Test Report

FCC ID: 2ABLXDTFA1

Date of issue: Mar. 21, 2016

Product name:	QMOTION LV DRAPERY TRACK
Model(s):	DTFA1
Applicant:	QMOTION INCORPORATED
Address:	3400 Copter Road Pensacola, FL 32514 USA
Date of Test:	Mar.01, 2016 to Mar.18, 2016

Shenzhen Microtest Co., Ltd.
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Test result certification	
Applicant's name:	QMOTION INCORPORATED
Address:	3400 Copter Road Pensacola, FL 32514 USA
Manufacture's Name:	QMOTION INCORPORATED
Address:	3400 Copter Road Pensacola, FL 32514 USA
Product description	
Product name:	QMOTION LV DRAPERY TRACK
Trademark:	QMOTION
Model name:	DTFA1
Serial model:	/
Standards:	FCC Part 15 Subpart B
Test method:	ANSI C63.4-2009

This device described above has been tested by Shenzhen Microtest Co., Ltd. and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Tested by: David Chen

David Chen Mar. 21, 2016

Reviewed by: Leon Chen

Leon Chen Mar. 21, 2016

Approved by: Ares Liu

Ares Liu Mar. 21, 2016

SUMMARY OF TEST RESULT

Item	Description of Test	Result
FCC Part 15 Subpart B		
1	Conducted emission	Pass
2	Radiated emission	Pass

Note: The EUT is a Class B digital device. The maximum operating frequency of EUT is blew 108MHz.

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1. General description

1.1 Feature of equipment under test (EUT)

Product name:	QMOTION LV DRAPERY TRACK
Model name:	DTFA1
Serial Model:	/
Power Source:	24V DC by adapter
Adapter information	Model: YU2404 Input: 100-240V AC 50/60Hz Output: 24V DC 4A
Hardware version:	01
Software version:	140304

Measurement Uncertainty for a Level of Confidence of 95 %, U=2xUc(y)

RF frequency	1 x 10-7
RF power, conducted	± 1 dB
Conducted emission of receivers	± 1 dB
Radiated emission of transmitter	± 6 dB
Radiated emission of receiver	± 6 dB
Temperature	±1 degree
Humidity	± 5 %

2. Test Configuration of EUT

2.1 Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Test mode	Description
Mode	Normal working

NOTE: The test modes were carried out for all operation modes. The final test mode of the EUT was the worst test mode for EMI, and its test data was showed.

2.2 Test Conditions

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 20ºC~30ºC
- Humidity: 30%~70%
- Atmospheric pressure: 98kPa~101kPa

2.3 EUT Test Setup

See photographs of the test setup in the report for the actual setup and connections between EUT and support equipment.

2.4 Testing Site

Test Site	Shenzhen Toby Technology Co., Ltd.
Test Site Location	1 A/F., Bldg.6, Yusheng Industrial Zone The National Road No.107 Xixiang Section 467
FCC Registration No.:	811562

2.5 Ancillary Equipment and Line List

Equipment	Model	S/N	Manufacturer
PC	Vostro 3800	37179672842	DELL
Monitor	E4014Hf	CN-011HFV-72872-58U-E4VL	DELL
Keyboard	KB212-B	CN-0DJ365-71616-571-1ROV-AOO	DELL
Mouse	MS111-T	CN-OKW2YH-71616-536-OCZG	DELL
Printer	LaserJet 1020 plus	CNCGC60457	HP

Line	Length	Shielded type	Ferrite core
Printer cable	1m	Yes	No
RS485 cable	1m	No	No

3. List of test equipment

For AC power line conducted emission:

Equipment	Manufacturer	Model	Serial No.	Calibration Due
LISN	R&S	ENV216	101313	2016.12.06
LISN	SCHWARZBECK	NNLK 8129	8129245	2016.12.25
Pulse Limiter	SCHWARZBECK	VTSD 9561F	9716	2016.12.25
Test Cable	N/A	N/A	C01	2016.12.06
EMI Test Receiver	R&S	ESCI	101160	2016.12.06

