

ELECTROMAGNETIC EMISSION COMPLIANCE REPORT

Test Report No. : E10OR-003
AGR No. : A108A-103R
Applicant : UIN Chemical Co., Ltd.
Address : 59-1, Galsan-ri, Tanjung-Myeon, Asan-city, ChoongNam, Korea
Manufacturer : UIN Chemical Co., Ltd.
Address : 59-1, Galsan-ri, Tanjung-Myeon, Asan-city, ChoongNam, Korea
Type of Equipment : Wireless PTAC (Packaged Terminal Air Conditioners) Control System,
Receiver (All other receivers subject to Part 15)
FCC ID. : YR4PC300
Model Name : PC-300
Serial number : N/A
Total page of Report : 12 pages (including this page)
Date of Incoming : September 17, 2010
Date of Issuing : October 04, 2010

SUMMARY

The equipment complies with the requirements of **FCC CFR 47 PART 15 SUBPART B, SECTION 15.101**
This test report contains only the results of a single test of the sample supplied for the examination. It is not a
general valid assessment of the features of the respective products of the mass-production.

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Revision History

Issue Report No.	Issued Date	Revisions	Effect Section
E10OR-003	October 04, 2010	Initial Release	All

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EMC-004 (Rev.1)

HEAD OFFICE : #505 SK Apt. Factory, 223-28 Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea
(TEL: +82-31-746-8500, FAX: +82-31-746-8700)

EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea.(TEL: +82-31-765-8289, FAX: +82-31-766-2904)

1. VERIFICATION OF COMPLIANCE

- . Applicant : UIN Chemical Co., Ltd.
- . Address : 59-1, Galsan-ri, Tanjung-Myeon, Asan-city, ChoongNam, Korea
- . Contact Person : Mr. Bum-Yong, Lee / President
- . Telephone Number : +82-2-2276-0361
- . FCC ID : YR4PC300
- . Model Name : PC-300
- . Serial Number : N/A
- . Date : October 04, 2010

DEVICE TYPE	CXX - All other receivers subject to Part 15, Unintentional Radiator
E.U.T. DESCRIPTION	Wireless PTAC (Packaged Terminal Air Conditioners) Control System, Receiver
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.4: 2009
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15, SECTION 15.101
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 m open area test site

The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

2. GENERAL INFORMATION

2.1 Product Description

The UIN Chemical Co., Ltd., Model PC-300 (referred to as the EUT in this report) is a receiver for Wireless PTAC (Packaged Terminal Air Conditioners) Control System, Receiver which is designed to receive radio signal from the sensor and control the PTAC unit in hotels and motels. The receiver controls the PTAC unit by turning the PTAC “ON” or “OFF” depending in the command from the sensor. This device is used with the sensor, FCC ID: YR4CS300 that was manufactured by UIN Chemical Co., Ltd. Product specification described herein was obtained from product data sheet or user’s manual.

CHASSIS TYPE	Plastic
RECEIVING FEQUENCY	311.06 MHz
LIST OF EACH OSC. OR CRY. FREQ.(FREQ. \geq 1 MHz)	4.835 8 MHz
POWER REQUIREMENT	AC (90 ~ 280) V
NUMBER OF LAYERS	2 Layers

2.2 Model Differences

- None

2.3 Related Submittal(s) / Grant(s)

Original submittal only

2.4 Purpose of the test

To determine whether the equipment under test fulfills the requirements of the regulation stated in section 15.107 and 15.109.

2.5 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4: 2009. Radiated testing was performed at a distance of 3 m from EUT to the antenna.

2.6 Test Facility

The open area test site and conducted measurement facilities are located on at 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do, 464-862, Korea. Description details of test facilities were submitted to the Commission on August 21, 2008. (Registration Number: 340658)

3. SYSTEM TEST CONFIGURATION

3.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Main Board	UIN Chemical Co., Ltd.	PTR-100A V1.2	N/A

3.2 Peripheral equipment

Defined as equipment needed for correct operation of the EUT, but not considered as tested:

Model	Manufacturer	FCC ID	Description	Connected to
PC-300	UIN Chemical	YR4PC300	Wireless PTAC (Packaged Terminal Air Conditioners) Control System, Receiver (EUT)	-
CS-300	UIN Chemical	YR4CS300	Wireless PTAC (Packaged Terminal Air Conditioners) Control System, Sensor (Tx)	-
N/A	N/A	N/A	Incandescent Lamp	EUT

3.3 Mode of operation during the test

- The EUT was operated with receiving mode continuously during the test.

