

Date: 2003-06-03

## **Test Report**

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No.: HM110342

### **FCC PART 15 SUBPART B TEST REPORT**

#### **TEST REPORT No.: HM110342**

Equipment Under Test [EUT]:

Model Number:

Applicant:

FCC ID:

Crazy Taxi (49MHz Receiver)

27171

DSI (HK) Ltd.

KNZ27171-49RX

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### **CONCLUSION**

The submitted product was deemed to have **COMPLIED** with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.

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Verified by

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Patrick Wong  
for Chief Executive

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## **1.0 General Details**

### **1.1 Test Laboratory**

The Hong Kong Standards and Testing Centre Ltd.  
EMC Laboratory  
10 Dai Wang Street, Taipo Industrial Estate  
New Territories, Hong Kong

Telephone: 852 2666 1888  
Fax: 852 2664 4353

### **1.2 Applicant Details Applicant**

DSI (HK) LTD.  
Suite 1401, New T & T Centre Harbour City,  
Tsimshatsui, Kowloon, Hong Kong.

**HKSTC Code Number for Applicant**

**SMU001**

### **Manufacturer**

SMART UNION INDUSTRIAL LTD.  
217-222 Advanced Technology Centre,  
2 Choi Fat Street, Sheung Shui, N.T., Hong Kong.

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### **1.3 Equipment Under Test [EUT] Description of Sample**

Product:	Crazy Taxi (49MHz Receiver)
Manufacturer:	Smart Union Industrial Ltd.
Brand Name:	DSI
Model Number:	27171
Input Voltage:	6Vd.c.

#### **1.3.1 Description of EUT Operation**

The Equipment Under Test (EUT) is a DSI (HK) Ltd., Crazy Taxi (49MHz Receiver)

### **1.4 Date of Order**

2003-04-22

### **1.5 Submitted Sample(s):**

2 samples per model

### **1.6 Test Duration**

2003-04-28

### **1.7 Country of Origin**

China

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### 1.8 Additional Information of EUT

	Submitted	Not Available
User Manual	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Part List	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Circuit Diagram	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Printed Circuit Board [PCB] Layout	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Block diagram	<input checked="" type="checkbox"/>	<input type="checkbox"/>
FCC DOC Label	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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### 2.0 Technical Details

#### **2.1 Investigations Requested**

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15 and ANSI C63.4: 2000 for FCC Certification.

#### **2.2 Test Standards and Results Summary Tables**

<b>EMISSION Results Summary</b>						
Test Condition	Test Requirement	Test Method	Class / Severity	Test Result		
				Pass	Failed	N/A
Radiated Emissions, 30MHz to 1GHz	FCC 47CFR 15.109	ANSI C63.4:2000	Class B	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conducted Emissions on AC, 0.15MHz to 30MHz	FCC 47CFR 15.107	ANSI C63.4:2000	Class B	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Note: N/A - Not Applicable



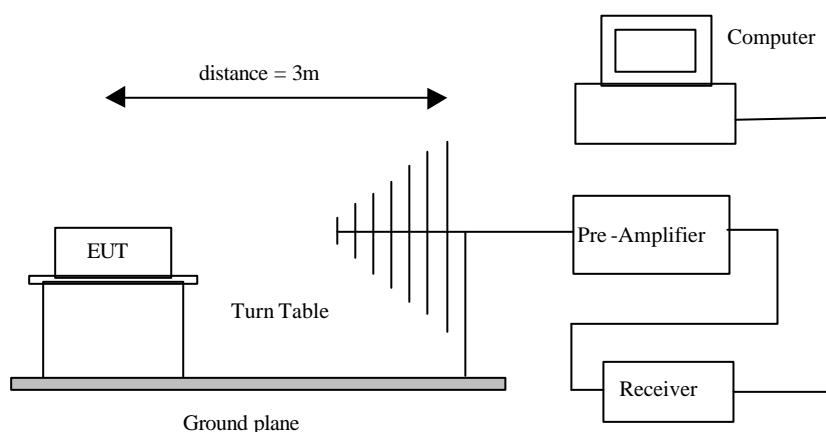
**3.0 Test Results****3.1 Emission****3.1.1 Radiated Emissions (30 – 1000MHz)**

Test Requirement:	FCC 47CFR 15.109 Class B
Test Method:	ANSI C63.4:2000
Test Date:	2003-04-28
Mode of Operation:	On mode

**Test Method:**

The sample was placed 0.8m above the ground plane on the OATS \*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigate all operating modes, rotated about all 3 axis (X, Y & Z) to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

\*: OATS [Open Area Test Site] located at HKSTC with a metal ground plane on filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 90657.

