ECMG Worldwide Certification Solutions
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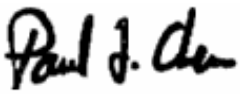
EMI Test Report

On Model Name: WLAN 11n Mini Router
Model Number: WA-6202
Broad Name: CC&C
Trade Mark: CC&C
FCC ID: WKLWA6202

Prepared for CC&C Technologies, Inc.

According to FCC Part 15 B, Class B

Test Report #:	*CCC-0809-8062-FCC*
Prepared by:	*Chris Huang*
Reviewed by:	*Harry Zhao*
QC Manager:	*Paul Chen*

Test Report Released by:  *2008, September 25*

Paul Chen *Date*

Test Location

Tests performed in a Certified ANSI Semi-Anechoic Chamber and Shielded Room performed testing.

Test Site Location: *ECMG Worldwide Certification Solution, Inc. (China)*
Building 2, 1298 Lian Xi Road,
Pu Dong New Area, Shanghai,
P.R. China 201204

Tel: *86-21-51909300*
Fax: *86-21-51909333*

FCC Registration Number: *172634*

Accreditation Bodies

The report is prepared by ECMG Worldwide Certification Solution, Inc., which is a fully accredited Test Laboratory for ITE, ISM and Telecommunications Products.

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Administrative Data

Test Sample : WLAN 11n Mini Router

Model Number : WA-6202

Trade Mark : CC&C

Serial Number : Engineering Sample

Date Tested : 2008, September 23rd

Applicant : CC&C Technologies, Inc.
No.9 Building, 3rd Main Street, Kunshan Express Processing Zone, Jiangsu, P.R.China

Telephone : 86-21-51186310

Fax : 86-21-51186311

Manufacturer : CC&C Technologies, Inc.

No.9 Building, 3rd Main Street, Kunshan Express Processing Zone, Jiangsu, P.R.China

EUT Description

CC&C Technologies, Inc., model WA-6202 (referred to as the EUT in this report) is a router.

Test Summary

The Electromagnetic Compatibility requirements on model WA-6202 for this test are stated below. All results listed in this report relate exclusively to this above-mentioned model as the Equipment under Test. This report confers no approval or endorsement upon any other component, host or subsystem used in the test set-up.

Emission Tests				
Specifications	***Description***	***Test Results***	***Test Point***	***Remark***
FCC Part 15.107 (150kHz – 30MHz)	*Conducted Emission*	***For Communicating Mode:*** *Passed by 9.14 dB of QP* *Passed by 6.88 dB of AVE*	*AC Input Port*	*Attachment 1*
FCC Part 15.109 (30MHz – 1000MHz)	*Radiated Emission*	***For Communicating Mode:*** *Passed by 2.85 dB of QP*	*Enclosure*	*Attachment 2*

Test Mode Justification

This device complies with Part 15 Class B of the FCC rules. The system was tested in the program mode and update Mode.

In communicating mode: One PC pings another PC through EUT.

EUT Exercise Software

When playing communicating mode, an executive program, under WINXP, "ping" was used to update the EUT.

Equipment Modification

Any modifications installed previous to testing by CC&C Technologies, Inc. will be incorporated in each production model sold or leased in United States.

There were no modifications installed by ECMG Worldwide Certification Solution, Inc (China) test personnel.

