



Compliance Laboratory

MOST TECHNOLOGY SERVICE CO., LTD.

Tel: (86) 755-86170306 Fax: (86) 755-86170310

Http:// www. szmost.com Email: szmost@szmost.com

## Test Report

Product Name: PRESENTER

FCC ID: VSU-GA6284

MODEL NO. : GA-6284

Applicant:

SHENZHEN QUANNUO ELECTRONICS LTD.

3<sup>rd</sup> FL., BLOCK 1 WEST WING, TIAN FU AN IND. ZONE,  
XI XIANG(LEZHUJIAO), BAOAN DISTRICT, SHENZHEN GUANGDONG, CHIAN

Date Received: 11/16/2007

Date Tested: 11/22/2007

APPLICANT: SHENZHEN QUANNUO ELECTRONICS LTD.

FCC ID: VSU-GA6284

Cover Sheet



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## EMC Equipment List

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	100492	Apr 06,2007	1 Year
LISN	ROHDE&SCHWARZ	ENV216	100093	Apr 06,2007	1Year
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	101202	Apr 06,2007	1 Year
Spectrum Analyzer	ANRITSU	MS2651B	6200238316	Apr 06,2007	1 Year
50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200283933	Apr 06,2007	1 Year
Bilog Antenna	Sunol	JB3	A121206	Apr 06,2007	1 Year
Horn Antenna	EMCO	3115	640201028-06	Apr 06,2007	1 Year
50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200283933	Apr 06,2007	1 Year
Cable	Resenberger	N/A	NO.1	Apr 06,2007	1 Year
Cable	SCHWARZBECK	N/A	NO.2	Apr 06,2007	1 Year
Cable	SCHWARZBECK	N/A	NO.3	Apr 06,2007	1 Year
Single Phase Power Line Filter	Kikusui	LIN40MA-PC R-L	LM002352	Apr 06,2007	1Year
AC Power Source	Kikusui	AC40MA	LM003232	Apr 06,2007	1Year
Test analyzer	Kikusui	KHA1000	LM003720	Apr 06,2007	1Year
ESD Tester	Kikusui	KES4021	LM003537	Apr 08,2007	1 Year
Signal Generator	IFR	2032	203002/100	Apr 08,2007	1 Year
Amplifier	A&R	150W1000	301584	NCR	NCR
Dual Directional Coupler	A&R	DC6080	301508	Apr 06,2007	1 Year
Power Head	A&R	PH2000	301193	Apr 06,2007	1 Year
Power Meter	A&R	PM2002	302799	Apr 06,2007	1 Year
Field Monitor	A&R	FM5004	300329	Apr 06,2007	1 Year
Field Probe	A&R	FP5000	300221	Apr 06,2007	1 Year
EMC PRO System	EM Test	UCS-500-M4	V0648102026	Apr 06,2007	1 Year
EMC PRO System	EM Test	UCS-500-M4	V0648102026	Apr 06,2007	1 Year

Remark:

Test Firm Name: Most Technology Service Co., Ltd.

Test Firm Address:

No. 5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China

FCC Registered Test Site Number: 490827

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## TEST PROCEDURE

**GENERAL:** This report shall NOT be reproduced except in full without the written approval of MOST TECHNOLOGY SERVICE CO., LTD. The EUT was transmitting a test signal during the testing.

**POWER LINE CONDUCTED INTERFERENCE:** The test procedure used was ANSI Standard C63.4-2003 using a 50 uH LISN. Both Lines were observed. The bandwidth of the receiver was 10kHz with an appropriate sweep speed. The ambient temperature of the EUT was 25°C with a humidity of 58%.

**RADIATION INTERFERENCE:** The test procedure used was ANSI Standard C63.4-2003 using a ANRITSU spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a micro volt at the output of the antenna. The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz up to 1 GHz and 1 MHz with a video BW of 3 MHz above 1 GHz. The ambient temperature of the EUT was 25°C with a humidity of 58%.

**FORMULA OF CONVERSION FACTORS:** The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer and cable loss. The antenna correction factors and cable loss are stated in terms of dB. The gain of the Pre-selector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

Freq (MHz) METER READING + ACF + CABLE = FS

33                      20 dBuV + 10.36 dB + 0.9 dB= 31.26 dBuV/m @ 3m

**ANSI STANDARD C63.4-2003 10.1.7 MEASUREMENT PROCEDURES:** The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to 10th harmonic of the fundamental.

Peak readings were taken in three (3) orthogonal planes and the highest readings were converted to average readings based on the duration of "ON" time.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

The situation was similar for the conducted measurement except that the table did not rotate. The EUT was setup as described in ANSI Standard C63.4-2003 10.1.7 with the EUT 40 cm from the vertical ground wall.

