Report No: GTSE11110092702

TEST REPORT

Applicant:	CARRIN ELECTRONICS COMPANY LIMITED
Address of Applicant:	UNIT 2105~2106, TOWER A, REGENT CENTRE, 63 WO YI HOP RD, KWAI CHUNG, HONG KONG

Equipment Under Test (EUT)

Product Name:	WEATHER STATION
Model No.:	KW9007, 47022RX, 47023RX
FCC ID:	X6I-9007
Applicable standards:	FCC CFR Title 47 Part 15 Subpart B:2010
Date of sample receipt:	Nov. 18, 2011
Date of Test:	Nov. 18-22, 2011
Date of report issued:	Nov. 23, 2011
Test Result :	PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Stephen Guo
Laboratory Manager

2 Version

Version No.	Date	Description
00	*Nov. 23, 2011*	*Original*

Prepared by: Collin. He ***Date:*** *Nov. 23, 2011*

Project Engineer

Reviewed by: Hans. Hu ***Date:*** *Nov. 23, 2011*

Reviewer

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4 Test Summary

Test Item	Section in CFR 47	Result
Conducted Emission	Part15.107	N/A
Radiated Emissions	Part15.109	PASS

PASS: The EUT complies with the essential requirements in the standard.

N/A: not applicable.

5 General Information

5.1 Client Information

Applicant:	CARRIN ELECTRONICS COMPANY LIMITED
Address of Applicant:	UNIT 2105~2106, TOWER A, REGENT CENTRE, 63 WO YI HOP RD, KWAI CHUNG, HONG KONG
Manufacturer/Factory:	CARRIN ELECTRONICS COMPANY LIMITED
Address of Manufacturer/ Factory:	UNIT 2105~2106, TOWER A, REGENT CENTRE, 63 WO YI HOP RD, KWAI CHUNG, HONG KONG

5.2 General Description of E.U.T.

Product Name:	WEATHER STATION
Model No.:	KW9007, 47022RX, 47023RX
Power supply:	DC 4.5V (3x1.5 “AA” Size)
Remark:	1. Only the model KW9007 was tested. KW9007, 47022RX, 47023RX are identical in the same PCB layout, interior structure and electrical circuits. The only differences are the model name and appearance color for commercial purpose. 2. The test battery is new battery.

5.3 Test mode and voltage

Test mode:	
Receiver mode	Keep the EUT in receiver mode
Remark:	Signal generators transmit an unmodulated carrier on the receiver frequency from an antenna in the proximity of the receiver. Care was taken to avoid overload of the receiver, vary the amplitude and frequency of the stabilizing signal to obtain the highest level of the spurious emissions from the receiver.

5.4 Test Facility

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

● **FCC —Registration No.: 600491**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fuly described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, July 20, 2010.

● **Industry Canada (IC)**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-1.

5.5 Test Location

All tests were performed at:
Global United Technology Services Co., Ltd. Address: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China Tel: 0755-27798480 Fax: 0755-27798960

5.6 Description of Support Units

None.

5.7 Deviation from Standards

Biconical, log.per. antenna and horn antenna were used instead of dipole antenna.
Semi-anechoic Chamber was used as alternation of open air test sites, and all test suites were performed with radiated method in it.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

None.

