

FCC PART 22H, PART 24E  
TEST REPORT

For

**Advance Tech Communications Sdn Bhd**

Persoft Tower, Level 6, 6B, Persiaran Tropicana, Tropicana Golf and Country Resort, Petaling Jaya, Selangor DE, Malaysia.

**FCC ID: QTTATCMAGICW3**

<b>Report Type:</b> Original Report	<b>Product Type:</b> Microcomputer with integrated Telephony
<b>Test Engineer:</b> Henry Ding	<i>Henry Ding</i>
<b>Report Number:</b> RSZ121120005-00C	
<b>Report Date:</b> 2012-12-31	
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**Note:** This test report is prepared for the customer shown above and for the equipment described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.

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## GENERAL INFORMATION

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### Product Description for Equipment under Test (EUT)

The *Advance Tech Communications Sdn Bhd*'s product, model number: *W3 (FCC ID: QTTATCMAGICW3)* or the "EUT" in this report was a *Microcomputer with integrated Telephony*, which was measured approximately: 14.0 cm (L) x 8.0 cm (W) x 2.5 cm (H), rated input voltage: DC 3.7 V Li-ion battery.

*\* All measurement and test data in this report was gathered from production sample serial number: 1211115 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2012-11-20.*

### Objective

This test report is prepared on behalf of *Advance Tech Communications Sdn Bhd* in accordance with Part 2-Subpart J, Part 22-Subpart H, and Part 24-Subpart E of the Federal Communication Commissions rules.

The objective is to determine the compliance of the EUT with FCC rules for output power, modulation characteristic, occupied bandwidth, and spurious emission at antenna terminal, spurious radiated emission, frequency stability and band edge.

### Related Submittal(s)/Grant(s)

FCC Part 15.247 DTS and Part 15B JBP submissions with FCC ID: QTTATCMAGICW3.

### Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2-Subpart J as well as the following parts:

Part 22 Subpart H - Public Mobile Services  
Part 24 Subpart E - Personal Communication Services

Applicable Standards: TIA/EIA 603-D, ANSI C63.4-2009.

All radiated and conducted emissions measurements were performed at Bay Area Compliance Laboratories Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

### **Test Facility**

The Test site used by Bay Area Compliance Laboratories Corp.(Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

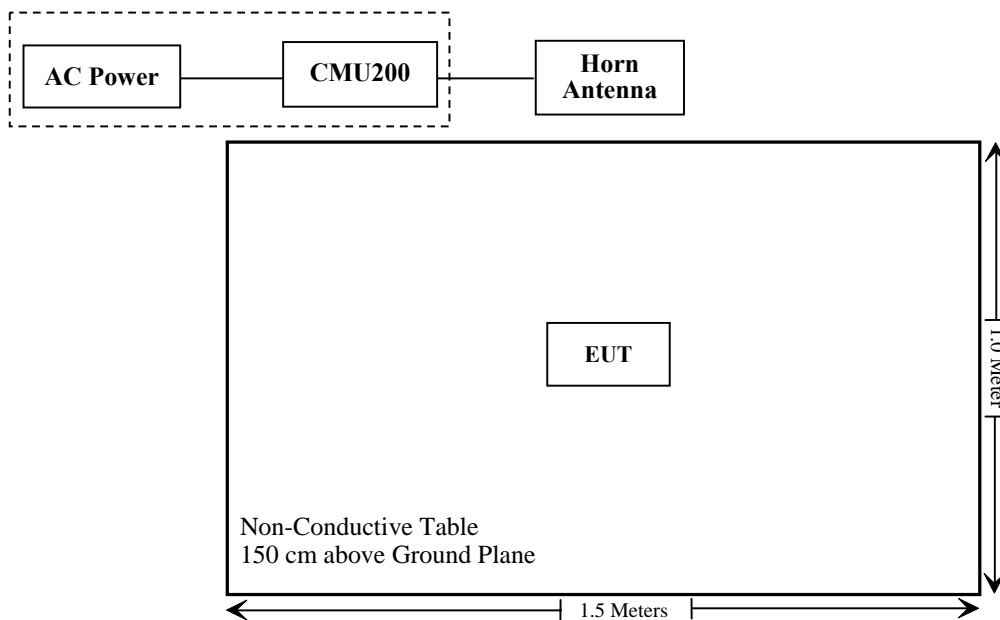
The EUT was configured for testing according to TIA/EIA-603-D.

