

FCC PART 15B
MEASUREMENT AND TEST REPORT
For
QINGDAO WINTEC SYSTEM CO., LTD

NO.3 Building, NO.151, Zhuzhou Road, Laoshan District, Qingdao, China

Model: ANYPOS500

July 26, 2011

This Report Concerns: <input checked="" type="checkbox"/> Original Report	Equipment Type: PANEL POS
Report Number:	MTI110715001RF
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Test Date:	July 17-26, 2011
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior written consent of MTI Technology Laboratory Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: QINGDAO WINTEC SYSTEM CO., LTD
Address of applicant: NO.3 Building, NO.151, Zhuzhou Road, Laoshan District, Qingdao, China
Manufacturer: QINGDAO WINTEC SYSTEM CO., LTD
Address of manufacturer: NO.3 Building, NO.151, Zhuzhou Road, Laoshan District, Qingdao, China

General Description of E.U.T

EUT Description: PANEL POS
Trade Name: WINTEC
FCC ID: ZUNANYPOS500
EUT Model No.: ANYPOS500
Rated Voltage: Switch power supply 12V dc

Remark: * The test data gathered are from the production sample provided by the manufacturer.

1.2 Test Standards

The following Declaration of Conformity report of EUT is prepared in accordance with

FCC Rules and Regulations Part 15 Subpart B Class B

The objective of the manufacturer is to demonstrate compliance with the described standards above.

1.3 Test Summary

For the EUT described above. The standards used were FCC PART 15B for Emissions.

Table 1: Tests Carried Out Under FCC PART 15B

Standard	Test Items	Status
FCC PART 15B	Disturbance Voltage at The Mains Terminals (150KHz To 30MHz)	√
	Radiated Disturbances (9kHz To 9000MHz)	√

√ Indicates that the test is applicable

✗ Indicates that the test is not applicable

1.4 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 - 2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40

GHz. Radiated testing was performed at an antenna to EUT distance 5 meters.

All measurement required was performed at laboratory of NTEK Testing Technology Co., Ltd., at 1/F, Building E, Fenda Science Park Sanwei Community, Xixiang Street, Baoan District , Shenzhen,Guangdong

1.5 Test Facility

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

FCC – Registration No.: 238937

NTEK Testing Technology 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 238937.

The facility also complies with the radiated and AC line conducted test site criteria set forth in CISPR 16-1: 2002, CISPR16-2: 2002.

1.6 Test Equipment List and Details

Equipment	Manufacturer	Model No.	Serial No.	Last Cal	Calibration Period
Spectrum Analyzer	ANRITSU	MS2651B	6200238856	2010/09	1 year
EMI Test Receiver	ROHDE&SCHWARZ	ESCS30	100307	2010/09	1 year
LISN	ROHDE&SCHWARZ	ESH3-Z5	100305	2010/09	1 year
Pulse Limiter	ROHDE&SCHWARZ	ESH3-Z2	100305	2010/09	1 year
Bilog Antenna	SCHWARZBECK	VULB 9163	9163-194	2010/09	1 year
50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200283933	2010/09	1 year
Power Clamp	ROHDE&SCHWARZ	MDS21	100142	2010/09	1 year
Loop Antenna	Laplace Instrument Ltd	RF300	8006	2010/09	1 year
Cable	Resenberger	N/A	NO.1	N/A	N/A
Cable	SCHWARZBECK	N/A	NO.2	N/A	N/A
Cable	SCHWARZBECK	N/A	NO.3	N/A	N/A
DC Power Filter	DuoJi	DL2×30B	N/A	N/A	N/A
Single Phase Power Line Filter	DuoJi	FNF 202B30	N/A	N/A	N/A
3 Phase Power Line Filter	DuoJi	FNF 402B30	N/A	N/A	N/A
AC Power Source	California Instruments	5001iX-400	55689	2010/09	1 year
Test analyzer	California Instruments	PACS-1	72254	2010/09	1 year

1.7 Accessories Equipment List and Details

Description	Manufacturer	Model	Serial Number
Printer	Canon	L11121E	LBP2900
Mouse	HP	MS-SBF96	417441-002REV.OC
Keyboard	DELL	SK-SBF96	OY526KUS
Monitor	DELL	FT4Y23X	34413561645
USB Flash Drive	Memory	PVC-08	N/A
Headphone	Mingyin	MY-6360	N/A

1.8 EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
AC Cable	2m	Unshielded	Without Core
DC Cable	1.5m	Unshielded	With Core

2. SYSTEM TEST CONFIGURATION

2.1 Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

2.2 EUT Exercise Software

The EUT exercising program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The software offered by manufacturer, can let the EUT being normal operation.

