



INTERNATIONAL ELECTRICAL CERTIFICATION CENTRE LTD.

**F C C -
TEST REPORT**

REPORT NO.: 20577/9/400F

Units 602-605, 6/F., 31 Lok Yip Road, On Lok Tsuen, Fanling, N.T., Hong Kong
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FCC listed testlab
acc. to Section 2.948 of the FCC - Rules

in compliance with the requirements of
ANSI C63.4 - 1992

Product : R/C Road Race Set -- 49 MHz
Transmitter

Model : 8880T

Applicant : ARTIN INDUSTRIAL CO LTD

Manufacturer : ARTIN INDUSTRIAL CO LTD



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LABORATORY - REPORT

APPLICANT: ARTIN INDUSTRIAL CO LTD
ADDRESS: 2/F, Lee Sum Factory Building
21-25 Sze Mei Street
San Po Kong, Kowloon
HONG KONG

DATE OF SAMPLE RECEIVED: 1999-08-30

DATE OF TESTING: 1999-11-16

DESCRIPTION OF SAMPLE:

Product: R/C Road Race Set -- 49 MHz Transmitter
Manufacturer: ARTIN INDUSTRIAL CO LTD
Model number: 8880T
Rating: DC 9V ('6F22' Size Battery x 1)
Country of Origin: P.R. CHINA

INVESTIGATIONS REQUESTED: Measurements to the relevant clauses of F.C.C. Rules and Regulations
Part 15 Subpart C - Intentional Radiators

RESULTS: See the attached test sheets

CONCLUSIONS From the measurement data obtained, the tested sample was considered to have COMPLIED with the requirements for the relevant clauses of Federal Communications Commission Rules as specified above.



Authorized Signature

Remark: Purpose of those tests in this report is to provide the applicant with the necessary test data of their device for the submission to FCC with application for Equipment Authorization under the FCC Equipment Authorization Program. The tests themselves are not Approval Tests



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Summary of Test Results

Interference Radiation:

Test result: O.K.
Test data: See attached data sheet

Interference Voltage:

Test result: O.K.
Test data: See attached data sheet

Measurement of Emissions within Band Edges

Test result: O.K.
Test data: See attached data sheet

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TEST EQUIPMENT LIST

Equipment	Manufacturer	Model	Serial No.	Remark
Test Receiver	Rohde & Schwarz	ESH 3	863497/015	10KHz – 30MHz
Test Receiver	Rohde & Schwarz	ESVP	860688/022	25MHz – 1,300 MHz
Artificial Mains Network (LISN)	Schwarzbeck	NSLK 8127	--	2 x 10A, 50Ω, 50μH 10KHz-30MHz
Antenna System	Schwarzbeck	BBA 9106 / UHALP 9107	--	30MHz – 1000MHz
Antenna Mast System	Schwarzbeck	AM9104	--	Max. 4 meters height
Spectrum Analyzer with Q. Peak	Tektronix	2712	R023006	9KHz – 1.8GHz
Interface for Spectrum 2712	Tektronix	TD3F14A	--	
Test Receiver	Rohde & Schwarz	ESH 3	892580/006	10KHz – 30MHz
Test Receiver	Rohde & Schwarz	ESVP	863512/012	25MHz – 1,300 MHz
Impulse Limiter	Rohde & Schwarz	ESH-3-Z2	--	
Artificial Mains Network (LISN)	Schwarzbeck	NSLK 8127	--	2 x 10A, 50Ω, 50μH 10KHz-30MHz
Antenna System	Schwarzbeck	BBA 9106 / UHALP 9107	--	30MHz – 1000MHz
Signal Generator	Rohde & Schwarz	SWS 2	879113/42	100KHz – 1040 MHz
Digital Multimeter	Tektronix	DM2510G	DM- 2510CTW10555	10KHz – 30MHz
Turntable with Controller	Drehtisch	DT312	--	φ120 cm



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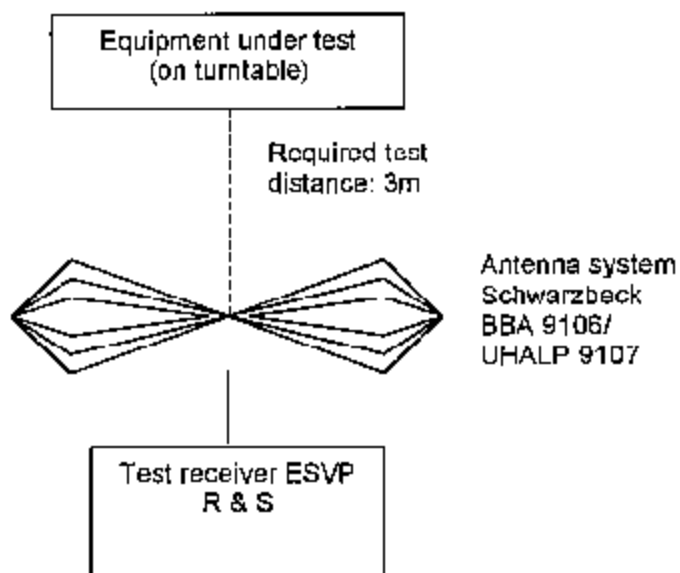
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Radiated Emission Test Procedure





Interference Radiation

Measurement of Radiated Emissions (30MHz-1000MHz)

International Electrical Certification Centre Ltd.