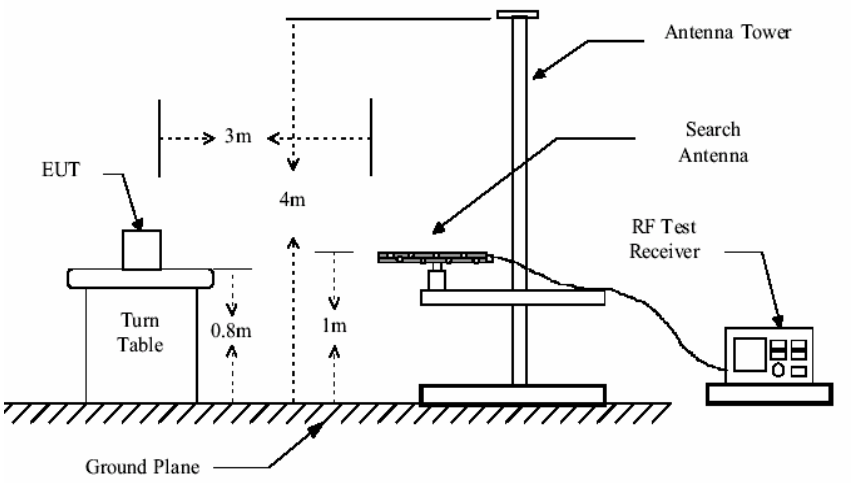
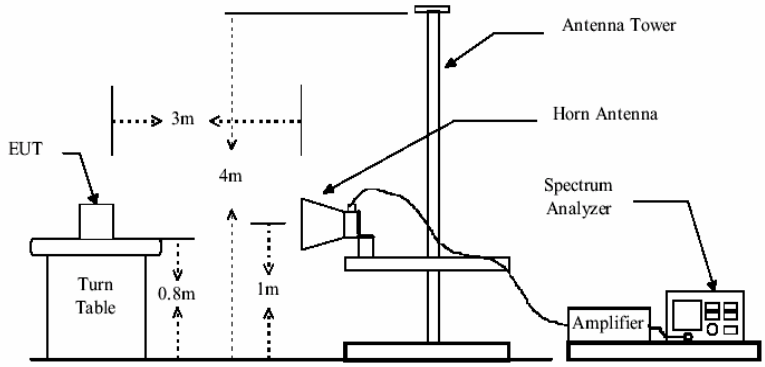
6 Test Instruments list

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 30 2011	Mar. 29 2012
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Jul. 04 2011	Jul. 03 2012
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Feb. 26 2011	Feb. 25 2012
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 30 2011	June 29 2012
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 30 2011	Mar. 29 2012
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	Apr. 01 2011	Mar. 31 2012
9	Coaxial Cable	GTS	N/A	GTS211	Apr. 01 2011	Mar. 31 2012
9	Coaxial cable	GTS	N/A	GTS210	Apr. 01 2011	Mar. 31 2012
11	Coaxial Cable	GTS	N/A	GTS212	Apr. 01 2011	Mar. 31 2012
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	Jul. 04 2011	Jul. 03 2012
13	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jul. 04 2011	Jul. 03 2012
14	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 30 2011	June 29 2012
15	Band filter	Amindeon	82346	GTS219	June 30 2011	June 29 2012
16	Signal generator	Rohde & Schwarz	1090.3000.12	GTS330	June 30 2011	June 29 2012

7 Test results and Measurement Data

7.1 Radiated Emission

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 B Section 15.109</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.4:2003</td></tr>
<tr><td>Test Frequency Range:</td><td>30MHz to 2GHz</td></tr>
<tr><td>Class / Severity:</td><td>Class B</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></tr>
<tr><td>30MHz-88MHz</td><td>40.00</td><td>Quasi-peak Value</td></tr>
<tr><td>88MHz-216MHz</td><td>43.50</td><td>Quasi-peak Value</td></tr>
<tr><td>216MHz-960MHz</td><td>46.00</td><td>Quasi-peak Value</td></tr>
<tr><td>960MHz-1GHz</td><td>54.00</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>54.00</td><td>Average Value</td></tr>
<tr><td>74.00</td><td>Peak Value</td></tr>
</table>
</td></tr>
<tr><td>Test Procedure:</td><td>a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</td></tr>
</table>

Test setup:	Below 1GHz  Above 1GHz 
Test environment:	Temp.: 25 °C Humid.: 52% Press.: 1 012mbar
Measurement Record:	Uncertainty: ± 4.5dB
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