Test System Details

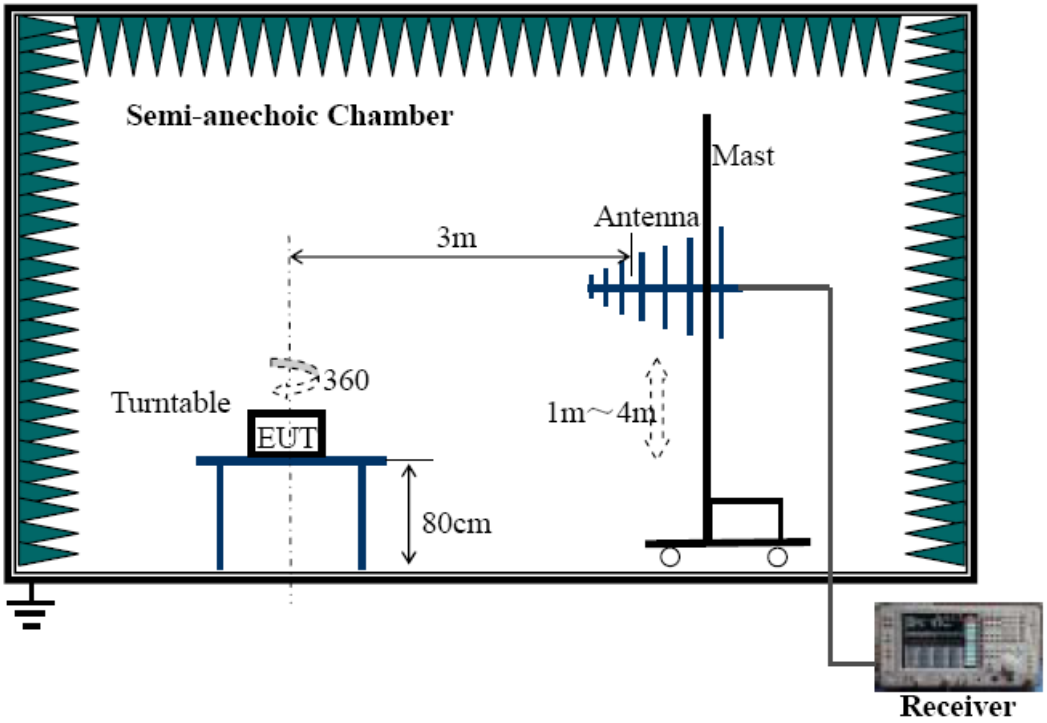
EUT	
Model Name:	WA-6202
Description:	WLAN 11n Mini Router
Manufacturer:	CC&C Technologies, Inc.
Input Voltage:	120V ~ 60Hz
EUT Power Supply	
Model Name:	AC Adapter
Model Number:	SMP012-1120
Serial Number:	N/A
Input:	100-120V, 50/60Hz,
Output:	12V DC, 1A
Manufacturer:	Senwin

CONTINUE ON TO THE NEXT PAGE…

Support Equipment				
Description	**Model Number**	**Serial Number**	**Manufacturer**	**Power Cable Description**
PC#1	OPTIPLEX 330	HBSF92X	DELL	1.8m unshielded
Monitor	E178FPC	CN0WR97964180 7CA7L4C	DELL	1.8m unshielded
Keyboard	L100	CN0RH65665890 7C401F9	DELL	N/A
Mouse	MOC5UO	G1D02BPQ	DELL	N/A
Printer converter	45CV	961217	INTEL LIGENT	N/A
Remote control box	IT-251B	N/A	N/A	N/A
Notebook	PP2040	6060A0039803	COMPAQ	1.8m unshielded

Cable Description					
Description	**From**	**To**	**Length (Meters)**	**Shielded (Y/N)**	**Ferrite Loaded (Y/N)**
Ethernet Cable	EUT	PC	2.0	N	N
VGA Cable	Monitor	PC	1.5	Y	Y (x2)
Keyboard Cable	Keyboard	PC	1.8	N	N
Mouse Cable	Mouse	PC	1.8	N	N
Serial Cable	Control box	PC	1.2m	N	N
Power Cable	Adapter	EUT	1.2m	N	YX1
Parallel Cable	Converter	PC	0.5m	N	N