2.3 Special Accessories

As shown in section 2.5, interface cable used for compliance testing is shielded as normally supplied by QINGDAO WINTEC SYSTEM CO., LTD , its respective support equipment manufacturers.

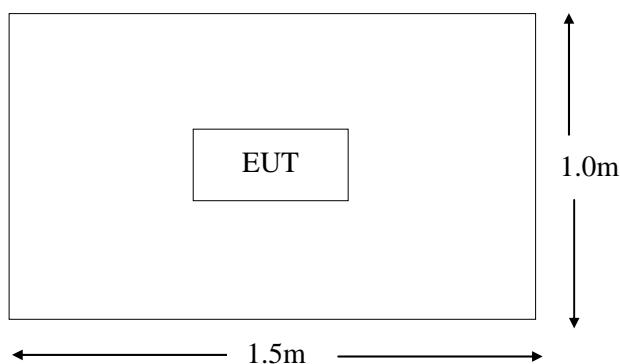
2.4 Equipment Modifications

The EUT tested was not modified by MTI.

2.5 Configuration of Test System



2.6 Test Setup Diagram



3. RADIATED DISTURBANCES

3.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in 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.

The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is ±4.0 dB.

3.2 Limit of Radiated Disturbances (Class B)

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (μ V/m)
0.009–0.490	300	2400/F(kHz)
0.490–1.705	30	24000/F(kHz)
1.705–30.0	30	30
30–88	3	100
88–216	3	150
216 ~ 960	3	200
Above 960	3	500

Note: (1) The tighter limit shall apply at the edge between two frequency bands.
(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

3.3 EUT Setup

The radiated emission tests were performed in the open area 3-meter test site, using the setup accordance with the CISPR 16-1: 2002, CISPR16-2: 2002. The specification used was FCC PART 15B Class B limits.

The EUT was placed on the center of the test table.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.

3.4 Test Receiver Setup

According to FCC PART 15B rules, the frequency was investigated from 9 kHz to 9000 MHz. During the radiated emission test, the test receiver was set with the following configurations:

Test Receiver Setting:

Detector.....Peak & Quasi-Peak
IF Band Width.....9/120/1000 KHz
Frequency Range.....9 kHz to 9000MHz
Turntable Rotated.....0 to 360 degrees

Antenna Position:

Height.....1m to 4m
Polarity.....Horizontal and Vertical

3.5 Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the peak detection mode. Quasi-peak readings performed only when an emission was found to be marginal (within $-10 \text{ dB}\mu\text{V}$ of specification limits), and are distinguished with a "QP" in the data table.

3.6 Corrected 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:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of $7 \text{ dB}\mu\text{V}$ means the emission is $7 \text{ dB}\mu\text{V}$ below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Class B Limit} - \text{Corr. Ampl.}$$

3.7 Test Result

Remark: (1) When PK reading is less than relevant limit 20dB, the QP reading and AV reading will not be recorded.
(2) Where QP reading is less than relevant AV limit, the AV reading will not be measured

Pass

Radiated Emission Test Data

EUT: PANEL POS
M/N: ANYPOS500
Temperature: 26°C
Humidity: 56%
Operating Condition: Running with program
Test Site: 3m CHAMBER
Operator: Shine
Comment: Below 30 MHz

No.	Frequency (MHz)	Reading (dB μ V/m)	Correct dB/m	Measurement (dB μ V/m)	Limit (dB μ V/m)	Over (dB)	Degree (°)	Height (cm)	Remark
1	0.0348	9.5	20.05	29.55	36.65	-47.10	360	100	peak
2	0.4650	-0.52	20.11	19.59	54.26	-34.66	360	100	peak
3	0.2500	11.47	20.13	31.60	59.65	-28.05	360	100	peak

