



FCC PART 15 B, CLASS B

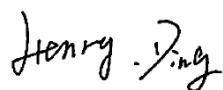
TEST REPORT

For

VeryKool USA INC.

3636 Nobel Drive, Suite 325, San Diego, California, United States, 92122

FCC ID: WA6RS90

Report Type: Original Report	Product Type: Mobile phone
Test Engineer: <u>Henry Ding</u> 	
Report Number: <u>RSZ120929001-00A</u>	
Report Date: <u>2013-02-20</u>	
Reviewed By: <u>RF Leader</u> 	
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* This report may contain data that are not covered by the NVLAP accreditation and shall be marked with an asterisk ★

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *VeryKool USA INC.*'s product, model number: *RS90 (FCC ID: WA6RS90)* or the "EUT" in this report was a *Mobile phone*, which was measured approximately: 14.0 cm (L) x 7.5 cm (W) x 1.0 cm (H), rated input voltage: DC 3.7 V Li-ion battery, the highest operating frequency is 1 GHz(CPU)

** All measurement and test data in this report was gathered from production sample serial number: 1209140 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2012-09-29.*

Objective

This test report is prepared on behalf of *VeryKool USA INC.* in accordance with Part 2-Subpart J, Part 15-Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to determine the compliance of the EUT with FCC Part 15 B.

Related Submittal(s)/Grant(s)

Part 22H/24E PCE, Part 15.247 DSS and art 15.247 DTS submissions with FCC ID: WA6RS90

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 C63.4-2003.

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.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



The current scope of accreditations can be found at <http://ts.nist.gov/Standards/scopes/2007070.htm>.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a manufacturer testing fashion.

EUT operation mode: Downloading (data transforms with computer)

EUT Exercise Software

“winthrax” exercise software was used.

Equipment Modifications

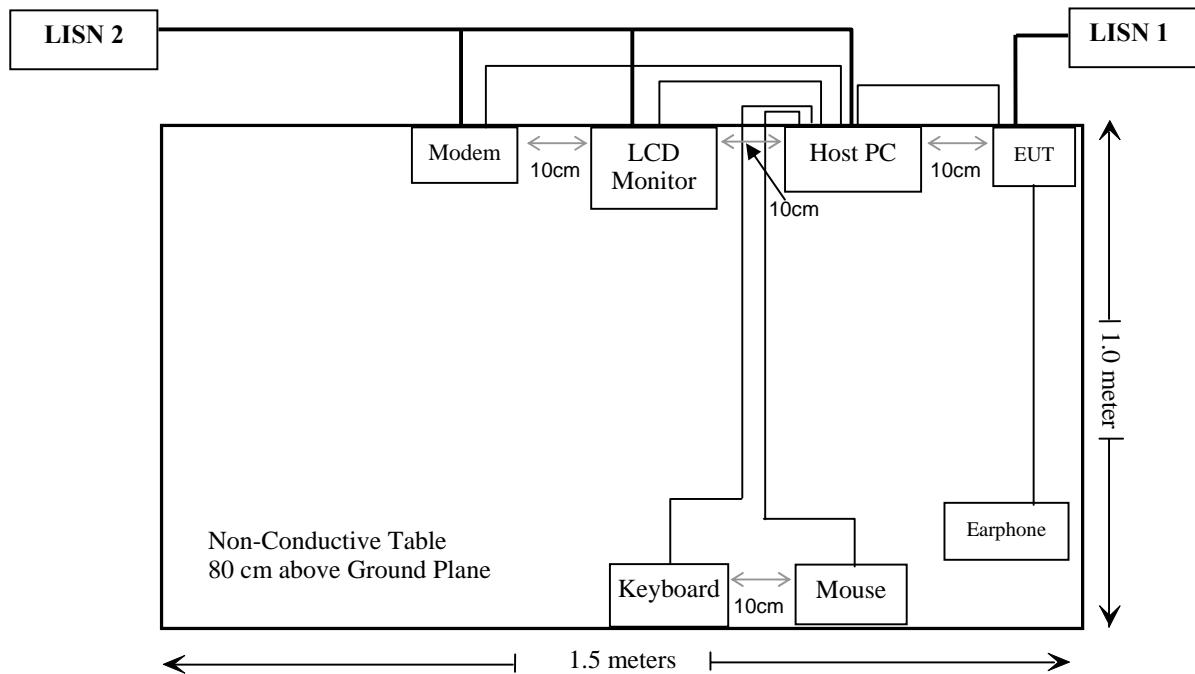
No modification was made to the EUT tested.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL	PC	VOSTRO 220S	127BP2X
DELL	Keyboard	L100	CNORH656658907BL05DC
DELL	Mouse	MOC5UO	G1900NKD
DELL	LCD Monitor	E178WFPC	CN-OWY564-64180-7C4-2SQH
SAST	Modem	AEM-2100	0293
Samsung	Earphone	I9300	--

