



Most Technology Service Co., Ltd.  
Tel:(86) 755-26825180 Fax:(86) 755-86170310  
Http:// www. szmost.com Email: szmost@szmost.com

## **Test Report**

Product Name: UHF RFID READER

FCC ID: WKX-RFID001

MODEL NO. : MR6034E, MR6021A, MR6011A, MR6032A, MR6061A, MR6051A, MR6081A

Applicant:

SHENZHEN MARKTRACE CO., LTD.  
5/F, 6<sup>th</sup> BUILDING, AN'LE INDUSTRIAL AREA, GUANKOU THE SECOND ROAD, NANSHAN,  
SHENZHEN, GUANGDONG, CHINA

**Date Received: 08/01/2008-08/05/2008**

**Date Tested: 08/04/2008**



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## EMC Equipment List

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	100492	Apr 05,2008	1 Year
LISN	ROHDE&SCHWARZ	ENV216	100093	Apr 05,2008	1Year
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	101202	Apr 05,2008	1 Year
Spectrum Analyzer	ANRITSU	MS2651B	6200238316	Apr 05,2008	1 Year
50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200283933	Apr 05,2008	1 Year
Bilog Antenna	Sunol	JB3	A121206	Apr 05,2008	1 Year
Horn Antenna	EMCO	3115	640201028-06	Apr 05,2008	1 Year
50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200283933	Apr 05,2008	1 Year
Cable	Resenberger	N/A	NO.1	Apr 05,2008	1 Year
Cable	SCHWARZBECK	N/A	NO.2	Apr 05,2008	1 Year
Cable	SCHWARZBECK	N/A	NO.3	Apr 05,2008	1 Year
Single Phase Power Line Filter	Kikusui	LIN40MA-PC R-L	LM002352	Apr 05,2008	1Year
AC Power Source	Kikusui	AC40MA	LM003232	Apr 05,2008	1Year
Test analyzer	Kikusui	KHA1000	LM003720	Apr 05,2008	1Year
ESD Tester	Kikusui	KES4021	LM003537	Apr 05,2008	1 Year
Signal Generator	IFR	2032	203002/100	Apr 05,2008	1 Year
Amplifier	A&R	150W1000	301584	NCR	NCR
Dual Directional Coupler	A&R	DC6080	301508	Apr 05,2008	1 Year
Power Head	A&R	PH2000	301193	Apr 05,2008	1 Year
Power Meter	A&R	PM2002	302799	Apr 05,2008	1 Year
Field Monitor	A&R	FM5004	300329	Apr 05,2008	1 Year
Field Probe	A&R	FP5000	300221	Apr 05,2008	1 Year
EMC PRO System	EM Test	UCS-500-M4	V0648102026	Apr 05,2008	1 Year
EMC PRO System	EM Test	UCS-500-M4	V0648102026	Apr 05,2008	1 Year

Remark:

Test Firm Name: Most Technology Service Co., Ltd.

Test Firm Address:

No. 5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China

FCC Registered Test Site Number: 490827

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## TEST PROCEDURE

**GENERAL:** This report shall NOT be reproduced except in full without the written approval of MOST TECHNOLOGY SERVICE CO., LTD. The EUT was transmitting a test signal during the testing.

**POWER LINE CONDUCTED INTERFERENCE:** The test procedure used was ANSI Standard C63.4-2003 using a 50 uH LISN. Both Lines were observed. The bandwidth of the receiver was 10kHz with an appropriate sweep speed. The ambient temperature of the EUT was 25 °C with a humidity of 58%.

**RADIATION INTERFERENCE:** The test procedure used was ANSI Standard C63.4-2003 using a ANRITSU spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a micro volt at the output of the antenna. The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz up to 1 GHz and 1 MHz with a video BW of 3 MHz above 1 GHz. The ambient temperature of the EUT was 25°C with a humidity of 58%.

**FORMULA OF CONVERSION FACTORS:** The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer and cable loss. The antenna correction factors and cable loss are stated in terms of dB. The gain of the Pre-selector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

Freq (MHz) METER READING + ACF + CABLE = FS  
33                      20 dBuV + 10.36 dB + 0.9 dB= 31.26 dBuV/m @ 3m

**ANSI STANDARD C63.4-2003 10.1.7 MEASUREMENT PROCEDURES:** The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to 10th harmonic of the fundamental.

Peak readings were taken in three (3) orthogonal planes and the highest readings were converted to average readings based on the duration of "ON" time.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

The situation was similar for the conducted measurement except that the table did not rotate. The EUT was setup as described in ANSI Standard C63.4-2003 10.1.7 with the EUT 40 cm from the vertical ground wall.