Radiated Emission Test Data

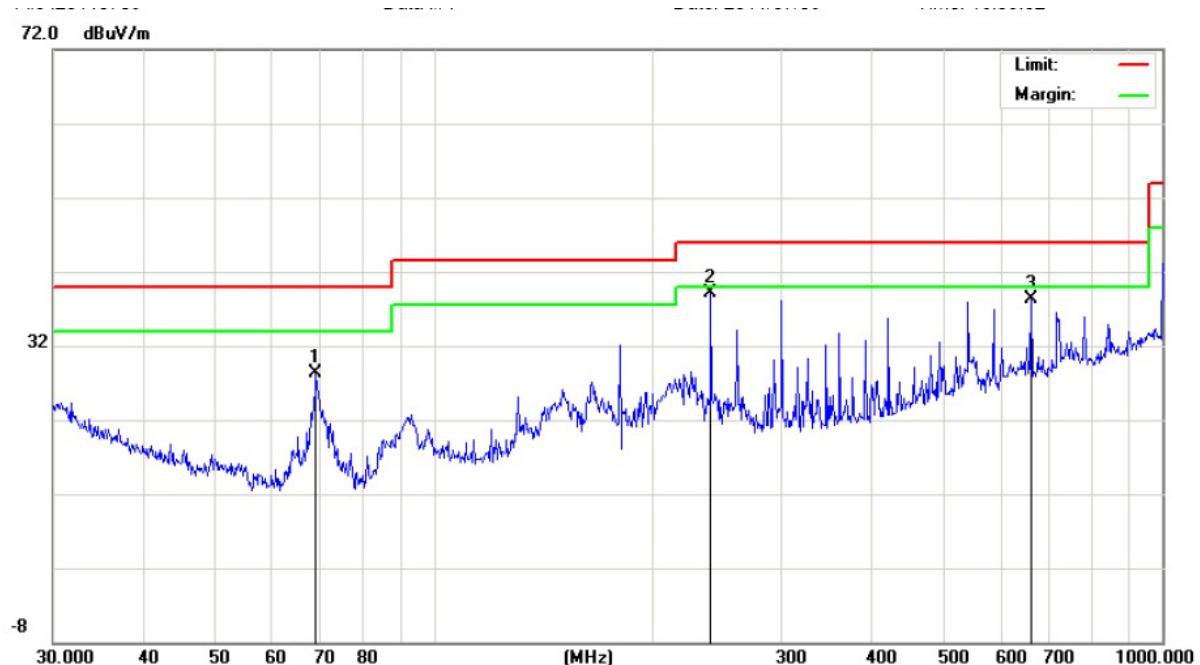
EUT: PANEL POS
 M/N: ANYPOS500
 Temperature: 26°C
 Humidity: 56%
 Operating Condition: Operating
 Test Site: 3m CHAMBER
 Operator: Shine
 Comment: From 30 MHz to 1 GHz
 Polarization: Vertical



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table		
			Level	Factor	ment			Height	Degree		
			MHz	dBuV	dB	dBuV/m	dBuV/m	Detector	cm	degree	Comment
1		30.8535	14.36	17.92	32.28	40.00	-7.72	peak			
2		239.9874	21.05	11.36	32.41	46.00	-13.59	peak			
3	*	494.1984	19.38	19.24	38.62	46.00	-7.38	peak			

Radiated Emission Test Data

EUT: PANEL POS
 M/N: ANYPOS500
 Temperature: 26°C
 Humidity: 56%
 Operating Condition: Operating
 Test Site: 3m CHAMBER
 Operator: Shine
 Comment: From 30 MHz to 1 GHz
 Polarization: Horizontal



No. Mk.	Freq. MHz	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height cm	Table Degree	Comment
		dBuV	dB	dBuV/m	dBuV/m	dB	Detector	degree	
1	68.8721	22.50	5.80	28.30	40.00	-11.70	peak		
2 *	239.9874	27.67	11.36	39.03	46.00	-6.97	peak		
3	661.1505	16.38	21.87	38.25	46.00	-7.75	peak		

Radiated Emission Test Data

EUT: PANEL POS
 M/N: ANYPOS500
 Temperature: 26°C
 Humidity: 56%
 Operating Condition: Running with program
 Test Site: 3m CHAMBER
 Operator: Shine
 Comment: From 30 MHz to 1 GHz
 Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	52.5753	28.22	6.99	35.21	40.00	-4.79	peak		
2		494.1984	20.34	19.24	39.58	46.00	-6.42	peak		

Radiated Emission Test Data

EUT: PANEL POS
 M/N: ANYPOS500
 Temperature: 26°C
 Humidity: 56%
 Operating Condition: Running with program
 Test Site: 3m CHAMBER
 Operator: Shine
 Comment: From 30 MHz to 1 GHz
 Polarization: Horizontal



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
			Level	Factor	ment					
		MHz	dBuV	dB	dBuV/m	dB	Detector	cm	degree	Comment
1		239.9874	26.71	11.36	38.07	46.00	-7.93	peak		
2	*	300.3672	24.39	14.57	38.96	46.00	-7.04	peak		