The final qualification was performed with the EUT operating at engineering mode.

### Equipment Modifications

No modification was made to the EUT.

### Block Diagram of Test Setup



## **SUMMARY OF TEST RESULTS**

<b>FCC Rules</b>	<b>Description of Test</b>	<b>Result</b>
§1.1307, §2.1093	RF Exposure (SAR)	Compliance*
§2.1046; § 22.913 (a); § 24.232 (c)	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905 § 22.917; § 24.238	Occupied Bandwidth	Compliance**
§ 2.1051, § 22.917 (a); § 24.238 (a)	Spurious Emissions at Antenna Terminal	Compliance**
§ 2.1053 § 22.917 (a); § 24.238 (a)	Field Strength of Spurious Radiation	Compliance
§ 22.917 (a); § 24.238 (a)	Out of band emission, Band Edge	Compliance**
§ 2.1055 § 22.355; § 24.235	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance**

Note: \* Please refer to SAR report released by BACL, report number: RSZ121120005-20.

Compliance\*\*: Please refer to the modular report FCC ID: NCMOMO6612 which was granted on 2011-07-07.

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## **FCC §1.1307 & §2.1093 - RF EXPOSURE**

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### **Applicable Standard**

FCC§1.1307 and §2.1093.

### **Test Result**

Compliance, please refer to the SAR report: RSZ121120005-20.

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## **FCC §2.1047 - MODULATION CHARACTERISTIC**

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According to FCC § 2.1047(d), Part 22H & 24E there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.



## **FCC § 2.1046, § 22.913 (a) & § 24.232 (c) - RF OUTPUT POWER**

### **Applicable Standard**

According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (C), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications..

### **Test Procedure**

*Radiated method:*

TIA 603-D section 2.2.17

### **Test Equipment List and Details**

<b>Manufacturer</b>	<b>Description</b>	<b>Model</b>	<b>Serial Number</b>	<b>Calibration Date</b>	<b>Calibration Due Date</b>
Sunol Sciences	Horn Antenna	DRH-118	A052304	2011-12-01	2014-11-30
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2012-11-24	2013-11-23
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2014-11-27
HP	Synthesized Sweeper	8341B	2624A00116	2012-05-17	2013-05-16
COM POWER	Dipole Antenna	AD-100	041000	2012-06-06	2013-06-05
A.H. System	Horn Antenna	SAS-200/571	135	2012-02-11	2015-02-10
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2012-04-11	2013-04-10

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

**Test Data**

**Environmental Conditions**

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	100.0kPa

The testing was performed by Henry Ding on 2012-12-25.

**Conducted Power**

Please refer to the FCC ID: NCMOMO6612 which was granted on 2011-07-07.

**Radiated Power**

**ERP & EIRP**

**GSM mode**

**ERP for Cellular Band (Part 22H)**

Frequency (MHz)	Receiver Reading (dBµV)	Turn Table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Part 22H Limit (dBm)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable loss(dB)	Antenna Gain (dB)		
Middle Channel (836.6 MHz)									
836.6	86.16	185	1.5	H	18.3	0.69	0.00	17.61	38.45
836.6	88.22	56	1.6	V	20.9	0.69	0.00	20.21	38.45

**EIRP for PCS Band (Part 24E)**

Frequency (MHz)	Receiver Reading (dBµV)	Turn Table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Part 24E Limit (dBm)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable loss(dB)	Antenna Gain (dB)		
Middle Channel (1880.0 MHz)									
1880.0	86.99	51	1.5	H	12.9	1.03	9.40	21.27	33.0
1880.0	79.82	52	1.6	V	10.9	1.03	9.40	19.27	33.0