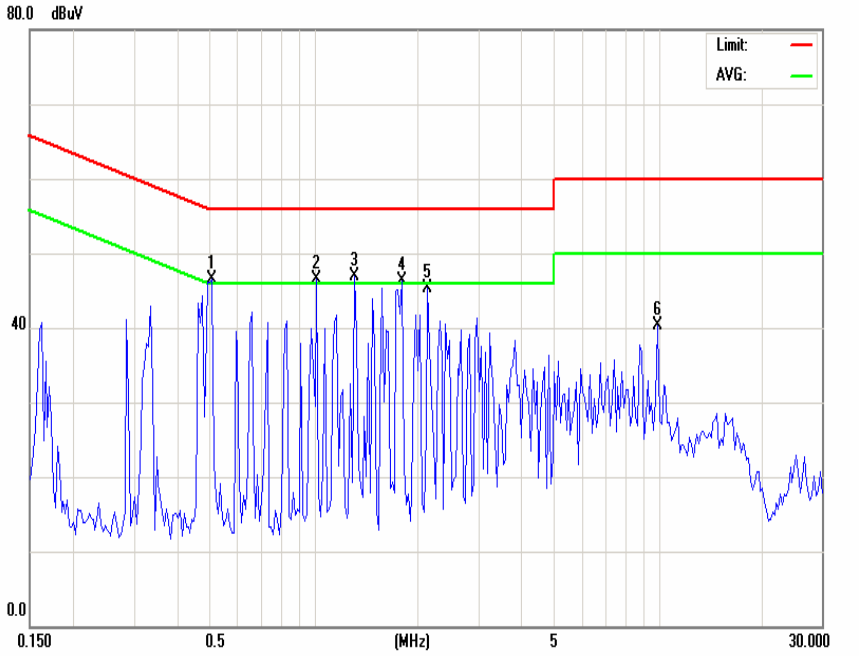
Configuration of Tested System



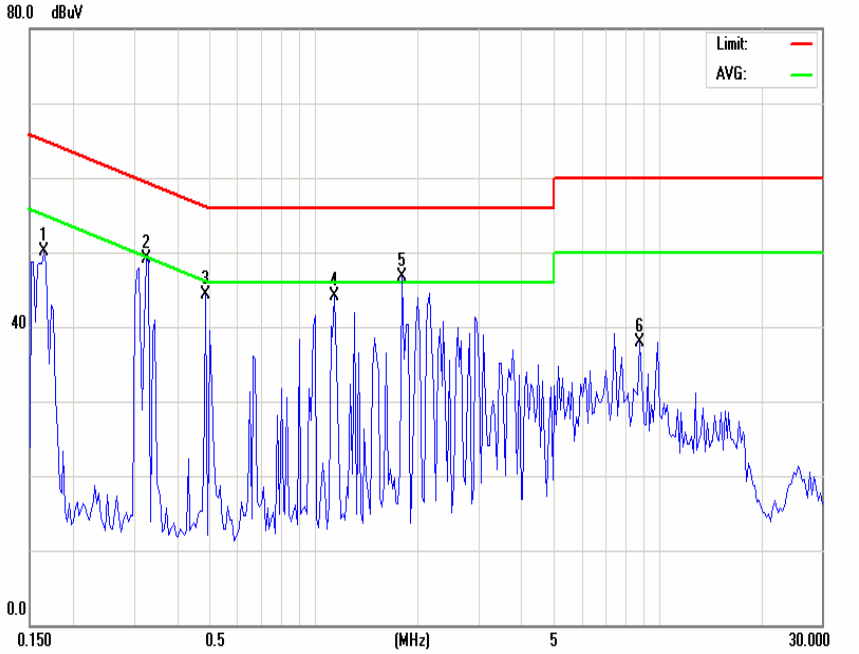
ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS

CLIENT:	CC&C Technologies, Inc.	**TEST REFERENCE:**	FCC Part 15B, Class B
MODEL NUMBER:	WA-6202	**PRODUCT:**	WLAN 11n Mini Router
SERIAL NO.:	Engineering Sample	**EUT DESIGNATION:**	ITE equipment
TEMPERATURE:	23°C	**HUMIDITY:**	60%
ATM PRESSURE:	101.8Pa	**GROUNDING:**	None
TESTED BY:	Cloud Feng	**DATE OF TEST:**	2008, September 23

SETUP METHOD:	ANSI C63.4-2003
TEST PROCEDURE:	a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface. b. Connect EUT to the power mains through a line impedance stabilization network(LISN) c. The LISN provides 50ohm coupling impedance for the measuring instrument d. Both sides of AC line were checked for maximum conduced interference. e. The frequency range from 150KHz to 30MHz was searched.. f. Set the test-receiver system to Peak Detect Function and Specified bandwidth. g. If the emission level of the EUT in peak mode was 20 dB lower than the specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be tested using the quasi-peak method in about six maximal points and the results will be reported.
TESTED RANGE:	150kHz to 30MHz
TEST VOLTAGE:	120VAC/60Hz
RESULTS:	The EUT meets the requirements of test reference for Conducted Emissions on line L by 9.14 dB of Quasi-Peak detector and on line N by 6.88 dB of Average detector. The test results relate only to the equipment under test provided by client.
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Worldwide Certification Solution, Inc (China) test personnel.
M. UNCERTAINTY:	Freq. $\pm$ $2x10^{-7}$ x Center Freq., Amp $\pm$ 2.6 dB