EUT: PANEL POS
 M/N: ANYPOS500
 Temperature: 26°C
 Humidity: 56%
 Operating Condition: Running with program
 Test Site: 3m CHAMBER
 Operator: Shine
 Comment: Above 1-9 GHz

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Correction dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
1060.000	AV	41.85	66	H	-11.91	40.94	54	-13.06
1060.000	AV	53.87	135	V	-11.91	41.96	54	-12.04
1060.000	PK	63.52	45	H	-11.91	51.61	74	-22.39
1060.000	PK	65.06	60	V	-11.91	53.15	74	-20.85
2830.000	AV	50.59	266	H	-6.53	44.06	54	-9.94
2830.000	AV	50.33	185	V	-6.53	43.80	54	-10.20
2830.000	PK	60.59	90	H	-6.53	54.06	74	-19.94
2830.000	PK	61.74	43	V	-6.53	55.21	74	-18.79

The EUT is tested from 9 kHz to 9 GHz; Emissions attenuated closely to the noise base are not reported.

4. CONDUCTED DISTURBANCES

4.1. Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is +2.4 dB.

4.2. Limit of Conducted Disturbances (Class A)

Frequency Range (MHz)	Limits (dBuV)	
	Quasi-Peak	Average
0.150~0.500	79	66
0.500~30.00	73	60

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

4.3. EUT Setup

The setup of EUT is according with CISPR 16-1: 2002, CISPR16-2: 2002 measurement procedure.

The EUT was placed center and the back edge of the test table.

The cables were draped along the test table and bundled to 30-40cm in the middle.

The spacing between the peripherals was 10 cm.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.

4.4. Instrument Setup

The test receiver was set with the following configurations:

Test Receiver Setting:

Frequency Range.....150 KHz to 30 MHz

Detector.....Peak & Quasi-Peak & Average

Sweep Speed.....Auto

IF Band Width.....9 KHz

4.5. Test Procedure

During the conducted emission test, the EUT power cord was connected to the auxiliary outlet of the first Artificial Mains.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination.

All data was recorded in the peak detection mode. Quasi-peak and Average readings were only performed when an emission was found to be marginal (within -10 dB μ V of specification limits). Quasi-peak readings are distinguished with a "QP". Average readings are distinguished with a "AV".

4.6. Summary of Test Results

According to the data in section 3.6, the worst margin reading of:

EUT Configuration on Test

PANEL POS

Model Number : ANYPOS500

Serial Number : N/A

Applicant : QINGDAO WINTEC SYSTEM CO., LTD

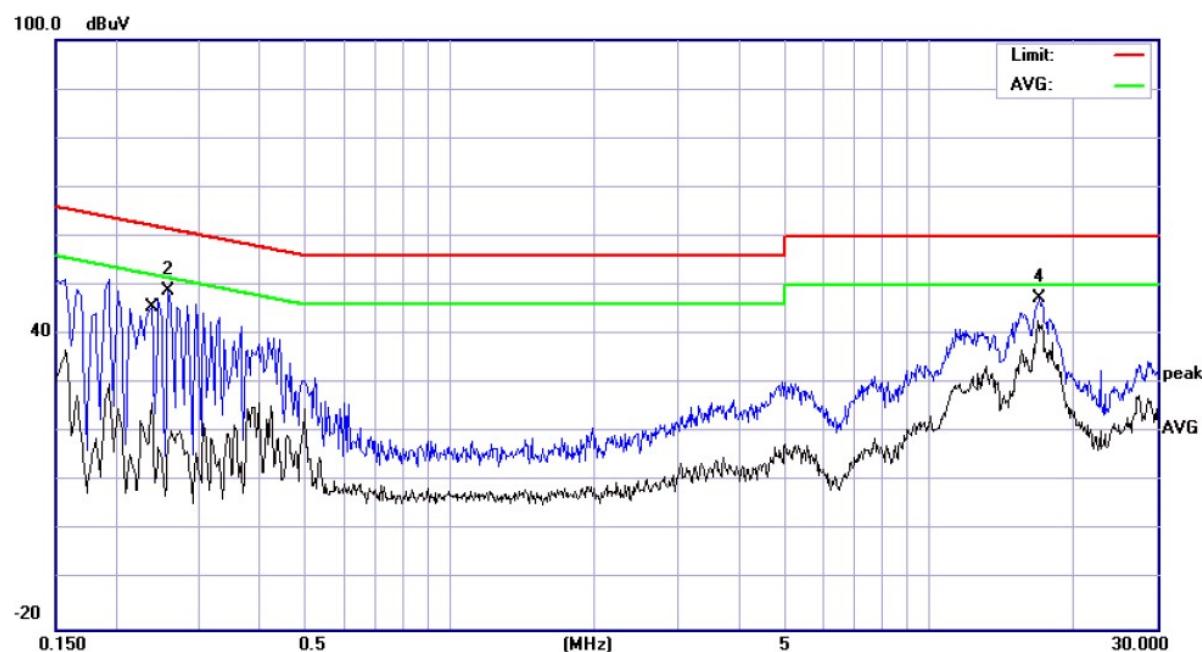
4.7. Test Result

PASS

Please refer to the following pages.