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**APPLICANT:** SHENZHEN MARKTRACE CO., LTD.  
**FCC ID:** WKX-RFID001  
**NAME OF TEST:** POWER LINE CONDUCTED INTERFERENCE  
**RULES PART NUMBER:** 15.107

MINIMUM REQUIREMENTS:	FREQUENCY	LEVEL	
	MHz	dB uV	
		QP	AV
	0.15-0.5	66 to 56*	56 to 46*
	0.5-0.5	56	46
	5-30	60	50

\*Decreases with the logarithm of the frequency

**TEST PROCEDURE:** ANSI STANDARD C63.4-2003  
**TEST RESULTS:** The unit DOES meet the FCC requirements.

THE HIGHEST EMISSION READ FOR LINE 1 WAS 43.7dB uV(QP) and 42.9dB uV(AV) @ 4700kHz.

THE HIGHEST EMISSION READ FOR LINE 2 WAS 40.87dB uV(AV) @4642kHz.

THE PLOTS ON THE NEXT PAGE REPRESENT THE EMISSIONS READ FOR POWER LINE  
CONDUCTED FOR THIS DEVICE.



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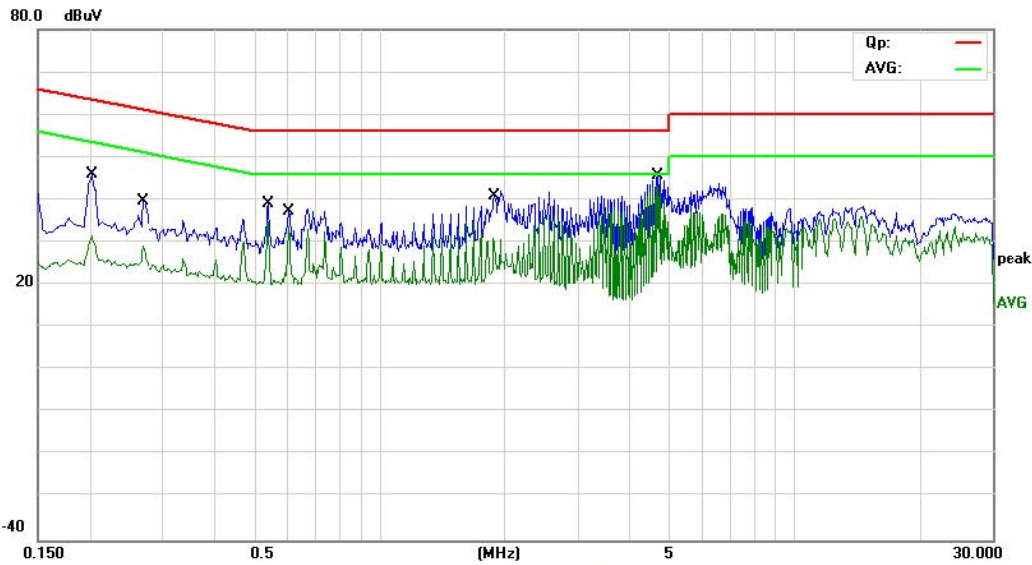
### Conducted Emission Measurement

File: MR6021A

Data #2

Date: 08/08/04/

Time: 10:50/48



Site site #1

Phase: L1

Temperature: 26

Limit: FCC Part15 B Class B QP

Power: AC 120V/60Hz

Humidity: 60 %

EUT: UHF RFID READER

M/N: MR6034E

Mode:

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.2020	31.80	11.99	43.79	63.52	-19.73	QP	
2		0.2020	19.20	11.99	31.19	53.52	-22.33	AVG	
3		0.2700	26.40	11.53	37.93	61.12	-23.19	QP	
4		0.2700	17.80	11.53	29.33	51.12	-21.79	AVG	
5		0.5380	27.60	10.00	37.60	56.00	-18.40	QP	
6		0.5380	26.50	10.00	36.50	46.00	-9.50	AVG	
7		0.6060	26.30	10.00	36.30	56.00	-19.70	QP	
8		0.6060	24.50	10.00	34.50	46.00	-11.50	AVG	
9		1.9000	27.00	9.10	36.10	56.00	-19.90	QP	
10		1.9000	21.00	9.10	30.10	46.00	-15.90	AVG	
11		4.7000	32.00	11.70	43.70	56.00	-12.30	QP	
12	*	4.7000	31.20	11.70	42.90	46.00	-3.10	AVG	