3.4 Equipment Modifications

- None

3.5 Configuration of Test System

Line Conducted Test : The power of EUT was connected to LISN. All supporting equipments were connected to another LISN. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.4: 2009 7.3.3 to determine the worse operating conditions.

Radiated Emission Test : Preliminary radiated emission test was conducted using the procedure in ANSI C63.4: 2009 8.3.1.1 to determine the worse operating conditions. Final radiated emission test was conducted at 3 m open area test site.

4. PRELIMINARY TEST

4.1 AC Power line Conducted Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
Receiving mode	X

4.2 Radiated Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
Receiving mode	X

5. FINAL RESULT OF MEASURMENT

Preliminary test was done in normal operation mode. And the final measurement was selected for the maximized emission level

5.1 Conducted Emission Test

Humidity Level	: <u>44 % R.H.</u>	Temperature: <u>24 °C</u>
Limits apply to	: <u>FCC CFR 47, PART 15, SUBPART B, SECTION 15.107 (a)</u>	
Type of Test	: <u>CLASS B</u>	
Result	: <u>PASSED BY -5.96 dB at 0.50 MHz under average mode</u>	

EUT : Wireless PTAC (Packaged Terminal Air Conditioners)
Control System, Receiver Date: September 18, 2010
Detector : CISPR Quasi-Peak (6 dB Bandwidth: 9 kHz)

Frequency (MHz)	Line	Quasi-Peak (dB μ V)		Margin (dB)
		Emission level	Limits	
0.44	N	48.20	57.06	-8.86
0.46	N	48.22	56.60	-8.38
0.49	N	49.40	56.17	-6.77
0.50	H	47.68	56.00	-8.32
2.76	H	46.29	56.00	-9.71
2.87	N	45.35	56.00	-10.65
Frequency (MHz)	Line	Average (dB μ V)		Margin (dB)
		Emission level	Limits	
0.45	H	39.17	46.88	-7.71
0.49	N	39.41	46.17	-6.76
0.50	H	40.04	46.00	-5.96
2.77	N	35.09	46.00	-10.91

Line Conducted Emission Tabulated Data

Remark : "H": Hot Line, "N": Neutral Line

See next page for an overview sweep performed with quasi-peak and average detector.