Conduction Emission Test Data

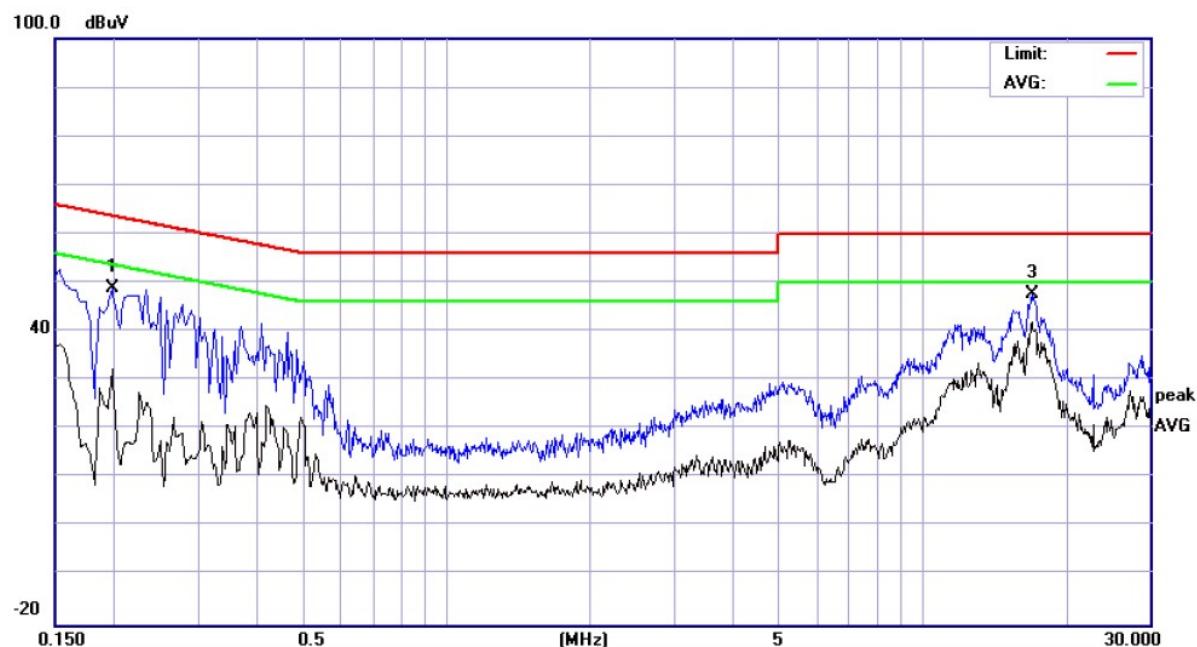
EUT: PANEL POS
 M/N: ANYPOS500
 Temperature: 26°C
 Humidity: 56%
 Operating Condition: Operating
 Test Site: 3m Shield
 Operator: Amy
 Test Specification: L AC 120V/60Hz



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.2380	15.62	10.43	26.05	52.16	-26.11	AVG	
2		0.2580	38.29	10.43	48.72	61.49	-12.77	peak	
3	*	16.9140	32.04	10.71	42.75	50.00	-7.25	AVG	
4		17.0419	36.68	10.71	47.39	60.00	-12.61	peak	

Conduction Emission Test Data

EUT: PANEL POS
 M/N: ANYPOS500
 Temperature: 26°C
 Humidity: 56%
 Operating Condition: Operating
 Test Site: 3m Shield
 Operator: Amy
 Test Specification: N AC 230V/50Hz



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Comment
			Level	Factor	ment			
		MHz	dBuV	dB	dBuV	dB	Detector	
1		0.1980	38.58	10.42	49.00	63.69	-14.69	peak
2		0.1980	22.05	10.42	32.47	53.69	-21.22	AVG
3		16.9780	36.85	10.74	47.59	60.00	-12.41	peak
4	*	16.9780	31.27	10.74	42.01	50.00	-7.99	AVG