**EGPRS mode**

**ERP for Cellular Band (Part 22H)**

Frequency (MHz)	Receiver Reading (dBµV)	Turn Table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Part 22H Limit (dBm)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable loss(dB)	Antenna Gain (dB)		
Middle Channel (836.6 MHz)									
836.6	82.43	190	1.6	H	14.57	0.69	0	13.88	38.45
836.6	84.13	560	1.6	V	16.81	0.69	0	16.12	38.45

**EIRP for PCS Band (Part 24E)**

Frequency (MHz)	Receiver Reading (dBµV)	Turn Table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Part 24E Limit (dBm)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable loss(dB)	Antenna Gain (dB)		
Middle Channel (1880.0 MHz)									
1880	83.76	55	1.6	H	9.67	1.03	9.4	18.04	33
1880	77.96	60	1.5	V	9.04	1.03	9.4	17.41	33

**WCDMA mode**

**ERP for Cellular Band (Part 22H)**

Frequency (MHz)	Receiver Reading (dBµV)	Turn Table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Part 22H Limit (dBm)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable loss(dB)	Antenna Gain (dB)		
Middle Channel (836.6 MHz)									
836.6	82.33	44	1.5	H	14.5	0.69	0.00	13.81	38.45
836.6	81.29	55	1.8	V	14.0	0.69	0.00	13.29	38.45

**EIRP for PCS Band (Part 24E)**

Frequency (MHz)	Receiver Reading (dBµV)	Turn Table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Part 24E Limit (dBm)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable loss(dB)	Antenna Gain (dB)		
Middle Channel (1880.0 MHz)									
1880.0	80.22	75	1.5	H	6.2	1.03	9.40	14.53	33.0
1880.0	75.61	22	1.7	V	8.7	1.03	9.40	15.07	33.0

## FCC §2.1053, §22.917 & §24.238 - SPURIOUS RADIATED EMISSIONS

### Applicable Standard

FCC § 2.1053, §22.917 and § 24.238.

### Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the receiving antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = 10 lg (TXpwr in Watts/0.001) – the absolute level

Spurious attenuation limit in dB = 43 + 10 Log<sub>10</sub> (power out in Watts)

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Horn Antenna	DRH-118	A052304	2011-12-01	2014-11-30
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2014-11-27
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2012-11-24	2013-11-23
SUPER ULTRA	Amplifier	ZVA-213+	N/A	2012-11-24	2013-11-23
HP	Amplifier	HP8447D	2944A09795	2012-11-24	2013-11-23
HP	Synthesized Sweeper	8341B	2624A00116	2012-04-11	2013-04-10
COM POWER	Dipole Antenna	AD-100	041000	2012-06-06	2013-06-05
A.H. System	Horn Antenna	SAS-200/571	135	2012-02-11	2015-02-10
Electro-Mechanics	Horn Antenna	3116	9510-2270	2010-10-14	2013-10-13
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2012-04-11	2013-04-10

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

**Test Data****Environmental Conditions**

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	100.0kPa

The testing was performed by Henry Ding on 2012-12-25.

EUT operation mode: Transmitting (worst case)

**GSM mode**

**30 MHz ~ 10 GHz:**

**Cellular Band (Part 22H)**

Frequency (MHz)	Receiver Reading (dBμV)	Turn Table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable loss (dB)	Antenna Gain (dB)			
Middle channel (836.6 MHz)										
161.2	42.15	36	1.6	H	-55.1	0.0	0.26	-55.36	-13	42.36
322.6	41.96	96	1.5	V	-55.3	0.0	0.42	-55.72	-13	42.72
514.1	42.23	5	1.9	V	-55.0	0.0	0.49	-55.49	-13	42.49
1673.2	57.58	115	1.5	H	-45.5	9.4	0.97	-37.07	-13	24.07
1673.2	60.26	262	1.4	V	-40.2	9.4	0.97	-31.77	-13	18.77
2509.8	63.95	62	1.6	H	-36.8	10.7	1.46	-27.56	-13	14.56
2509.8	61.78	95	1.5	V	-34.6	10.7	1.46	-25.36	-13	12.36
3346.4	41.22	15	1.6	H	-53.2	10.8	2.08	-44.48	-13	31.48
3346.4	40.58	36	1.6	V	-53.0	10.8	2.08	-44.28	-13	31.28