For Radiated emission:

Equipment	Manufacturer	Model	Serial No.	Calibration Due
Log-Bicon Antenna	MESS-ELEKTRONIK	VULB 9160	3058	2016.12.11
Horn Antenna	Schwarzbeck	BBHA 9120D	631	2016.12.05
Horn Antenna	Schwarzbeck	BBHA 9170	373	2016.12.05
Test Cable	United Microwave	57793	1m	2016.12.05
Test Cable	United Microwave	A30A30-5006	10m	2016.12.05
Microwave Pre_amplifier	Agilent	8449B	3008A01714	2016.12.05
Pre-Amplifier	Anritsu	MH648A	M09961	2016.12.05
EMI Test Receiver	R&S	ESCI-7	101318	2016.12.05
Spctrum analyzer	Agient	E4470B	MY41441082	2016.06.01

Note: the calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

4. EMC emission test

4.1 Conducted emission

4.1.1 Limits

Frequency (MHz)	Class A (dBμV)		Class B (dBμV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79	66	66 - 56 *	56 - 46 *
0.5 -5	73	60	56	46
5 -30	73	60	60	50

Note 1: the tighter limit applies at the band edges.
Note 2: the limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

4.1.2 Test Procedures

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

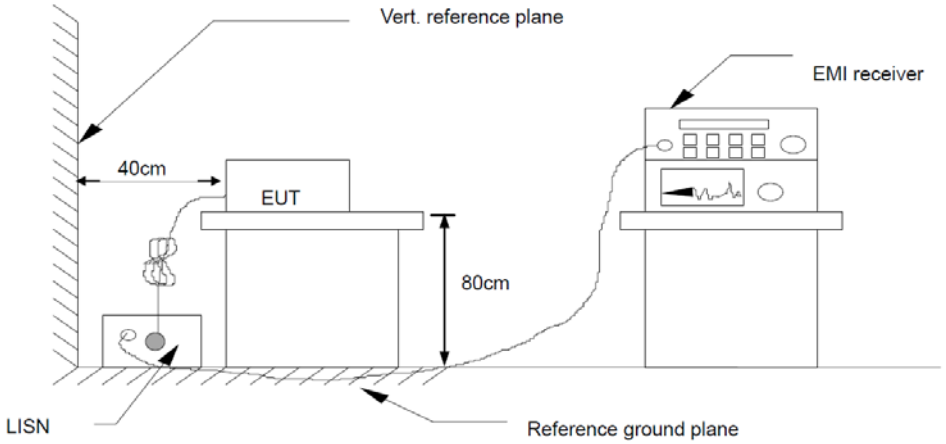
Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from nearest part of EUT chassis.