**Test Setup:**

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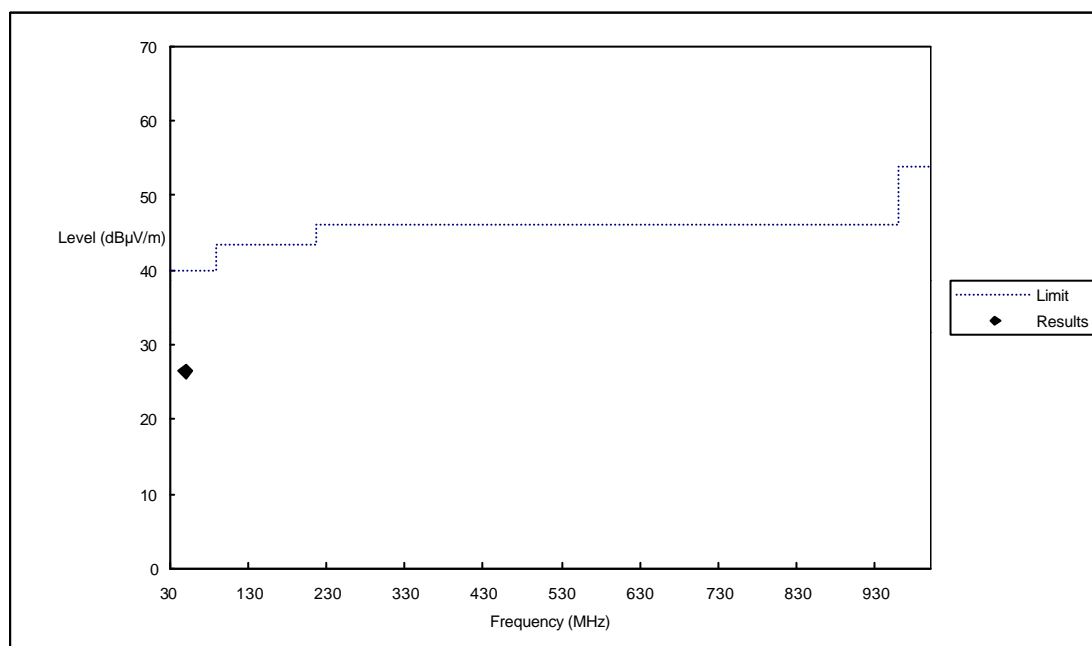
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### Limited for Radiated Emissions [FCC 47 CFR 15.109 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [ $\mu\text{V/m}$ ]
30-88	100
88-216	150
216-960	200
Above 960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

### Results: Receiver



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Results: Receiver

Radiated Emissions						
Quasi-Peak						
Frequency MHz	Measured Level @3m dBμV/m	Correction Factor dBμV/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	Antenna Polarity
49.86	16.4	10.0	26.4	20.9	100	Vertical
99.72	< 1.0	12.5	< 13.5	< 4.7	150	Vertical
149.58	< 1.0	9.8	< 10.8	< 3.5	150	Vertical
199.44	< 1.0	11.5	< 12.5	< 4.2	150	Vertical
249.30	< 1.0	15.9	< 16.9	< 7.0	200	Vertical
299.16	< 1.0	17.4	< 18.4	< 8.3	200	Vertical
349.02	< 1.0	17.2	< 18.2	< 8.1	200	Vertical
398.88	< 1.0	18.8	< 19.8	< 9.8	200	Vertical
448.74	< 1.0	19.7	< 20.7	< 10.8	200	Vertical
498.60	< 1.0	20.6	< 21.6	< 12.0	200	Vertical

\*\* For effective averaging, the bandwidth of the video filter must be smaller than the resolution bandwidth. The higher the ratio of resolution bandwidth to video bandwidth, the greater the averaging will be recorded. Below setting for HP8572A EMI Receiver.

Resolution Bandwidth = 3MHz

Video Bandwidth = 1Hz

Calculated measurement uncertainty = 30MHz to 300MHz ±3.7dB  
300MHz to 1GHz +3.0dB / -2.7dB

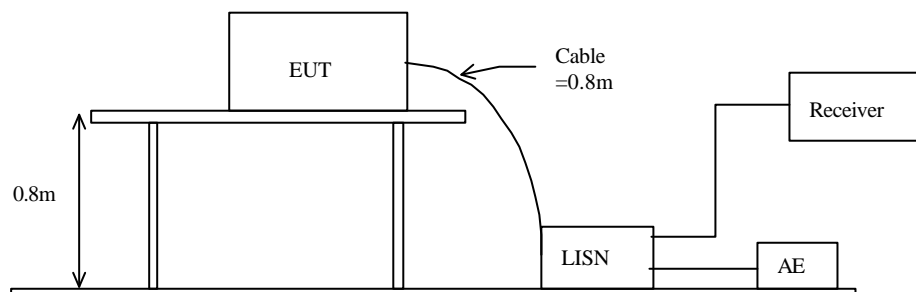
**3.1.1 Conducted Emissions (0.15MHz to 30MHz)**

Test Requirement:	FCC 47CFR 15.107
Test Method:	ANSI C63.4:2000
Test Date:	2002-04-28
Mode of Operation:	On mode

**Test Method:**

The test was performed in accordance with ANSI C63.4: 2000, with the following: an initial measurement was performed in peak and average detection mode on the live line. Any emissions recorded within 30dB of the relevant limit line were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

**Test Setup:**



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### **Limit for Conducted Emissions (FCC 47 CFR 15.107):**

Frequency Range [MHz]	Quasi-Peak Limits [dB $\mu$ V]	Average [dB $\mu$ V]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

\* Decreases with the logarithm of the frequency.

