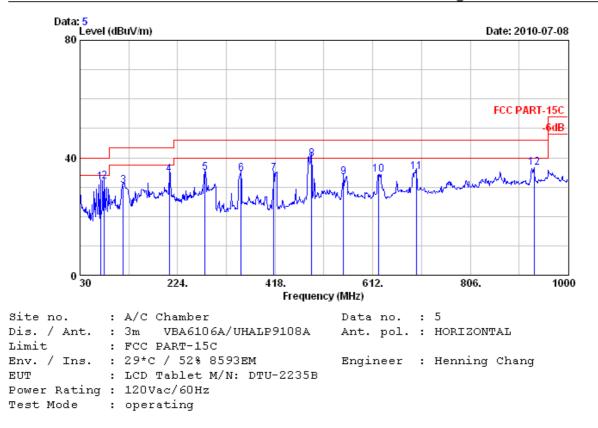
Date of Test :	Jul. 08, 201	Temperature :	28				
EUT:	LCD TABLET, M/N I	Humidity :	57%				
Test Mode :	F	5kHz					
Frequency	Emission Level	Limit	Margin				
(kHz)	$(dB\mu V/m)$	$(dB\mu V/m)$	(dB)				
531.25	41.05	73.10	-32.03	5			
1062.50	31.88	67.08	-35.20	0			
1593.75	30.44	63.56	-33.12	2			
Date of Test :	Jul. 08, 201	0	Temperature : _	28			
EUT:	LCD TABLET, M/N I	DTU-2235B	Humidity :	57%			
Test Mode :	F	requency: 562.5	0kHz				
Frequency	Emission Level	Limit	Margi	n			
(kHz)	$(dB\mu V/m)$	$(dB\mu V/m)$	(dB)				
562.50	41.34	72.60	-31.26				
1125.00	32.86	66.58	-34.22				
1687.50	29.87	63.06	-33.19				
	20:07						
'''The filed stren	ngth too low against the l Jul. 08, 201		Temperature :	28			
				20			
EUT:	LCD TABLET, M/N I	DTU-2235B	Humidity :	57%			
Test Mode :	Frequency: 593.75kHz						
Frequency	Emission Level	Limit	Margin				
(kHz)	$(dB\mu V/m)$	$(dB\mu V/m)$	(dB)				
()	41.54	72.13	-30.59	9			
593.75							
593.75 1187.50		66.11	-34 0	3			
593.75 1187.50 1781.25	31.08	66.11 69.57	-34.02				

"--"The filed strength too low against the limit.

3.6.2. Frequency Range 30-1000MHz Radiated Emission Measurement Results



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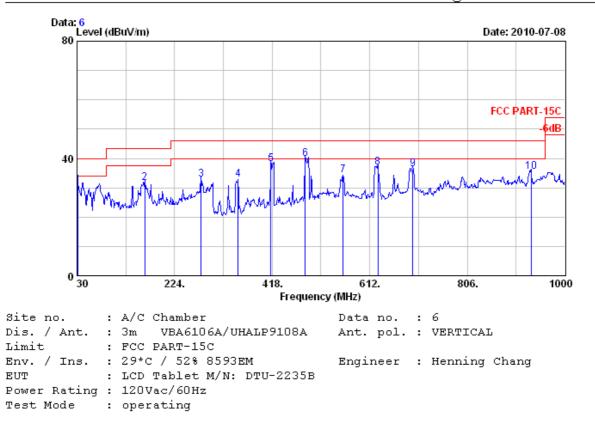
	Freq. (MHz)	Factor		Reading	Emission Level (dBµV/m)		Margin (dB)	Remark
1	70.740	12.16	1.72	17.69	31.57	40.00	8.43	OP
2	78.500	13.43	1.80	16.66	31.89	40.00	8.11	-
3	116.330	18.78	2.30	9.37	30.45	43.50	13.05	
4	207.510	21.88	3.12	9.38	34.37	43.50	9.13	
5	278.320	25.25	3.80	5.95	35.00	46.00	11.00	
6	350.100	15.44	4.30	14.95	34.69	46.00	11.31	
7	415.090	16.99	5.10	12.41	34.50	46.00	11.50	
8	490.750	18.58	6.30	14.61	39.49	46.00	6.51	
9	553.800	19.40	6.80	7.26	33.46	46.00	12.54	
10	623.640	21.32	6.20	6.87	34.39	46.00	11.61	
11	698.330	23.36	6.50	5.36	35.22	46.00	10.78	
12	933.070	25.23	7.50	3.89	36.62	46.00	9.38	

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.

 The emission levels that are 20dB below the official limit are not reported.



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		Ant.	Cable		Emission			
	Freq.	Factor	Loss	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dBµV)	(dBµV/m)	(dBµV/m)	(dB)	
1	30.970	24.81	1.10	7.51	33.42	40.00	6.58	QP
2	164.830	20.89	2.70	7.98	31.57	43.50	11.93	
3	276.380	25.26	3.70	3.89	32.85	46.00	13.15	
4	350.100	15.44	4.30	13.06	32.80	46.00	13.20	
5	415.090	16.99	5.10	15.89	37.98	46.00	8.02	
6	483.960	18.84	6.14	14.97	39.95	46.00	6.05	
7	558.650	19.89	6.70	7.59	34.17	46.00	11.83	
8	628.490	21.06	6.31	9.41	36.78	46.00	9.22	
9	697.360	23.32	6.50	6.50	36.32	46.00	9.68	
10	933.070	25.23	7.50	2.71	35.44	46.00	10.56	
Remar	ks: 1. Em	ission]	Gevel=	Antenna 1	Factor + C	able Los:	s + Read	ling.
	2. Th	e emiss:	ion lev	vels that	are 20dB	below the	e offici	ial
	liı	mit are	not re	eported.				