External I/O Cable

Cable Description	Length (m)	From/Port	To
Shielding Detachable USB Cable	1.5	Host PC	Mouse
Shielding Detachable Serial Cable	1.2	Host PC	Modem
Shielding Detachable K/B Cable	1.5	Host PC	Keyboard
Shielding Detachable VGA Cable	1.5	Host PC	LCD Monitor
Un-shielding Detachable USB Cable	0.8	EUT	Host PC

Block Diagram of Test Setup**For conducted emission**

SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	AC Line Conducted Emissions	Compliance
§15.109	Radiated Spurious Emissions	Compliance

FCC §15.107 – AC LINE CONDUCTED EMISSIONS

Applicable Standard

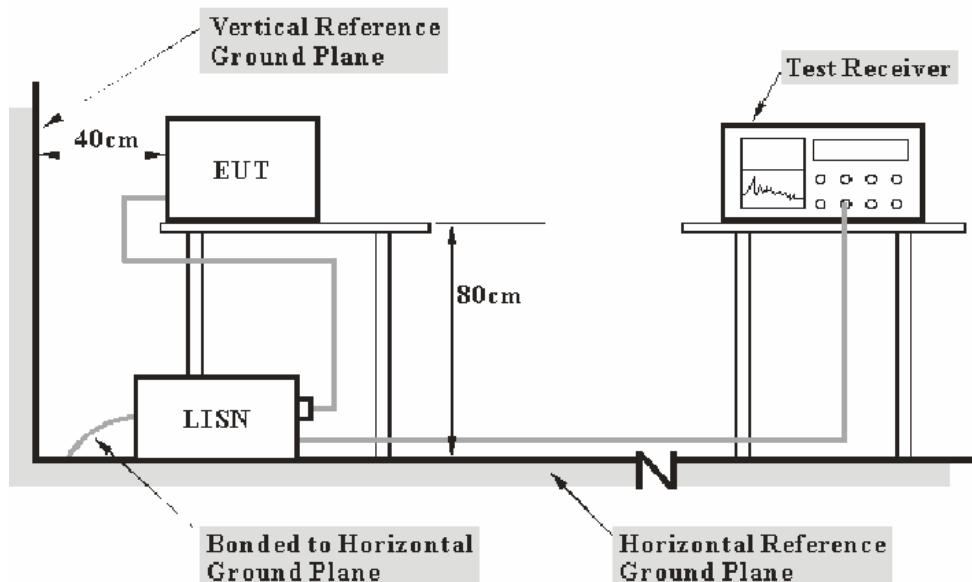
According to FCC §15.107

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on CISPR 16-4-2, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is 2.4 dB($k=2$, 95% level of confidence), and the uncertainty will not be taken into consideration for the test data recorded in the report.

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is according with per ANSI C63.4-2003. The related limit was specified in FCC Part 15.107 Class B.

The spacing between the peripherals was 10 cm.