Limits for Conducted Emissions Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram labelled as (QP and AV).

### **Results: N/A**

The EUT is operated by a single source of internal battery power [located in the battery compartment], therefore power line conducted emission was deemed unnecessary.

### **Remarks:**

Calculated measurement uncertainty =  $\pm 2.3$ dB

-\*- Emission greater than 30dB below limit line.

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### Appendix A

#### Test Equipment Audit

##### Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL
EM007	SPECTRUM ANALYZER	HEWLETT PACKARD	HP85660B	3144A21192	14/03/03
EM008	SPECTRUM ANALYZER DISPLAY	HEWLETT PACKARD	HP85662A	3144A20514	14/03/03
EM009	QUASI PEAK ADAPTOR	HEWLETT PACKARD	HP85650A	3303A01702	14/03/03
EM010	RF PRESELECTOR	HEWLETT PACKARD	HP85685A	3221A01410	14/03/03
EM011	ATTENUATOR/SWITCH	HEWLETT PACKARD	HP11713A	2508A10595	14/03/03
EM012	PRE-AMPLIFIER	HEWLETT PACKARD	HP8449B	3008A00262	14/03/03
EM013	CONTROLLER (COMPUTER), COLOR MONITOR, KEYBOARD & MOUSE FLOPPY DRIVE	HEWLETT PACKARD HEWLETT PACKARD HEWLETT PACKARD	HP9000 HP A1097C HP9133L	6226A60314 3151J39517 2623A02468	CM
EM020	HORN ANTENNA	EMCO	3115	4032	19/07/00
EM022	LOOP ANTENNA	EMCO	6502	1189-2424	04/08/00
EM072	SIGNAL GENERATOR	HEWLETT PACKARD	8640B	1948A11892	N/A
EM083	HKSTC OPEN AREA TEST SITE	HKSTC	N/A	N/A	08/11/02
EM131	PORTABLE SPECTRUM ANALYSER	HEWLETT PACKARD	8595EM	3710A00155	18/12/01
EM145	EMI TEST RECEIVER	R & S	ESCS 30	830245/021	22/07/02
EM194	BICONILOG ANTENNA	EMCO	3142B	1795	14/05/02
EM195	ANTENNA POSITIONING MAST	EMCO	2075	2368	N/A
EM196	MULTI-DEVICE CONTROLLER	EMCO	2090	1662	N/A

##### Conducted Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL
EM078	VARIAC	SHANGHAI VOLTAGE	TDGC-3/0.5	N/A	CM
EM081	SMALL SCREENED ROOM	MIKO INST HK	N/A	N/A	04/10/01
EM119	LISN	R & S	ESH3-Z5	0831.5518.52	31/08/00
EM127	ISOLATION TRANSFORMER 220 TO 300	WING SUN	N/A	N/A	CM
EM142	PULSES LIMITER	R & S	ESH3Z2	357.8810.52	04/07/01
EM181	EMI TEST RECEIVER	R & S	ESIB7	100072	28/11/01
EM154	SHIELDING ROOM	SIEMENA MATSUSHITA COMPONENTS	N/A	803-740-057- 99A	02/01/02
EM197	LISN	EMCO	4825/2	1193	08/04/03

Remarks:

CM      Corrective Maintenance  
N/A      Not Applicable or Not Available  
TBD      To Be Determined

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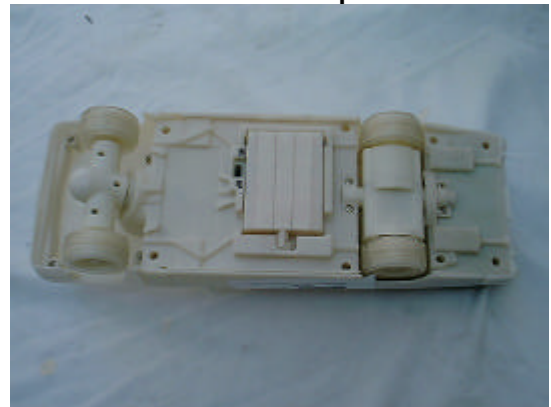
### Appendix B

#### Photographs of EUT

Front View of the product



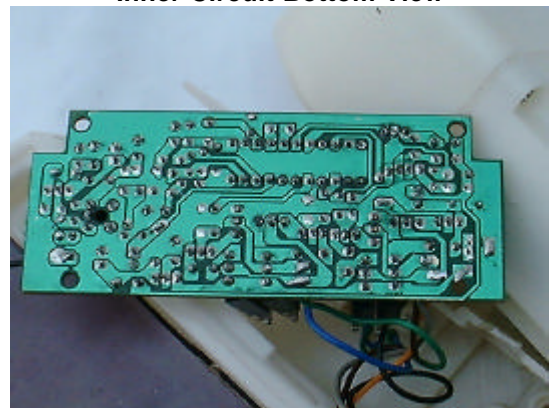
Rear View of the product



Inner Circuit Top View



Inner Circuit Bottom View



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### Photographs of EUT

Measurement of Radiated Emission Test Set Up



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