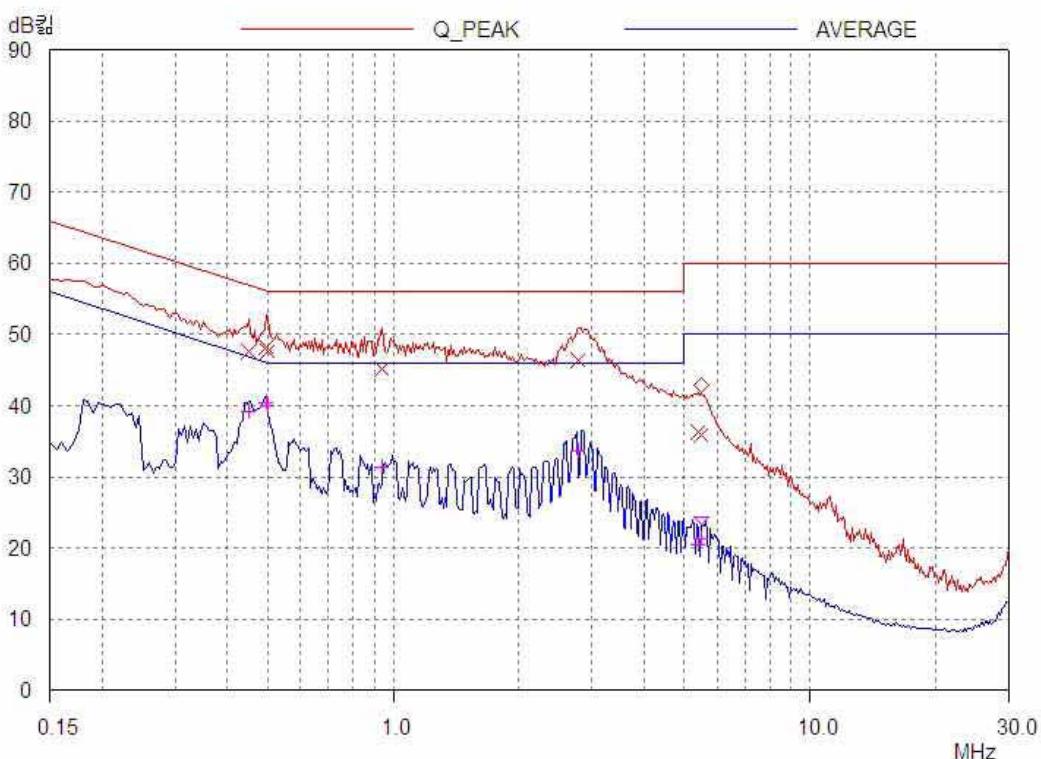
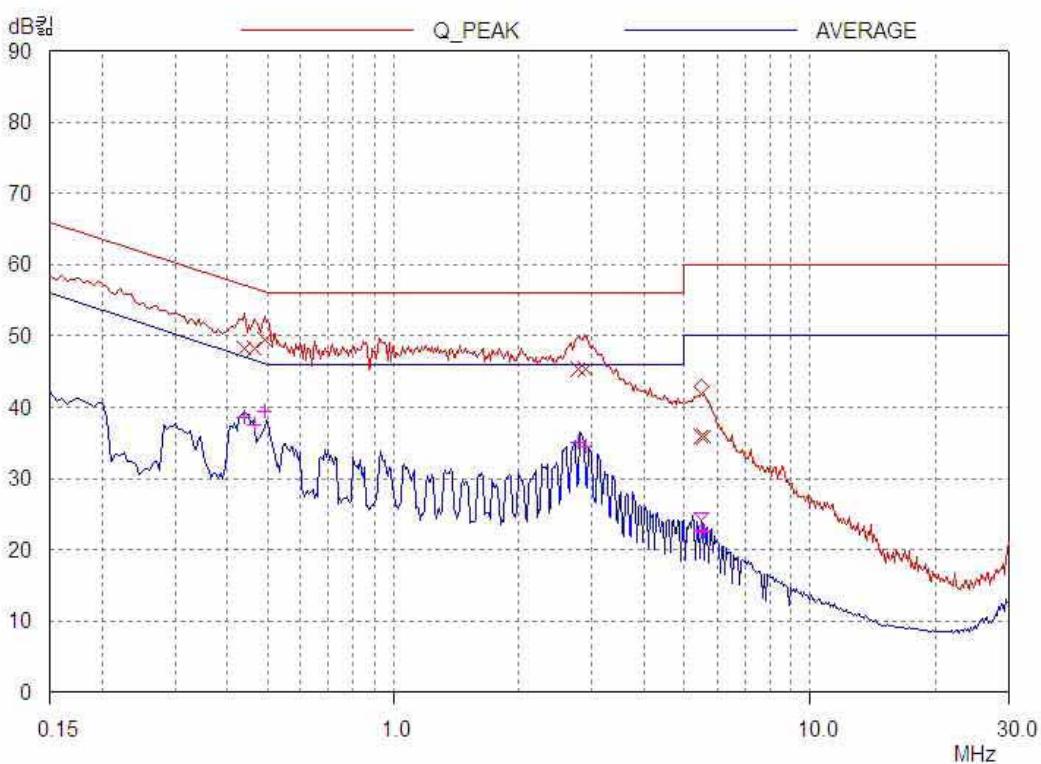
Tested by: Young-Cheol, Park / Engineer

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**HOT LINE****NEUTRAL LINE**

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5.2 Radiated Emission Test

The following table shows the highest levels of radiated emission on both polarizations of horizontal and vertical.