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**APPLICANT:** SHENZHEN QUANNUO ELECTRONICS LTD.

**FCC ID:** VSU-GA6284

**NAME OF TEST:** RADIATION INTERFERENCE

**RULES PART NUMBER:** 15.231

**REQUIREMENTS:**

Fundamental Frequency MHz	Field Strength of Fundamental dBuV	Field Strength of Harmonics and Spurious Emissions (dBuV/m @ 3m)
40.66 to 40.70	67.04	47.04
70 to 130	61.94	41.94
130 to 174	61.94 to 71.48	41.94 to 51.48
174 to 260	71.48	51.48
260 to 470	71.48 to 81.94	51.48 to 61.94
470 and above	81.94	61.94

THE LIMIT FOR AVERAGE FIELD STRENGTH dBuV/m FOR THE FUNDAMENTAL FREQUENCY= 80.83 dBuV/m. NO FUNDAMENTAL IS ALLOWED IN THE RESTRICTED BANDS.

THE LIMIT FOR AVERAGE FIELD STRENGTH dBuV/m FOR THE HARMONICS AND SPURIOUS FREQUENCIES = 60.83 dBuV/m. SPURIOUS IN THE RESTRICTED BANDS MUST BE LESS THAN 54dBuV/m OR 15.209

**REMARK: Emissions attenuated more than 20 dB below the permissible value are not reported.**

Fundamental Radiation Interference Data:

Frequency (MHz)	Antenna Polarization	Meter Reading @3m(dBuV/m)	Coax Loss dB	ACF dB	Field Strength dBuV/m		MARGIN dB
					Peak	Average	
434.04	Horizontal	63.74	1.60	16.9	82.24	73.64	7.19
434.04	Vertical	64.44	1.60	16.9	82.94	75.04	5.79
868.08	Horizontal	35.70	2.90	21.9	60.50	52.30	8.53
868.08	Vertical	35.25	2.90	16.9	59.15	51.25	9.58
1302.12	Vertical	30.00	3.12	25.9	59.02	51.82	9.01
1736.16	Vertical	25.15	3.15	28.1	56.40	49.10	11.73
2170.20	Vertical	22.80	3.16	30.5	56.46	49.56	11.27
2604.24	Vertical	21.66	3.35	32.0	57.01	48.80	12.03
3038.28	Vertical	20.80	3.41	32.6	56.81	49.51	11.32
3472.32	Vertical	4.66	3.50	33.2	41.36	34.45	26.38
3906.36	Vertical	3.80	3.54	33.9	41.24	34.14	26.69
4340.40	Vertical	3.66	3.60	34.1	41.36	34.20	26.63

SAMPLE CALCULATION OF LIMIT @ 303 MHz:

(470 - 260)Mhz = 210 MHz

(12500 - 3750)uV/m = 8750 uV/m

8750uV/m/210MHz = 41.67 uV/m/MHz

(303-260)MHz = 43 MHz

43 MHz \* 41.67 uV/m/MHz = 1791.81 uV/m

(1791.81 + 3750)uV/m = 5541.81 uV/m limit @ 303 MHz

TEST RESULTS: The unit DOES meet the FCC requirements.

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**APPLICANT:** SHENZHEN QUANNUO ELECTRONICS LTD.

**FCC ID:** VSU-GA6284

**NAME OF TEST:** Occupied Bandwidth

**RULES PART NUMBER:** 15.231(C)

**REQUIREMENTS:** The bandwidth of the emission shall be no wider than .25% of the center frequency for devices operating between 70 and 900 MHz. Bandwidth is determined at the points 20 dB down from the modulated carrier.

$$\begin{aligned} 434.00 \text{ MHz} * 0.0025 &= 1.0855 \text{ MHz} \\ 1.0855 \text{ MHz} / 2 &= +/- 542.75 \end{aligned}$$

**METHOD OF MEASUREMENT:** METHOD OF MEASUREMENT: A small sample of the transmitter output was fed into the spectrum analyzer and the plot in next page was generated. The vertical scale is set to 10 dB per division: the horizontal scale is set to 300 KHz per division.

**TEST RESULTS:** The unit DOES meet the FCC requirements.

APPLICANT: SHENZHEN QUANNUO ELECTRONICS LTD.