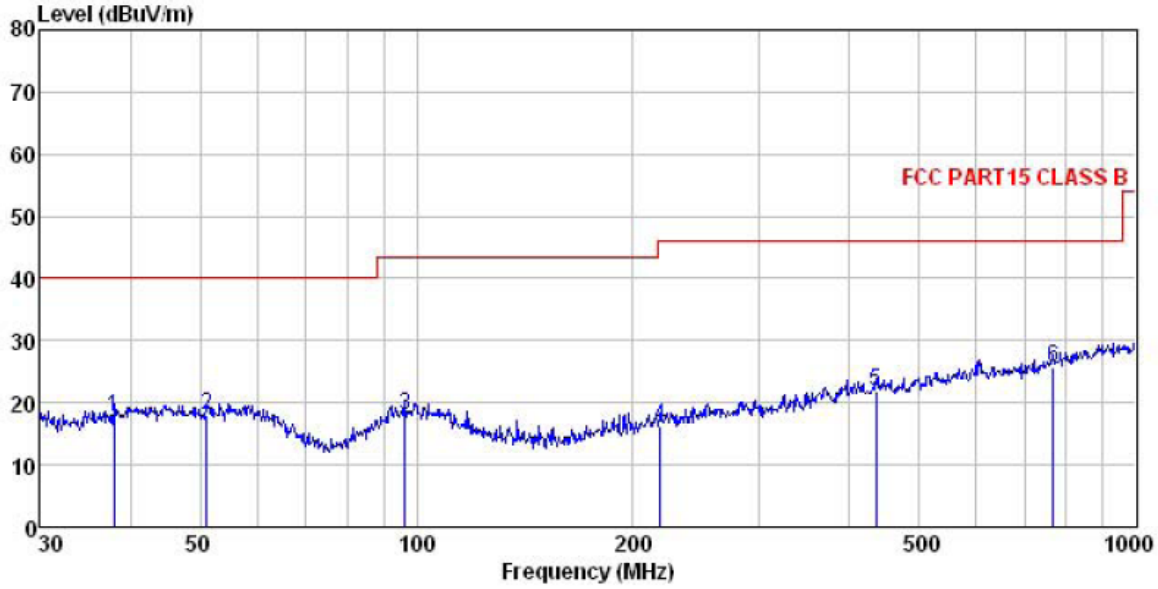
Note:
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

Measurement Data

Below 1 G:

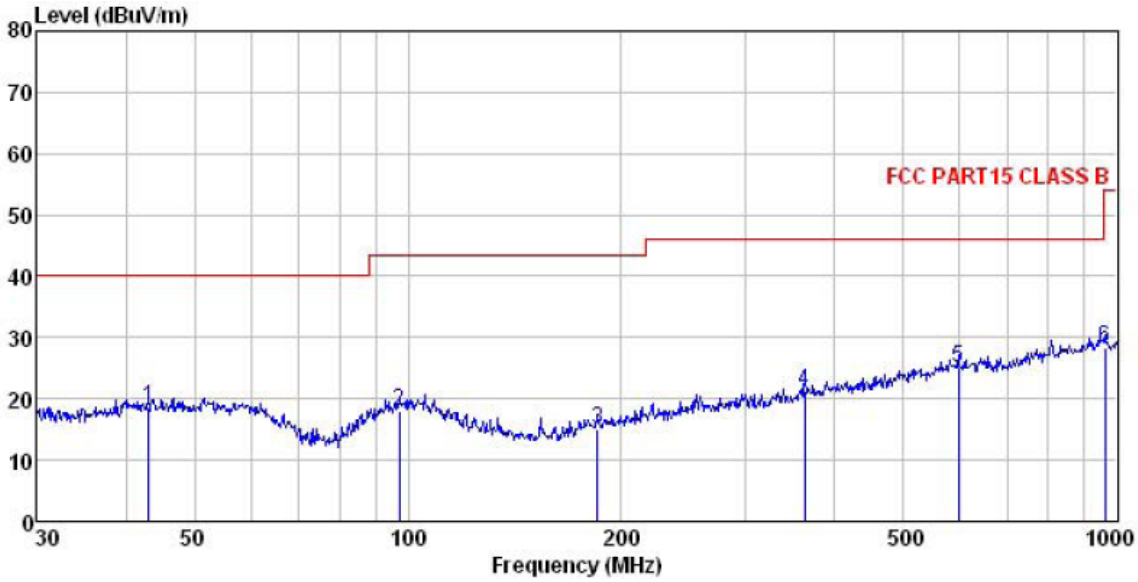
Horizontal:



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163 HORIZONTAL
Job No. : 927RF
Test mode : Receiving mode
Test Engineer: Aarons