Humidity Level	: <u>43 % R.H.</u>	Temperature: <u>23 °C</u>
Limits apply to	: <u>FCC CFR 47, PART 15, SUBPART B, SECTION 15.109</u>	
Result	: <u>PASSED BY -10.15 dB at 31.92 MHz</u>	

EUT	: Wireless PTAC (Packaged Terminal Air Conditioners) Control System, Receiver			Date: September 18, 2010																																																																						
Detector	: CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)																																																																									
Distance	: 3 m																																																																									
<table border="1"> <thead> <tr> <th>Frequency (MHz)</th> <th>Reading (dBμV)</th> <th>Ant. Pol. (H/V)</th> <th>Ant. Height (m)</th> <th>Angle (°)</th> <th>Ant. Factor (dB/m)</th> <th>Cable Loss</th> <th>Emission Level(dBμV/m)</th> <th>Limits (dBμV/m)</th> <th>Margin (dB)</th> </tr> </thead> <tbody> <tr> <td>31.92</td> <td>11.20</td> <td>V</td> <td>1.00</td> <td>120.00</td> <td>17.61</td> <td>1.04</td> <td>29.85</td> <td>40.00</td> <td>-10.15</td> </tr> <tr> <td>41.25</td> <td>7.40</td> <td>V</td> <td>1.00</td> <td>150.00</td> <td>14.48</td> <td>1.40</td> <td>23.28</td> <td>40.00</td> <td>-16.72</td> </tr> <tr> <td>51.91</td> <td>8.50</td> <td>V</td> <td>1.00</td> <td>120.00</td> <td>10.64</td> <td>1.62</td> <td>20.76</td> <td>40.00</td> <td>-19.24</td> </tr> <tr> <td>65.26</td> <td>9.80</td> <td>V</td> <td>1.00</td> <td>100.00</td> <td>7.99</td> <td>2.00</td> <td>19.79</td> <td>40.00</td> <td>-20.21</td> </tr> <tr> <td>77.33</td> <td>10.90</td> <td>V</td> <td>1.00</td> <td>150.00</td> <td>6.31</td> <td>2.10</td> <td>19.31</td> <td>40.00</td> <td>-20.69</td> </tr> <tr> <td>156.84</td> <td>7.10</td> <td>V</td> <td>1.00</td> <td>140.00</td> <td>15.22</td> <td>2.91</td> <td>25.23</td> <td>43.52</td> <td>-18.29</td> </tr> </tbody> </table>					Frequency (MHz)	Reading (dB μ V)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	31.92	11.20	V	1.00	120.00	17.61	1.04	29.85	40.00	-10.15	41.25	7.40	V	1.00	150.00	14.48	1.40	23.28	40.00	-16.72	51.91	8.50	V	1.00	120.00	10.64	1.62	20.76	40.00	-19.24	65.26	9.80	V	1.00	100.00	7.99	2.00	19.79	40.00	-20.21	77.33	10.90	V	1.00	150.00	6.31	2.10	19.31	40.00	-20.69	156.84	7.10	V	1.00	140.00	15.22	2.91	25.23	43.52	-18.29
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Other frequencies up to 2 GHz were not observed during the test.

Radiated Emission Tabulated Data

Remark: "H": Horizontal, "V": Vertical



Tested by: Young-Cheol, Park / Engineer

6. FIELD STRENGTH CALCULATION

Meter readings are compared to the specification limit correcting for antenna and cable losses

+ Meter reading (dB μ V)

+ Cable Loss (dB)

+ Antenna Factor (Loss) (dB/m)

= Corrected Reading (dB μ V/m)

- Specification Limit (dB μ V/m)

= dB Relative to Spec (+/- dB)

7. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESVD	838453/018	NOV/09	12MONTH	■
2.	Test receiver	R/S	ESHS 10	834467/007	MAY/10	12MONTH	■
3.	Spectrum analyzer	HP	8566B	2421A00473	NOV/09	12MONTH	■
4.	TRILOG Broadband Antenna	Schwarzbeck	VULB9163	VULB9163 202	MAY/10	24MONTH	
5.	Biconical antenna	EMCO	3110	9003-1121	FEB/10	24MONTH	
		Schwarzbeck	VHA9103	91031852	MAR/10		■
6.	Log Periodic antenna	Schwarzbeck	9108-A(494)	62281001	MAR/10	24MONTH	■
7.	Horn antenna	Schwarzbeck	BBHA 9120D	BBHA9120D294	JUN/09	24MONTH	■
8.	LISN	EMCO	3825/2	9109-1867	JUN/10	12MONTH	
				9109-1869	JUN/10		
		Schwarzbeck	NSLK 8128	8128-216	JUN/10		■
9.	Position Controller	HD GmbH	HD100	N/A	N/A	N/A	■
10.	Turn Table	HD GmbH	DS420S	N/A	N/A	N/A	■
11.	Antenna Master	HD GmbH	MA240	N/A	N/A	N/A	■