The host PC was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the host PC was connected to the outlet of the first LISN, and the other relevant equipments were connected to the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	100176	2012-11-24	2013-11-23
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2012-08-22	2013-08-21
Com-Power	L.I.S.N.	LI-200	12005	N/A	N/A
Rohde & Schwarz	Pulse limiter	ESH3Z2	DE25985	2012-07-08	2013-07-07
BACL	CE Test software	BACL-CE	V1.0	-	-

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

Corrected Factor & Margin Calculation

The Corrected factor is calculated by adding LISN/ISN VDF (Voltage Division Factor), Cable Loss and Pulse Limiter Attenuation. The basic equation is as follows:

$$\text{Correction Factor} = \text{LISN VDF} + \text{Cable Loss} + \text{Pulse Limiter Attenuation}$$

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.107, with the worst margin reading of:

9.88 dB at 12.145 MHz in the **Neutral** conducted mode

Test Data

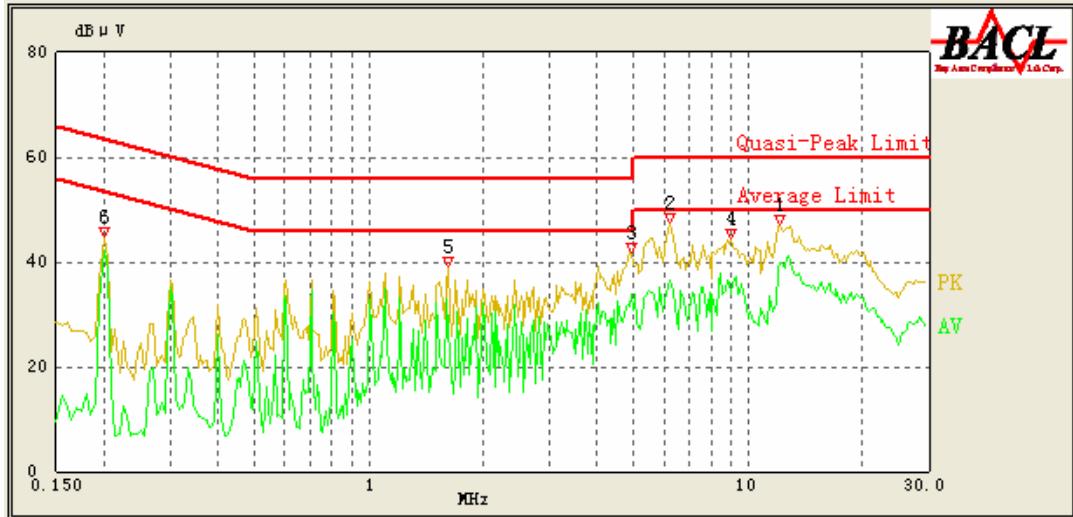
Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Henry Ding on 2012-12-07.

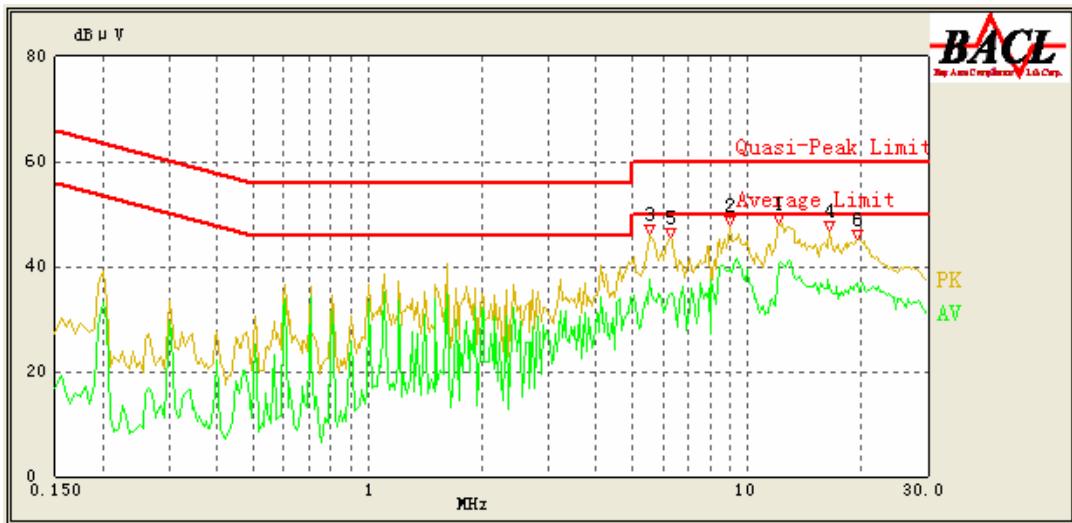
EUT Operation Mode: Downloading (data transforms with Computer)