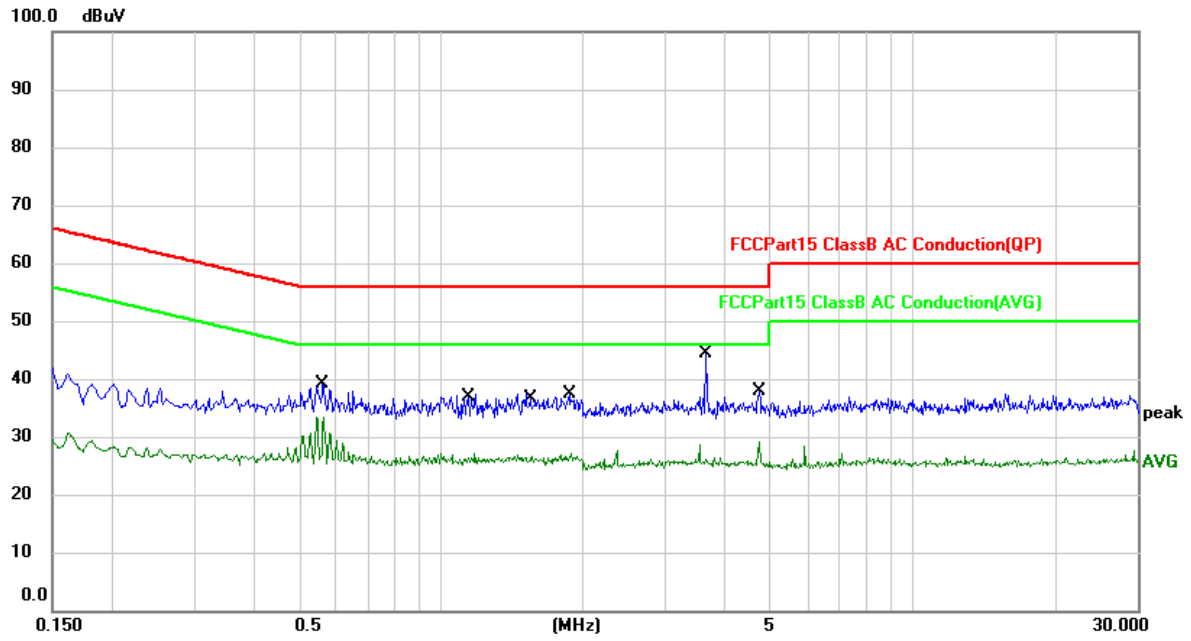
For the actual test configuration, please refer to the related Item – photographs of the test setup.