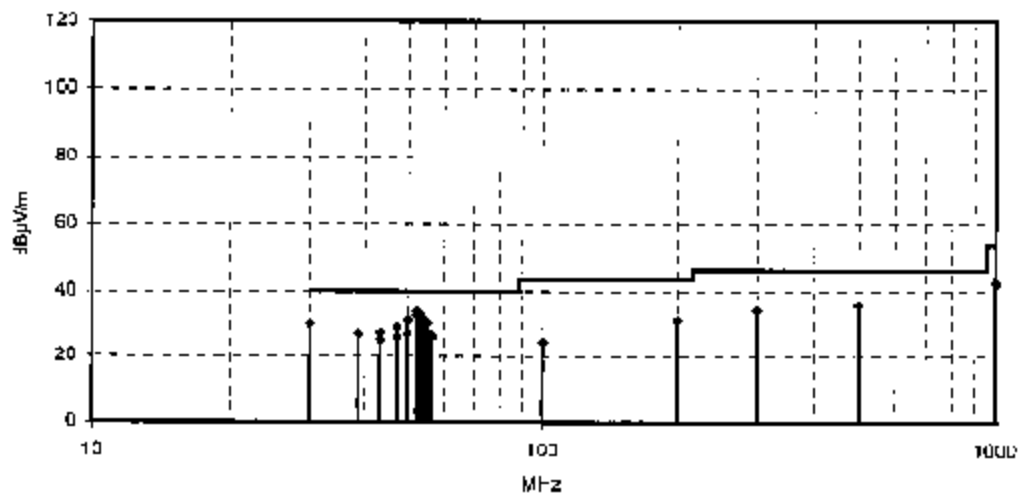
Acc: FCC Part 15 Subpart C

IECC Ref: 20577/9/4C0F
 Model: B880T
 Applicant: ARTIN INDUSTRIAL CO LTD
 Ser.Nr.: 1
 Set under test: R/C Road Race Set
 Connected sets:
 Operating mode: Power "On"

Test Equipment:
 Receiver: ESVP Rohde & Schwarz
 Antenna: Schwarzbeck BBA 9105
 and UHALP 9107

	Frequency (MHz)	Horiz. Reading dB(μV)	Vert. Reading dB(μV)	Antenna Factor (dB)	Horiz. Test Result (μV/m)	Vert. Test Result (μV/m)	Limit (μV/m)
Peak	49.06	49	56	7.0	634	1420	100.000
Av.	49.86	47	54	7.0	504	1128	100.000
Harm. 2	99.72	16.5	20	8.5	18	27	150
Harm. 3	149.58	< 16	< 18	13.0	< 28	< 28	150
Harm. 4	199.44	< 16	< 16	15.1	< 36	< 36	150
Harm. 5	249.3	< 16	< 16	16.7	< 43	< 43	200
Harm. 6	299.16	< 16	< 16	18.0	< 50	< 50	200
Harm. 7	349.02	< 16	< 16	17.4	< 47	< 47	200
Harm. 8	399.88	< 16	< 16	18.3	< 52	< 52	200
Harm. 9	449.74	< 16	< 16	19.0	< 56	< 56	200
Harm. 10	499.6	< 16	< 16	19.7	< 61	< 61	200
Harm. 11	549.46	< 16	< 16	20.2	< 64	< 64	200
Harm. 12	599.32	< 16	< 16	20.9	< 70	< 70	200
Harm. 13	649.18	< 16	< 16	21.6	< 76	< 76	200
Harm. 14	699.04	< 16	< 16	22.4	< 83	< 83	200
Harm. 15	747.9	< 16	< 16	23.0	< 90	< 90	200
Harm. 16	797.76	< 16	< 16	23.7	< 96	< 96	200
Harm. 17	847.62	< 16	< 16	24.3	< 104	< 104	200
Harm. 18	897.48	< 16	< 16	25.0	< 112	< 112	200
Harm. 19	947.34	< 16	< 16	25.7	< 122	< 122	200