FCC ID: VSU-GA6284

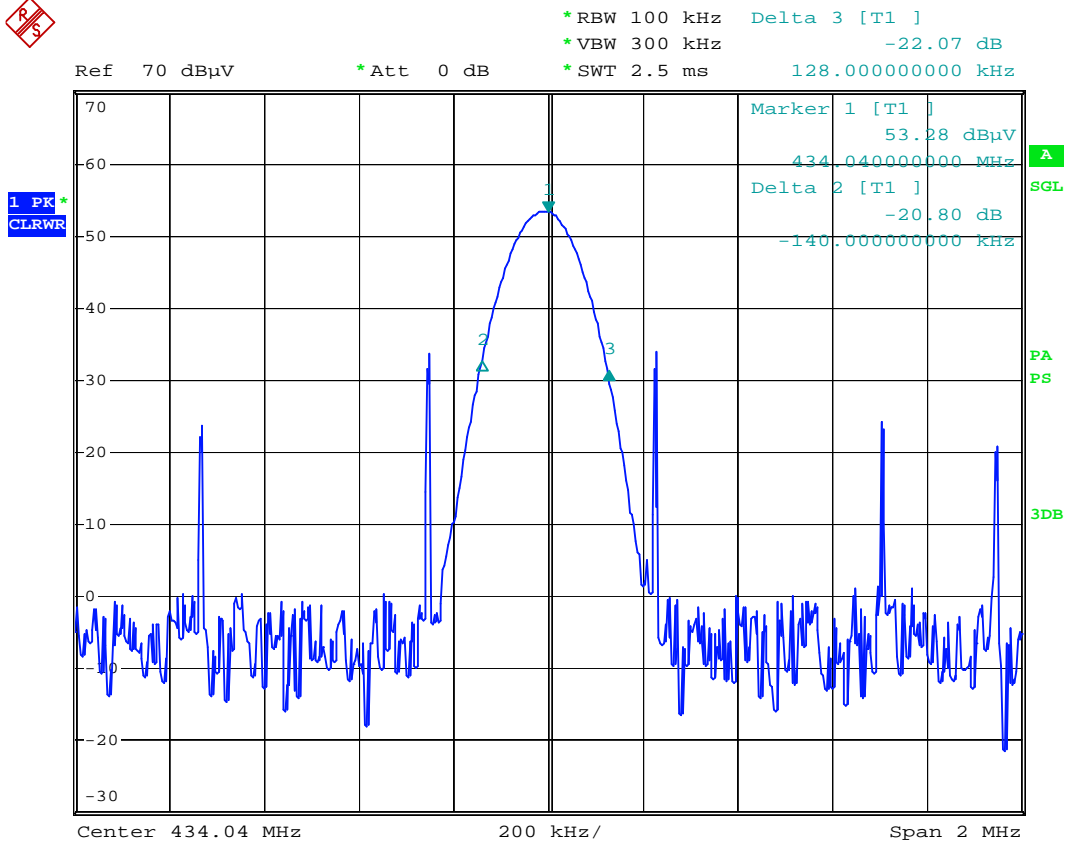


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**APPLICANT:** SHENZHEN QUANNUO ELECTRONICS LTD.

**FCC ID:** VSU-GA6284

**NAME OF TEST:** DUTY CYCLE

**RULES PART NUMBER:** 15.231

Duty Cycle(%)=

Total On interval in a complete pulse train/ Length of a complete pulse train \* %

Duty Cycle Correction Factor(dB)=20 \* Log10(Duty Cycle(%))

Pulse Train	Number of Pulse	T(ms)	Total Time(ms)
Long Pulse	2	58	116
Short Pulse	3	26	78

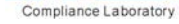
Total On interval in a complete pulse train	194
Length of a complete pulse train	216
Duty Cycle(%)	89.81%
Duty Cycle Correction Factor(dB)	19.066

TEST RESULTS: The unit DOES meet the FCC requirements.