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	37.94	36.53	13.06	0.25	32.16	17.68	40.00	-22.32	QP
2	51.12	36.39	13.21	0.32	32.01	17.91	40.00	-22.09	QP
3	96.44	36.28	12.94	0.47	31.71	17.98	43.50	-25.52	QP
4	218.31	36.62	11.13	0.78	32.28	16.25	46.00	-29.75	QP
5	435.59	37.19	15.54	1.33	32.07	21.99	46.00	-24.01	QP
6	766.06	35.62	19.63	2.00	31.56	25.69	46.00	-20.31	QP

Vertical:

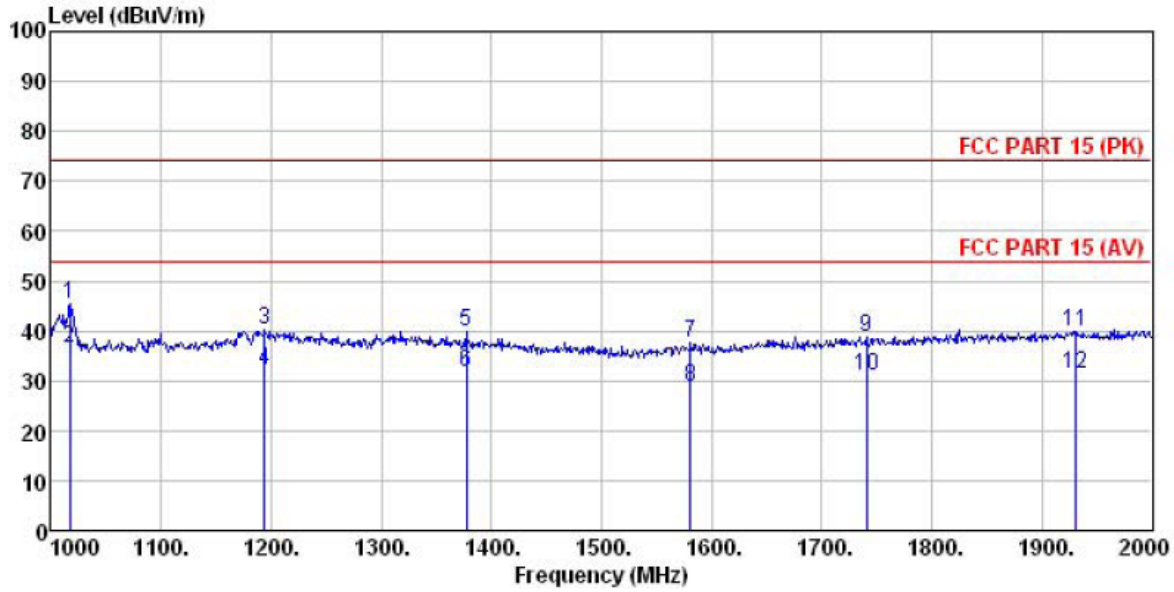


Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163 VERTICAL
Job No. : 927RF
Test mode : Receiving mode
Test Engineer: Aarons

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	43.05	36.77	13.56	0.28	32.12	18.49	40.00	-21.51	QP
2	97.11	36.18	12.97	0.47	31.71	17.91	43.50	-25.59	QP
3	185.14	36.43	10.16	0.68	32.18	15.09	43.50	-28.41	QP
4	362.98	37.89	14.45	1.19	32.31	21.22	46.00	-24.78	QP
5	597.22	36.29	18.40	1.67	31.30	25.06	46.00	-20.94	QP
6	962.16	36.08	21.49	2.23	31.50	28.30	54.00	-25.70	QP

Above 1 G:

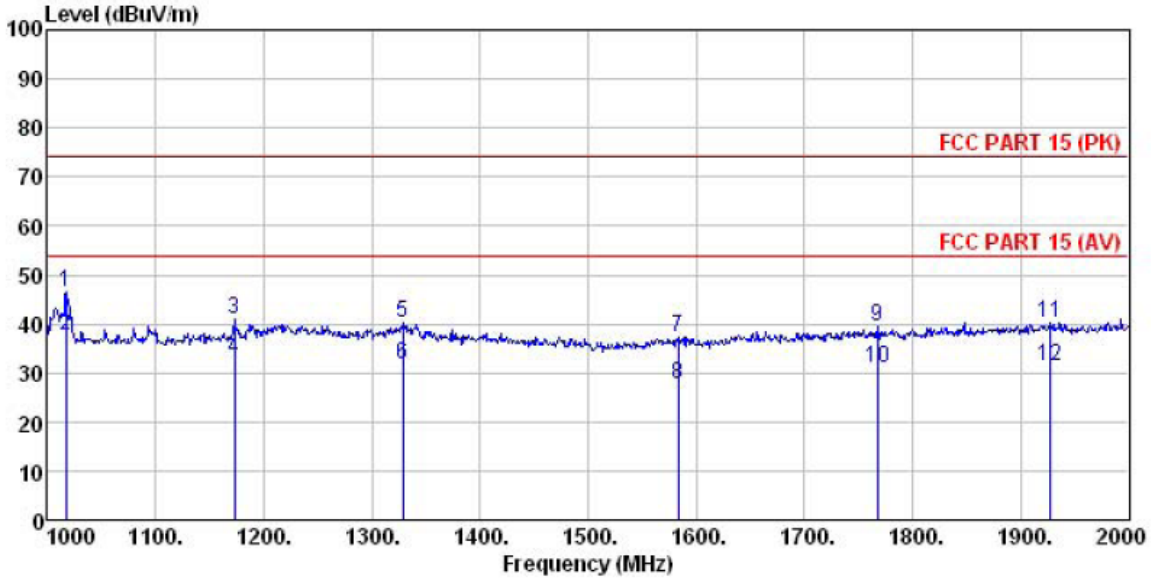
Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(>1GHZ) HORIZONTAL
Job No. : 927RF
Test mode : Receiving mode
Test Engineer: Aarons

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1017.00	53.13	24.44	2.32	34.51	45.38	74.00	-28.62	Peak
2	1017.00	44.37	24.44	2.32	34.51	36.62	54.00	-17.38	Average
3	1194.00	47.44	24.88	2.59	34.55	40.36	74.00	-33.64	Peak
4	1194.00	39.13	24.88	2.59	34.55	32.05	54.00	-21.95	Average
5	1377.00	46.06	25.50	2.84	34.59	39.81	74.00	-34.19	Peak
6	1377.00	37.82	25.50	2.84	34.59	31.57	54.00	-22.43	Average
7	1581.00	44.24	25.02	3.08	34.63	37.71	74.00	-36.29	Peak
8	1581.00	35.17	25.02	3.08	34.63	28.64	54.00	-25.36	Average
9	1741.00	45.27	25.04	3.26	34.66	38.91	74.00	-35.09	Peak
10	1741.00	37.28	25.04	3.26	34.66	30.92	54.00	-23.08	Average
11	1931.00	45.30	25.87	3.44	34.69	39.92	74.00	-34.08	Peak
12	1931.00	36.81	25.87	3.44	34.69	31.43	54.00	-22.57	Average

Vertical:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(>1GHZ) VERTICAL
Job No. : 927RF
Test mode : Receiving mode
Test Engineer: Aarons

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1017.00	54.37	24.44	2.32	34.51	46.62	74.00	-27.38	Peak
2	1017.00	45.38	24.44	2.32	34.51	37.63	54.00	-16.37	Average
3	1173.00	48.28	24.75	2.57	34.55	41.05	74.00	-32.95	Peak
4	1173.00	40.13	24.75	2.57	34.55	32.90	54.00	-21.10	Average
5	1329.00	46.27	25.65	2.78	34.58	40.12	74.00	-33.88	Peak
6	1329.00	37.81	25.65	2.78	34.58	31.66	54.00	-22.34	Average
7	1583.00	43.95	25.02	3.10	34.63	37.44	74.00	-36.56	Peak
8	1583.00	34.28	25.02	3.10	34.63	27.77	54.00	-26.23	Average
9	1768.00	45.56	25.17	3.29	34.66	39.36	74.00	-34.64	Peak
10	1768.00	37.20	25.17	3.29	34.66	31.00	54.00	-23.00	Average
11	1927.00	45.47	25.87	3.44	34.69	40.09	74.00	-33.91	Peak
12	1927.00	36.57	25.87	3.44	34.69	31.19	54.00	-22.81	Average