AC 120V/60 Hz, Line



Frequency (MHz)	Corrected Amplitude (dB μ V)	Correction Factor (dB)	Limit (dB μ V)	Margin (dB)	Detector (PK/Ave./QP)
12.170	39.96	10.85	50.00	10.04	Ave.
4.925	33.81	10.30	46.00	12.19	Ave.
0.200	42.16	10.27	54.57	12.41	Ave.
1.610	32.98	10.19	46.00	13.02	Ave.
6.230	36.66	10.35	50.00	13.34	Ave.
9.040	33.76	10.45	50.00	16.24	Ave.
6.230	43.54	10.35	60.00	16.46	QP
4.925	38.14	10.30	56.00	17.86	QP
12.060	41.43	10.83	60.00	18.57	QP
0.200	43.51	10.27	64.57	21.06	QP
1.620	33.78	10.19	56.00	22.22	QP
9.040	35.12	10.45	60.00	24.88	QP

AC 120V/60 Hz, Neutral



Frequency (MHz)	Corrected Amplitude (dB μ V)	Correction Factor (dB)	Limit (dB μ V)	Margin (dB)	Detector (PK/Ave./QP)
12.145	40.12	10.81	50.00	9.88	Ave.
9.045	39.36	10.45	50.00	10.64	Ave.
5.535	37.63	10.31	50.00	12.37	Ave.
16.385	37.51	11.61	50.00	12.49	Ave.
19.610	36.78	12.47	50.00	13.22	Ave.
6.235	34.52	10.34	50.00	15.48	Ave.
12.150	43.14	10.81	60.00	16.86	QP
16.490	42.16	11.64	60.00	17.84	QP
9.045	41.73	10.45	60.00	18.27	QP
19.505	39.45	12.44	60.00	20.55	QP
5.535	39.24	10.31	60.00	20.76	QP
6.270	38.09	10.34	60.00	21.91	QP

Note:

- 1) Correction Factor = LISN/ISN VDF (Voltage Division Factor) + Cable Loss + Pulse Limiter Attenuation
The corrected factor has been input into the transducer of the test software.
- 2) Corrected Amplitude = Reading + Correction Factor
- 3) Margin = Limit – Corrected Amplitude