**30 MHz ~ 20 GHz:**

**PCS Band (Part 24E)**

Frequency (MHz)	Receiver Reading (dBμV)	Turn Table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable loss (dB)	Antenna Gain (dB)			
Middle channel (1880 MHz)										
161.2	40.12	52	1.6	H	-57.1	0.0	0.26	-57.36	-13	44.36
322.6	41.26	6	1.5	V	-56.0	0.0	0.42	-56.42	-13	43.42
514.1	41.22	92	1.6	V	-56.0	0.0	0.49	-56.49	-13	43.49
3760.0	44.73	49	1.9	H	-51.4	10.4	2.96	-43.96	-13	30.96
3760.0	43.10	22	1.8	V	-51.6	10.4	2.96	-44.16	-13	31.16
5640.0	35.28	6	1.4	H	-57.4	11.7	3.94	-49.64	-13	36.64
5640.0	36.49	2	1.5	V	-53.6	11.7	3.94	-45.84	-13	32.84
7520.0	34.28	52	1.6	H	-54.0	12.0	3.07	-45.07	-13	32.07
7520.0	33.96	125	1.5	V	-55.5	12.0	3.07	-46.57	-13	33.57

**WCDMA mode**

**30 MHz ~ 10 GHz:**

**Cellular Band (Part 22H)**

Frequency (MHz)	Receiver Reading (dBµV)	Turn Table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable loss (dB)	Antenna Gain (dB)			
Middle channel (836.6 MHz)										
161.7	41.58	62	1.6	H	-55.7	0.26	0.0	-55.96	-13	42.96
322.2	42.69	5	1.5	V	-54.6	0.42	0.0	-55.02	-13	42.02
514.5	43.22	9	1.6	V	-54.0	0.49	0.0	-54.49	-13	41.49
1673.2	37.65	56	1.5	H	-65.4	0.97	9.4	-56.97	-13	43.97
1673.2	39.46	52	1.6	V	-61.0	0.97	9.4	-52.57	-13	39.57
2509.8	35.89	45	1.6	H	-64.8	1.46	10.7	-55.56	-13	42.56
2509.8	36.27	26	1.6	V	-60.1	1.46	10.7	-50.86	-13	37.86
3346.4	42.25	225	1.6	H	-52.2	2.08	10.8	-43.48	-13	30.48
3346.4	41.87	1	1.5	V	-51.7	2.08	10.8	-42.98	-13	29.98

**30 MHz ~ 20 GHz:**

**PCS Band (Part 24E)**

Frequency (MHz)	Receiver Reading (dBµV)	Turn Table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable loss (dB)	Antenna Gain (dB)			
Middle channel (1880 MHz)										
161.7	39.65	52	1.6	H	-57.6	0.26	0.0	-57.86	-13	44.86
322.2	41.25	6	1.5	V	-56.0	0.42	0.0	-56.42	-13	43.42
514.5	41.26	2	1.9	V	-56.0	0.49	0.0	-56.49	-13	43.49
3760.0	52.20	6	1.5	H	-43.9	2.96	10.4	-36.46	-13	23.46
3760.0	48.51	2	1.4	V	-46.2	2.96	10.4	-38.76	-13	25.76
5640.0	33.67	55	1.6	H	-59.0	3.94	11.7	-51.24	-13	38.24
5640.0	34.28	236	1.8	V	-55.8	3.94	11.7	-48.04	-13	35.04
7520.0	33.25	9	1.6	H	-55.0	3.07	12.0	-46.07	-13	33.07
7520.0	34.15	59	1.5	V	-55.3	3.07	12.0	-46.37	-13	33.37

Note:

Absolute Level = SG Level - Cable loss + Antenna Gain

Margin = Limit- Absolute Level

**\*\*\*\*\* END OF REPORT \*\*\*\*\***