Line L Conducted Emission Graph



Line N Conducted Emission Graph

Line L (Hot Lead)								
Signal	**Frequency (MHz)**	**Corrected QP Level (dBuV)**	**Limits QP (dBuV)**	**Margin QP (dB)**	**Frequency (MHz)**	**Corrected AVE Level (dBuV)**	**Limits AVE (dBuV)**	**Margin AVE (dB)**
1	0.507	46.48	56.00	-9.52	0.507	38.54	46.00	-7.46
2	1.024	46.57	56.00	-9.43	1.024	37.95	46.00	-8.05
3	1.317	46.86	56.00	-9.14	1.317	38.12	46.00	-7.88
4	1.809	46.38	56.00	-9.62	1.809	37.67	46.00	-8.33
5	2.149	45.23	56.00	-10.77	2.149	35.93	46.00	-10.07
6	9.992	40.40	60.00	-19.60	9.992	33.56	50.00	-16.44
Line N (Neutral Lead)								
Signal	**Frequency (MHz)**	**Corrected QP Level (dBuV)**	**Limits QP (dBuV)**	**Margin QP (dB)**	**Frequency (MHz)**	**Corrected AVE Level (dBuV)**	**Limits AVE (dBuV)**	**Margin AVE (dB)**
1	0.165	50.15	65.22	-15.07	0.165	41.23	55.22	-13.99
2	0.328	49.10	59.51	-10.41	0.328	40.23	49.51	-9.28
3	0.488	44.25	56.21	-11.96	0.488	37.49	46.21	-8.72
4	1.153	44.01	56.00	-11.99	1.153	37.20	46.00	-8.80
5	1.809	46.68	56.00	-9.32	1.809	39.12	46.00	-6.88
6	8.869	37.81	60.00	-22.19	8.869	32.73	50.00	-17.27
Note: All readings are using a bandwidth of 9 kHz, with a 30 ms sweep time. A video filter was not used.								

Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due Date
EMI Receiver	HP	85462A	3650A00363	11/29/07	11/28/08
LISN	R&S	ESH3-Z5	844249/018	12/04/07	12/03/08
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