• Data (Horiz.) • Data (Vert.) — Limit





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Notes for Radiation Measurement

1. **Measurement facility:**
Measurement facility located at Fanling (Hong Kong), placed on file with the FCC Pursuant to Section 2.948 of the FCC Rules.
2. **Distance between the EUT and measuring antenna:**
3 meters.
3. **Measuring instrumentations:**
Rohde & Schwarz ESVP Test Receiver (20 - 1300 MHz) with a CISPR weighting QP detector, 6 dB bandwidth set at 120 KHz
In the frequency range above 1000 MHz Spectrum Analyzer FMSM26 and Analyzer Display Unit FSA-D are used, bandwidth set at 100 kHz.
4. **Measuring antenna:**
Broad-band antenna for the frequency range 30 - 300 MHz and frequency range 300 - 1000 MHz, connected with 10 meters coaxial cable. Cable loss of the coaxial cable included in the Antenna Factor for measurement data. The antennas are capable of measuring both horizontal and vertical polarizations.

In the frequency range above 1 GHz horn-antenna RGA 50/60 is used.
5. **Frequency range scanned:**
The frequency range 30 - 5000 MHz has been scanned. Readings of the highest emissions relating to the limit were reported as above.
6. **Arrangement of EUT:**
During the test, the sample was operated at rated supply voltage and arranged for maximum emissions.
7. **Measuring Procedure:**
In accordance with the relevant sections of the American National Standards Institute (ANSI) C63.4-1992 'Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9KHz to 40GHz'.



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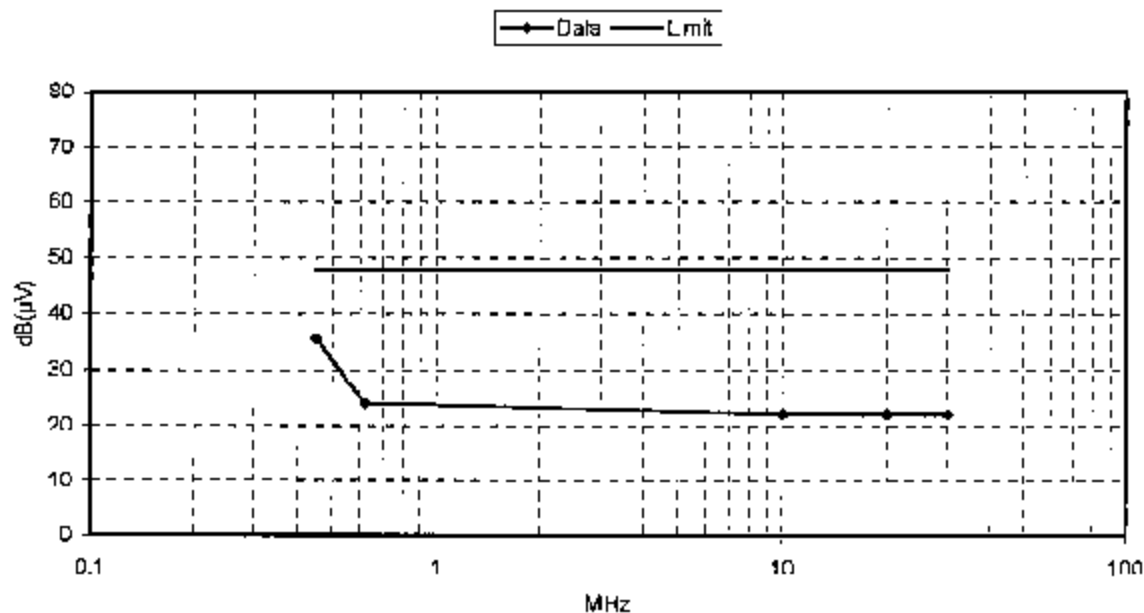
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Interf. Voltage 450 KHz - 25 MHz
Acc: FCC Part 15 Subpart B

IECC Ref: 20577/9/400F
Model: RR80T
Applicant: ARTIN INDUSTRIAL CO LTD
Ser.Nr.: 1
Set under test: R/C Road Race Set
Connected sets: -
Operating mode: Operate with racing car

Test Equipment
Receiver: Rohde & Schwarz ESH 3
Schwarzbeck NNLA 8119

Frequency (MHz)	Reading dB(μV)	Test Result dB(μV)	Limit dB(μV)
0.45	35.5	35.5	48
0.62	24	24	48
10	< 22	< 22	48
20	< 22	< 22	48
30	< 22	< 22	48



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Notes for Voltage Measurement