4.1.3 Test Setup



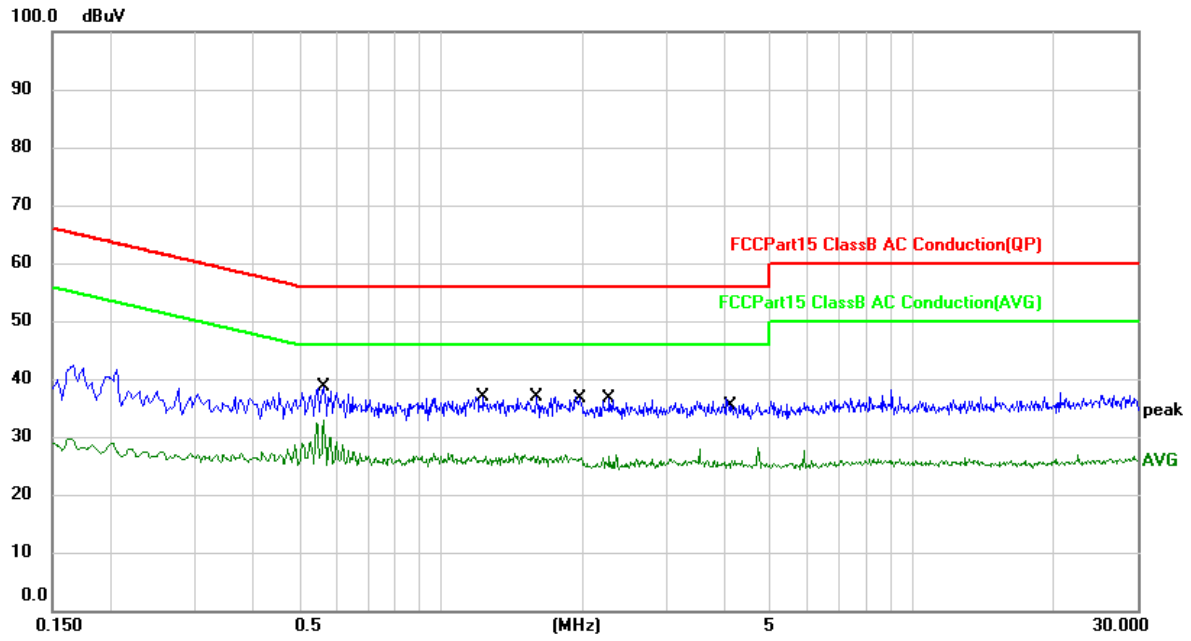
4.1.4 Test Result

Temperature:	22℃	Relative Humidity:	63%
Pressure:	101kPa	Phase:	L
Test voltage:	AC 120V/60Hz	Test mode:	Mode 1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.5690	1.11	30.02	31.13	56.00	-24.87	QP	
2	*	0.5690	-0.80	30.02	29.22	46.00	-16.78	AVG	
3		1.1517	-1.61	30.02	28.41	56.00	-27.59	QP	
4		1.1517	-4.50	30.02	25.52	46.00	-20.48	AVG	
5		1.5483	-0.85	30.02	29.17	56.00	-26.83	QP	
6		1.5483	-4.11	30.02	25.91	46.00	-20.09	AVG	
7		1.8670	-1.88	30.02	28.14	56.00	-27.86	QP	
8		1.8670	-4.71	30.02	25.31	46.00	-20.69	AVG	
9		3.6716	-1.11	30.04	28.93	56.00	-27.07	QP	
10		3.6716	-5.51	30.04	24.53	46.00	-21.47	AVG	
11		4.6628	-0.65	30.04	29.39	56.00	-26.61	QP	
12		4.6628	-5.34	30.04	24.70	46.00	-21.30	AVG	

Temperature:	22℃	Relative Humidity:	63%
Pressure:	101kPa	Phase:	N
Test voltage:	AC 120V/60Hz	Test mode:	Mode 1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.5662	4.28	30.02	34.30	56.00	-21.70	QP	
2	*	0.5662	2.15	30.02	32.17	46.00	-13.83	AVG	
3		1.2399	-1.52	30.02	28.50	56.00	-27.50	QP	
4		1.2399	-4.45	30.02	25.57	46.00	-20.43	AVG	
5		1.5904	-1.70	30.02	28.32	56.00	-27.68	QP	
6		1.5904	-4.73	30.02	25.29	46.00	-20.71	AVG	
7		2.0011	-0.60	30.02	29.42	56.00	-26.58	QP	
8		2.0011	-5.37	30.02	24.65	46.00	-21.35	AVG	
9		2.2708	-0.78	30.03	29.25	56.00	-26.75	QP	
10		2.2708	-5.38	30.03	24.65	46.00	-21.35	AVG	
11		4.0946	-0.90	30.04	29.14	56.00	-26.86	QP	
12		4.0946	-5.52	30.04	24.52	46.00	-21.48	AVG	

4.2 Radiated emission

4.2.1 Limits

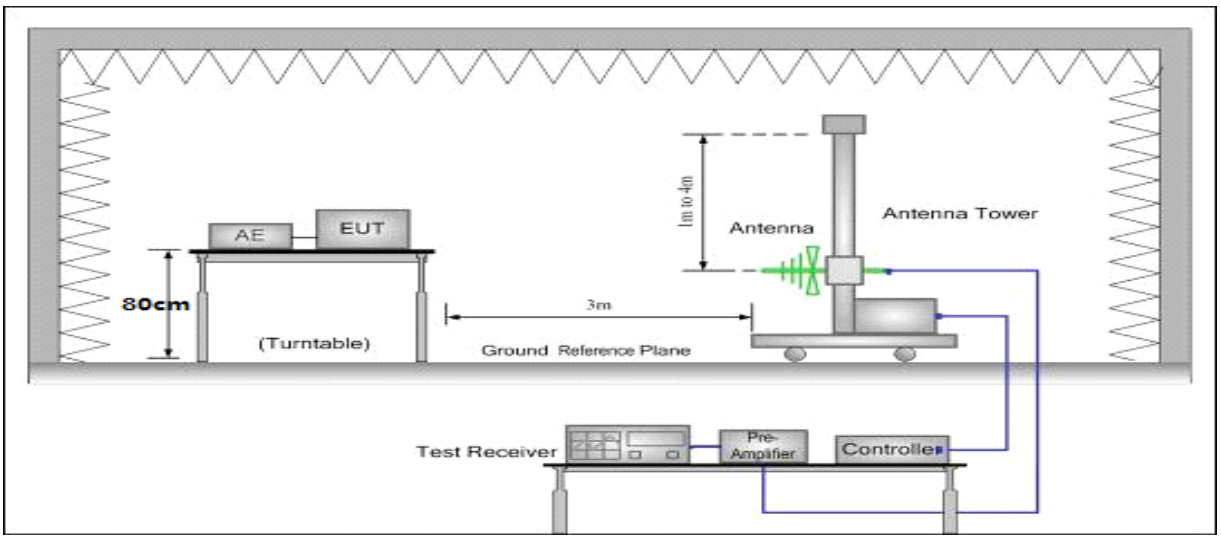
Limits of radiated emission measurement:

Frequency (MHz)	Class B device (at 3m) dBμV/m	Class A device (at 3m) dBμV/m	Detector
30-88	40	49	QP
88-216	43.5	53.5	QP
216-960	46	56.4	QP
960-1000	54	59.5	QP
Above 1000	54	59.5	AV
Above 1000	74	79.5	PK

4.2.2 Test Procedures

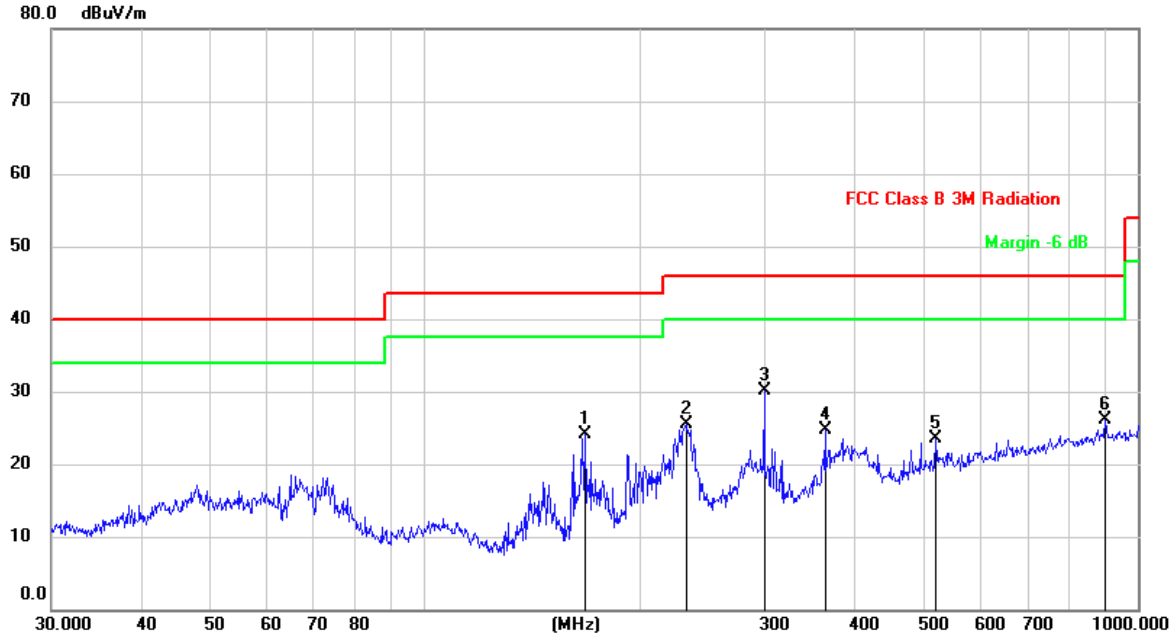
The radiated emission tests were performed in the 3 meters.
The EUT was placed on the top of a rotating table 0.8 meters above the ground. The table was rotated 360 degrees to determine the position of the highest radiation.
The height of the test antenna shall vary between 1m to 4m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
If the peak mode measured value compliance with and lower than quasi peak mode limit, the EUT shall be deemed to meet QP limits and then no additional QP mode measurement performed.
If the peak mode measured value compliance with and lower than average mode limit, the EUT shall be deemed to meet average limits and then no additional average mode measurement performed.
For the actual test configuration, please refer to the related item – EUT test photos.