SIGNED BY: _____ **REVIEWED BY:** _____

ENGINEER **SENIOR ENGINEER**

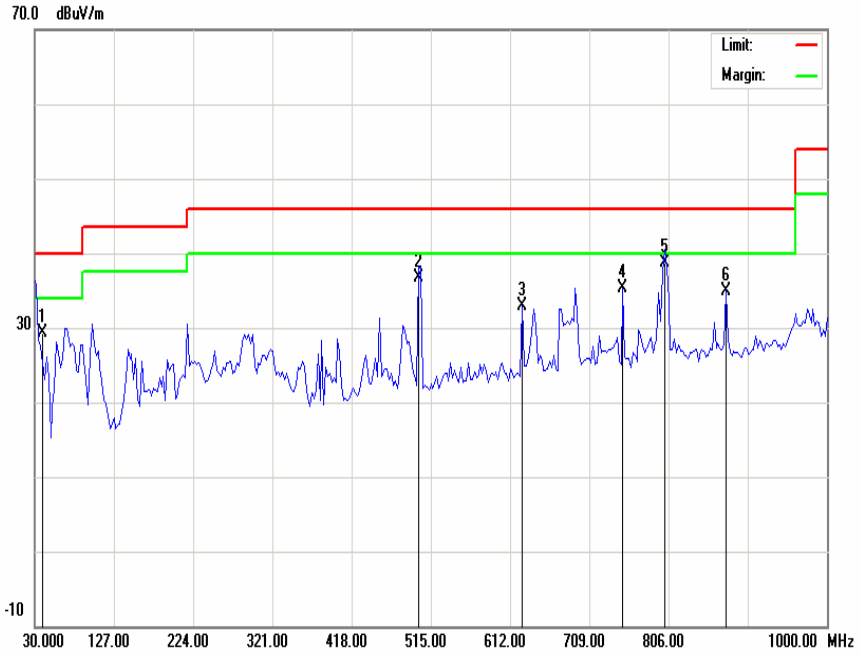
Model Number: WA-6202

Conducted Emission Test Set-up View

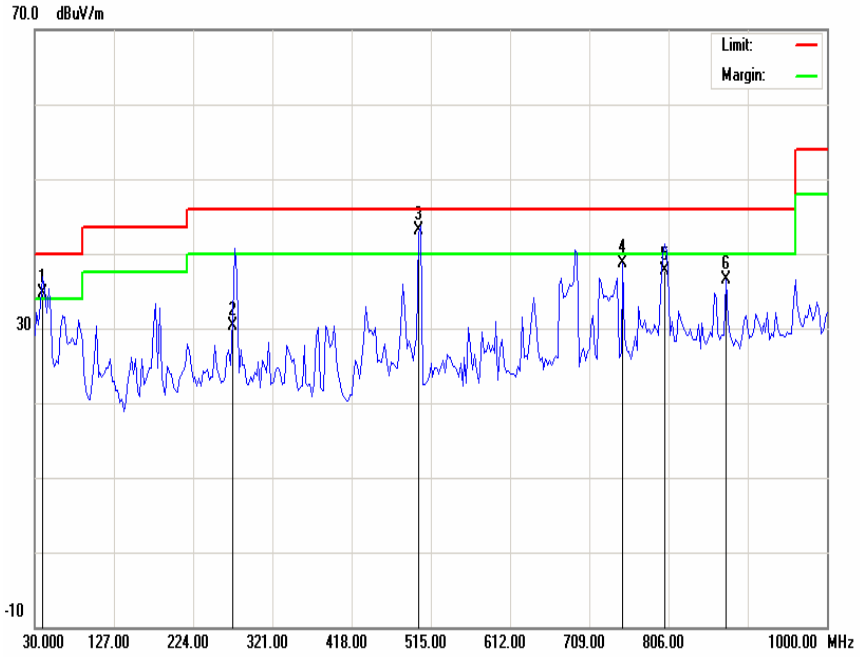
ATTACHMENT 2 - RADIATED EMISSION TEST RESULTS

CLIENT:	CC&C Technologies, Inc.	**TEST REFERENCE:**	FCC Part 15 B, Class B
MODEL NUMBER:	WA-6202	**PRODUCT:**	WLAN 11n Mini Router
SERIAL NO.:	Engineering Sample	**EUT DESIGNATION:**	ITE equipment
TEMPERATURE:	21°C	**HUMIDITY:**	60%
ATM PRESSURE:	102.1Pa	**GROUNDING:**	None
TESTED BY:	Cloud Feng	**DATE OF TEST:**	2008, September 23

SETUP METHOD:	ANSI C63.4-2003
TEST PROCEDURE:	a. The EUT was placed on a rotatable table with 0.8 meters above ground. b. The EUT was set 3 meters from the interference-receiving antenna, which was mounted on the top of a variable height antenna tower. c. For each suspected emission the EUT was arranged to its worst case and turn table (from 0 degree to 360 degree) to find the maximum reading. d. If the emission level of the EUT in peak mode was 20 dB lower than the specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be tested using the quasi-peak method in about six maximal points and the results will be reported. Explanation of the Correction Factor are given as follows: FS= RA + AF + CF - AG Where: FS = Field Strength RA = Receiver Amplitude AF = Antenna Factor CF = Cable Attenuation Factor AG = Amplifier Gain
TESTED RANGE:	30MHz to 1000MHz
TEST VOLTAGE:	120VAC / 60Hz
RESULTS:	The EUT meets the requirements of test reference for Radiated Emissions on vertical polarization by 2.85 dB at 500.02 MHz. The test results relate only to the equipment under test provided by client.
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Worldwide Certification Solution, Inc (China) test personnel.
M. UNCERTAINTY:	Freq. $\pm$ 2x10^{-7} x Center Freq., Amp $\pm$ 2.6 dB