- LISN (Line Impedance Stabilization Network) used:**
LISN in accordance with IEEE Standard 213.
- Measuring instrumentations:**
Rohde & Schwarz ESH3 Test Receiver (9 KHz - 30 MHz) with a CISPR weighting QP detector, 6 dB bandwidth set at 10 KHz.
- Frequency range scanned:**
The frequency range 450 KHz - 30 MHz has been scanned. Readings of the highest emissions relating to the limit were reported as above.
- Setup of EUT:**
Connection of equipment and operation conditions are the same as those in the Radiation measurement.
- Measuring Procedure:**
In accordance with the relevant sections of the American National Standards Institute (ANSI) C63.4-1992 'Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9KHz to 40GHz'



Measurement of Emissions within band edges

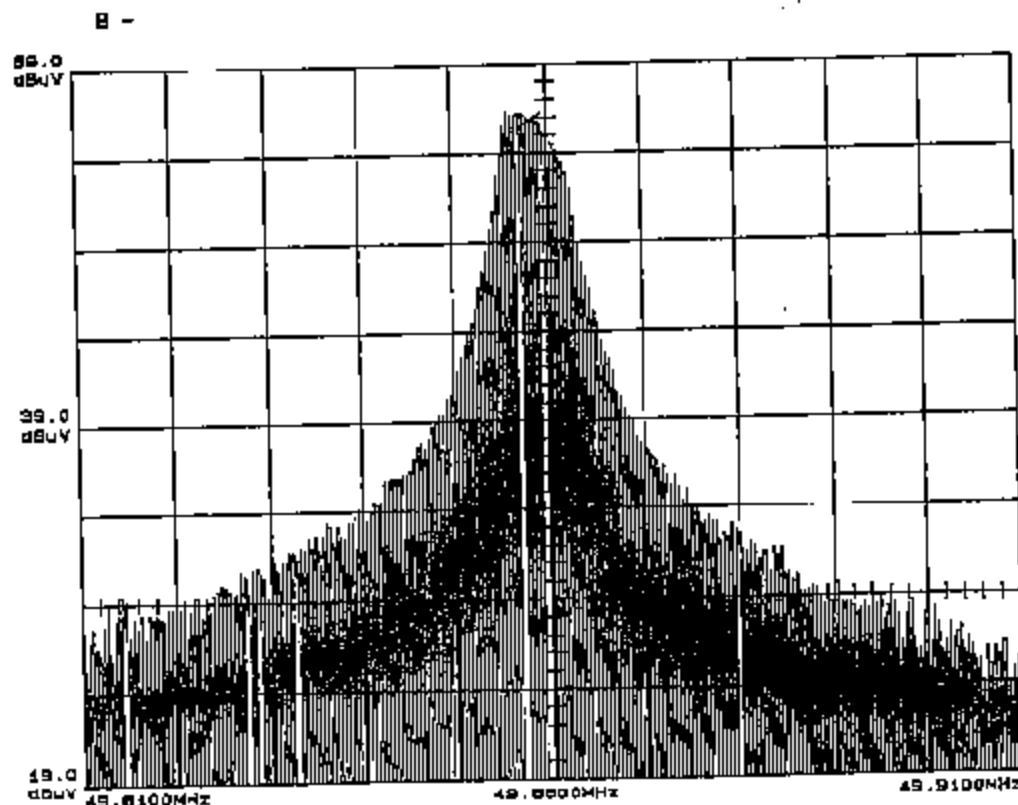
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Acc: FCC Part 15 Subpart C

IECC Ref: 20577/9/400F
 Model: 8580T
 Applicant: ARTIN INDUSTRIAL CO LTD
 Ser.Nr.: 1
 Set under test: R/C Road Race Set
 Connected sets: -
 Operating mode: Power "On"

Test Equipment
 Spectrum Analyzer:
 Tektronix 2712

Tek
 2712



49.8000MHz
 59.0dBuV QFS
 10.0kHz/
 9kHz RBW

ATTN 20dB
 VF 10kHz
 5 dB/
 M 49.8000MHz
 M 59.0dBuV

TIME: 100 ns/DIV

X -- MARKER 1

MAX/MIN MODE

Note: Readouts
 correspond to
 waveform 'B'



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Notes for Measurement of Emissions within Band Edges

1. **Measurement facility:**
Measurement facility located at Fanling (Hong Kong) placed on file with the FCC Pursuant to Section 2.949 of the FCC Rules.
2. **Measuring instrumentations:**
Spectrum Analyzer: Tektronix 2712
3. **Frequency range scanned:**
The frequency range acc. to FCC rules and regulations part 15 subpart C - Intentional Radiators.
4. **Arrangement of EUT:**
During the test, the sample was operated.
5. **Measuring Procedure:**
In accordance with the relevant sections of American National Standards Institute (ANSI) C63.4 - 1992 'Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz'.