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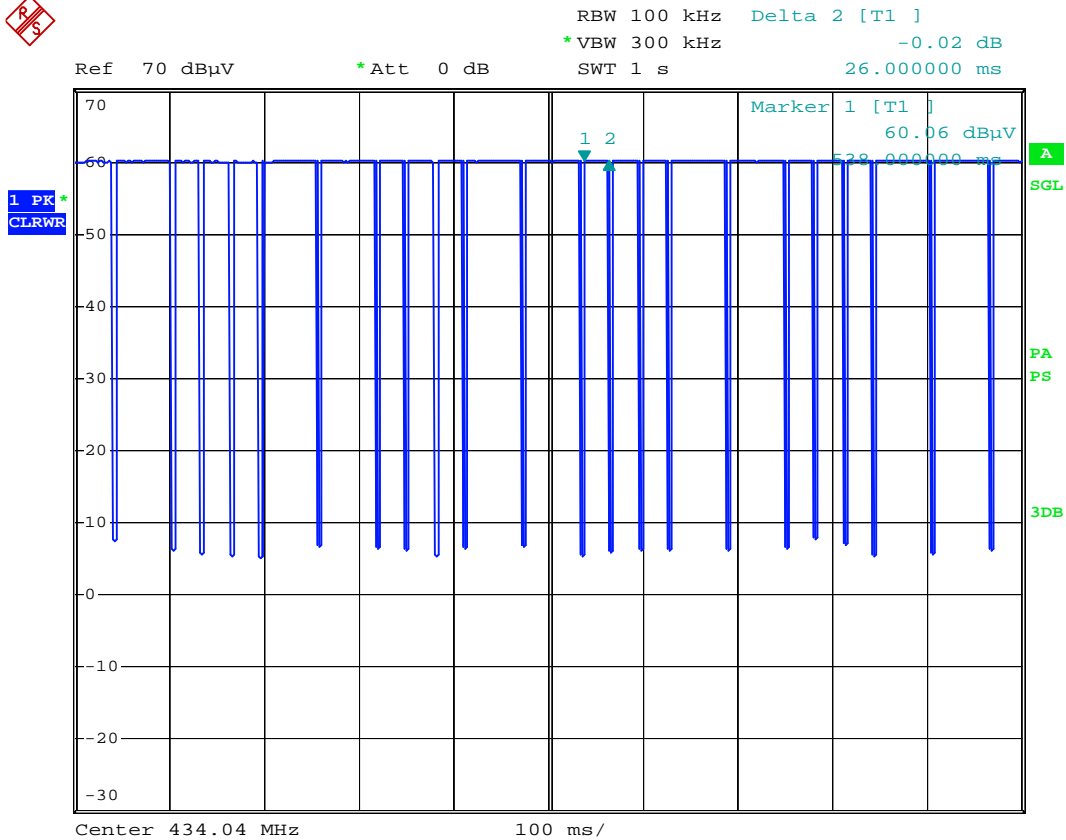


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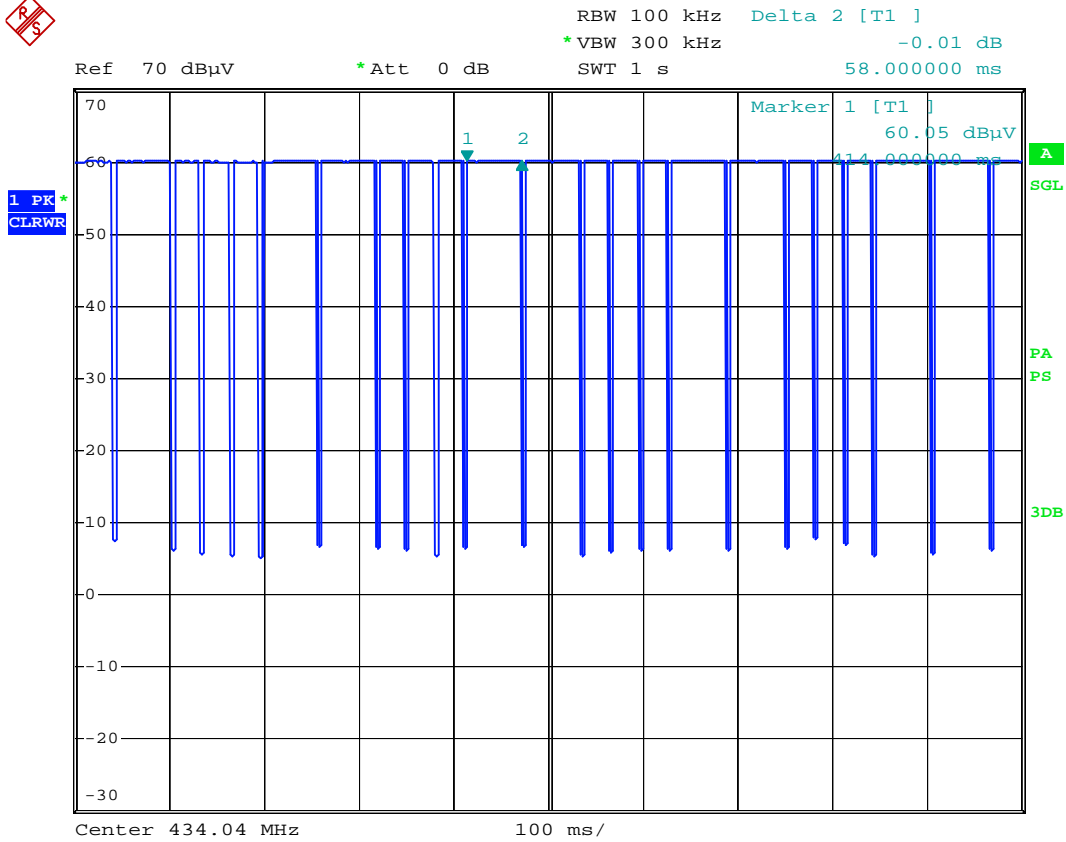


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