Field strength Emission Plot (Peak, Max Hold Mode Horizontal)



Field strength Emission Plot (Peak, Max Hold Mode Vertical)

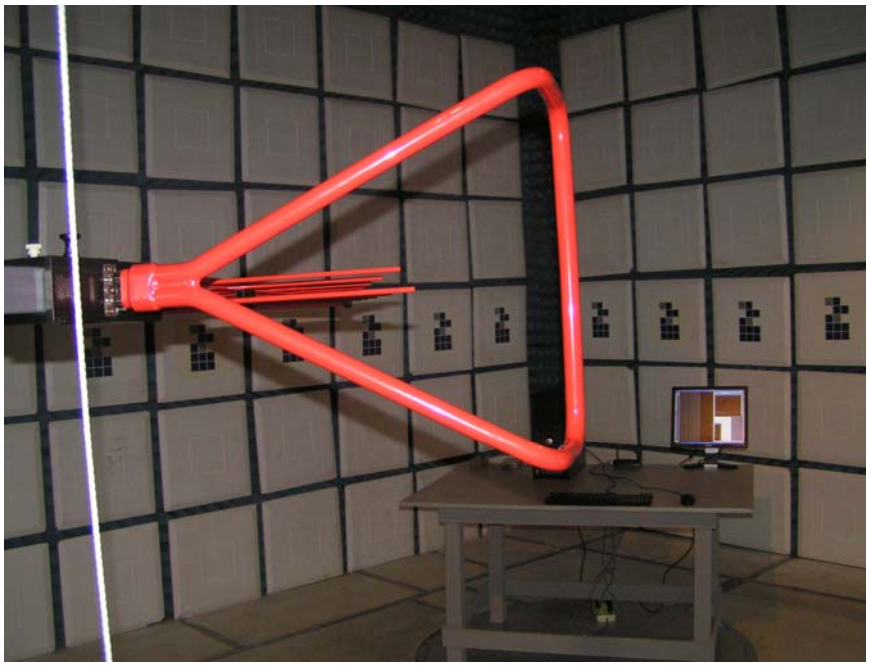
Horizontal							
Signal	**Frequency (MHz)**	**Factor (dB)**	**Corrected QP Level dB(uV/m)**	**3 Meter Limits dB(uV/m)**	**Margin (dB)**	**Angle of Turner (degree)**	**Height of Tower (cm)**
1	39.47	14.22	29.27	40.00	-10.73	293	193
2	500.03	20.10	36.80	46.00	-9.20	354	100
3	626.55	21.30	32.81	46.00	-13.19	28	139
4	750.23	23.40	35.40	46.00	-10.60	148	113
5	800.28	24.10	38.68	46.00	-7.32	104	120
6	876.33	24.86	34.83	46.00	-11.17	83	126
Vertical							
Signal	**Frequency (MHz)**	**Factor (dB)**	**Corrected QP Level dB(uV/m)**	**3 Meter Limits dB(uV/m)**	**Margin (dB)**	**Angle of Turner (degree)**	**Height of Tower (cm)**
1	39.55	14.25	34.65	40.00	-5.35	345	104
2	271.25	14.98	30.26	46.00	-15.74	102	100
3	500.02	20.10	43.15	46.00	-2.85	38	121
4	750.23	23.40	38.67	46.00	-7.33	235	100
5	801.04	24.11	37.63	46.00	-8.37	184	105
6	876.33	24.86	36.57	46.00	-9.43	193	115
Set-up/Configuration: ANSI C63.4-2003							
Comments: None							
Note: All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 120kHz, with a 30 ms sweep time. A video filter was not used.							

Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due Date
EMI Receiver	HP	85462A	3650A00363	11/29/07	11/28/08
Broadband Antenna	Sunol	JB5	A110503	11/29/07	11/28/08
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

SIGNED BY: _____ **REVIEWED BY:** _____

ENGINEER **SENIOR ENGINNER**

Model Number: WA-6202



Radiated Emission Test Set-Up View