\*.Maximum data x:Over limit l:over margin



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### Conducted Emission Measurement

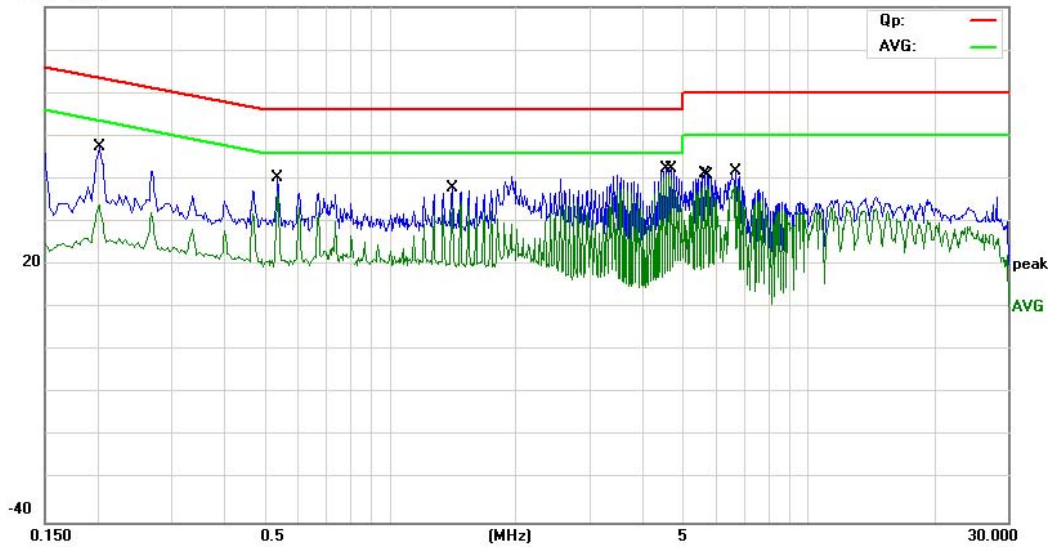
File: MR6021A

Data: #3

Date: 08/08/04/

Time: 10/57/49

80.0 dBuV



Site: site #1

Phase: N

Temperature: 26

Limit: FCC Part15 B Class B QP

Power: AC 120V/60Hz

Humidity: 60 %

EUT: UHF RFID READER

M/N: MR6034E

Mode:

Note:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over		
		MHz	Level	Factor	ment			Detector	Comment
			dBuV	dB	dBuV	dBuV	dB		
1		0.2020	35.42	11.99	47.41	63.52	-16.11	QP	
2		0.2020	22.08	11.99	34.07	53.52	-19.45	AVG	
3		0.5380	30.13	10.00	40.13	56.00	-15.87	QP	
4		0.5380	26.96	10.00	36.96	46.00	-9.04	AVG	
5		1.4140	28.23	9.59	37.82	56.00	-18.18	QP	
6		1.4140	24.05	9.59	33.64	46.00	-12.36	AVG	
7		4.5739	30.76	11.57	42.33	56.00	-13.67	QP	
8	*	4.6420	29.23	11.64	40.87	46.00	-5.13	AVG	
9		5.6500	29.56	11.61	41.17	60.00	-18.83	QP	
10		5.7180	26.84	11.57	38.41	50.00	-11.59	AVG	
11		6.7260	30.78	10.96	41.74	60.00	-18.26	QP	
12		6.7260	27.82	10.96	38.78	50.00	-11.22	AVG	

\*:Maximum data x:Over limit l:over margin



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**APPLICANT:** SHENZHEN MARKTRACE CO., LTD.

**FCC ID:** WKX-RFID001

**NAME OF TEST:** RADIATION INTERFERENCE

**RULES PART NUMBER:** 15.109

**REQUIREMENTS:**

S15.109  
30 -88 MHz 40 dBuV/m @3M  
88 - 216 MHz 43.5  
216 - 960 MHz 46  
ABOVE 960 MHz 54dBuV/m

Test Data:

**REMARK:** Emissions attenuated more than 20 dB below the permissible value are not reported.

Frequency (MHz)	Antenna Polarization	Emission Level (dBuV/m)			FCC 15 Subpart B Limit (dBuV/m)
		Avg	QP	Peak	
268.620	Vertical	--	36.14	38.30	46.0
433.520	Vertical	--	37.56	38.50	46.0
800.180	Vertical	--	37.13	38.30	46.0
600.360	Horizontal	--	36.50	38.00	46.0
800.170	Horizontal	--	39.34	40.60	46.0
901.059	Horizontal	--	40.64	40.20	46.0

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