4.2.3 Test Setup



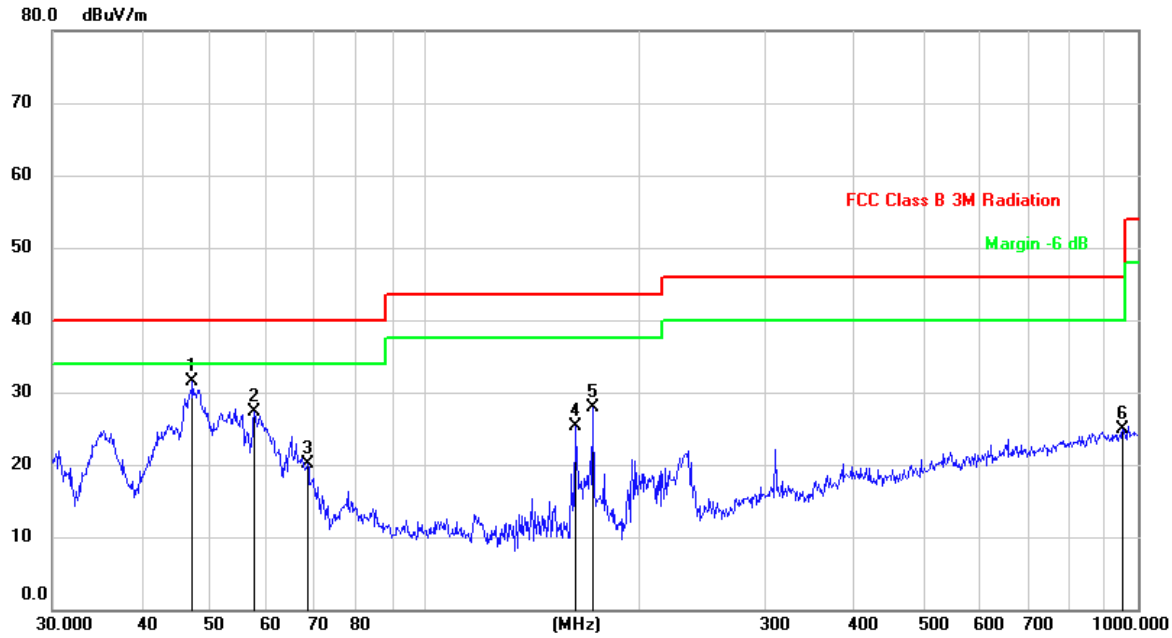
4.2.4 Test Result

Temperature:	22℃	Relative Humidity:	62%
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	AC 120V/60Hz	Test mode:	Mode 1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		167.8243	40.52	-16.43	24.09	43.50	-19.41	QP			
2		232.5318	38.42	-12.95	25.47	46.00	-20.53	QP			
3	*	299.3158	41.66	-11.46	30.20	46.00	-15.80	QP			
4		364.2595	34.72	-9.98	24.74	46.00	-21.26	QP			
5		520.8882	30.61	-7.06	23.55	46.00	-22.45	QP			
6		900.1474	28.44	-2.37	26.07	46.00	-19.93	QP			

Temperature:	22℃	Relative Humidity:	62%
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	AC 120V650Hz	Test mode:	Mode 1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	47.1599	42.85	-11.36	31.49	40.00	-8.51	QP			
2		57.5939	39.95	-12.63	27.32	40.00	-12.68	QP			
3		68.3908	35.35	-15.24	20.11	40.00	-19.89	QP			
4		162.6106	42.09	-16.71	25.38	43.50	-18.12	QP			
5		171.9946	44.17	-16.19	27.98	43.50	-15.52	QP			
6		952.0937	27.07	-2.07	25.00	46.00	-21.00	QP			

----END OF REPORT----