FCC §15.109 - RADIATED SPURIOUS EMISSIONS

Applicable Standard

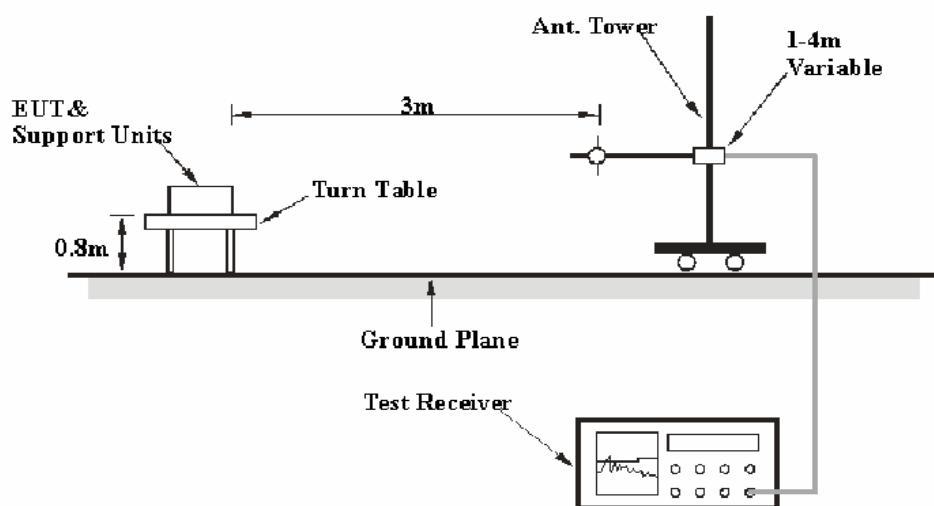
According to FCC §15.109

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2, the Treatment of Uncertainty in EMC Measurements, the estimation of the uncertainty of radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is 4.0 dB($k=2$, 95% level of confidence), and the uncertainty will not be taken into consideration for the test data recorded in the report.

EUT Setup



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC Part 15.109 Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The host PC was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 6 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30MHz – 1000 MHz	100 kHz	300 kHz	120kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	Ave.

Test Procedure

For the radiated emissions test, the host PC and relevant equipments were connected to AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All the data was recorded in the Quasi-peak detection mode from 30 MHz to 1 GHz. And peak & average for above 1GHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447E	1937A01046	2012-11-24	2013-11-23
Rohde & Schwarz	EMI Test Receiver	ESCI	101122	2012-08-08	2013-08-07
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2014-11-27
SUPER ULTRA	Amplifier	ZVA-213+	N/A	2012-11-24	2013-11-23
Sunol Sciences	Horn Antenna	DRH-118	A052304	2011-12-01	2014-11-30
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2011-11-24	2013-11-23

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

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Results Summary

According to the data in the following table, the EUT complied with the FCC §15.109 Class B, with the worst margin reading of:

5.11 dB at 1200.4 MHz in the Horizontal polarization

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Henry Ding on 2012-12-27.

EUT Operation Mode: Downloading (data transforms with Computer)

30MHz-6GHz:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBuV/m)	FCC Part 15.109	
	Reading (dB μ V)	Detector (PK/QP/Ave.)		Height (m)	Polar (H / V)			Limit (dBuV/m)	Margin (dB)
1200.4	48.76	Ave.	32	1.2	H	0.13	48.89	54	5.11
2703.5	40.22	Ave.	31	1.2	H	7.93	48.15	54	5.85
1001.6	47.29	Ave.	115	1.3	H	-1.20	46.09	54	7.91
2392.7	37.51	Ave.	9	1.1	V	6.13	43.64	54	10.36
1200.4	40.69	Ave.	66	1.2	V	0.13	40.82	54	13.18
2092.1	36.86	Ave.	53	1.2	V	3.59	40.45	54	13.55
1200.4	58.63	PK	32	1.2	H	0.13	58.76	74	15.24
181.2	44.00	QP	260	2.2	H	-16.1	27.90	43.5	15.60
2703.5	50.16	PK	31	1.2	H	7.93	58.09	74	15.91
2392.7	51.88	PK	9	1.1	V	6.13	58.01	74	15.99
1001.6	58.33	PK	115	1.3	H	-1.20	57.13	74	16.87
175.1	42.40	QP	78	2.1	H	-16.0	26.40	43.5	17.10
61.2	52.60	QP	217	3.5	H	-20.7	31.90	40.0	18.10
182.2	40.80	QP	74	1.8	H	-16.1	24.70	43.5	18.80
1200.4	51.53	PK	66	1.2	V	0.13	51.66	74	22.34
2092.1	47.50	PK	53	1.2	V	3.59	51.09	74	22.91
179.4	46.20	QP	78	2.1	H	-16.0	30.20	43.5	23.30
171.1	43.50	QP	86	2.3	H	-15.7	27.80	43.5	25.70

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