



**pkM electronic GmbH**  
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pkM ref. no.: 22336

T:

☐ DOC:

## EMC - Test - Result

for Information-Technology Equipment (IT)

**Model:** 60-2774 (27 MHz)

**Client:** ECHO TOYS LTD

**Product:** School Bus

**Sample:** 1 of 2

**Ser.- No.:**

**Date in:**

Ref.: 22336

### Technical documents (for internal use only)

|                     | att.                     | mis.                     | not suf.                 |
|---------------------|--------------------------|--------------------------|--------------------------|
| Circuit diagram     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| PCB-layout          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Component-layout    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Parts-list          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Certificate         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| List of countries   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Users manual        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 mains transformer | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Message:

Modif.-cost:

**Remarks:** über IECC, Hong Kong acc. to FCC

| Following test are done |                                   | ok                                  | not ok                   |
|-------------------------|-----------------------------------|-------------------------------------|--------------------------|
| IT TK                   | Interference voltage              | <input type="checkbox"/>            | <input type="checkbox"/> |
| IT1/2                   | Interference voltage              | <input type="checkbox"/>            | <input type="checkbox"/> |
| IT3/4                   | Interference radiation            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| IT5/6                   | Interference radiation            | <input type="checkbox"/>            | <input type="checkbox"/> |
| IT 7                    | Interference power                | <input type="checkbox"/>            | <input type="checkbox"/> |
| N 1                     | Harmonics                         | <input type="checkbox"/>            | <input type="checkbox"/> |
| N 2                     | Voltage Fluctuations              | <input type="checkbox"/>            | <input type="checkbox"/> |
| N3                      | Voltage dips and interruptions    | <input type="checkbox"/>            | <input type="checkbox"/> |
| I1                      | Electrostatic discharge (ESD)     | <input type="checkbox"/>            | <input type="checkbox"/> |
| I2                      | Electrical fast transient (Burst) | <input type="checkbox"/>            | <input type="checkbox"/> |
| I3                      | Electromagnetic irradiation       | <input type="checkbox"/>            | <input type="checkbox"/> |
| I4                      | Surge                             | <input type="checkbox"/>            | <input type="checkbox"/> |
| I5                      | Conducted radio frequency         | <input type="checkbox"/>            | <input type="checkbox"/> |
| I6                      | Power frequency magnetic field    | <input type="checkbox"/>            | <input type="checkbox"/> |

### Tests done according

- ☐ EN 50081-1:01.92
- ☐ EN 50082-1:01.92
- ☐ EN 50082-2:03.95
- ☐ EN 55015:05.96
- ☐ EN 61547:10.95
- ☐ EN 55022:08.94
- ☐ EN 55013:06.90
- ☐ EN 61000-3-3:01.95
- ☐ EN 61000-3-2:04.95
- ☐ ETS 300683
- ☒ **FCC**  
 Part 15 Subpart C  
 Section 15.227 &  
 15.209  
 (Measurement for  
 Frequency below 30MHz)

|                               | Date       | Name      |
|-------------------------------|------------|-----------|
| Effectuated / Counter checked | 02.05.2006 | pkM / pkM |

**EMC** ☒ released  
☐ not released

**Remark to client:** Please take care of running production control !



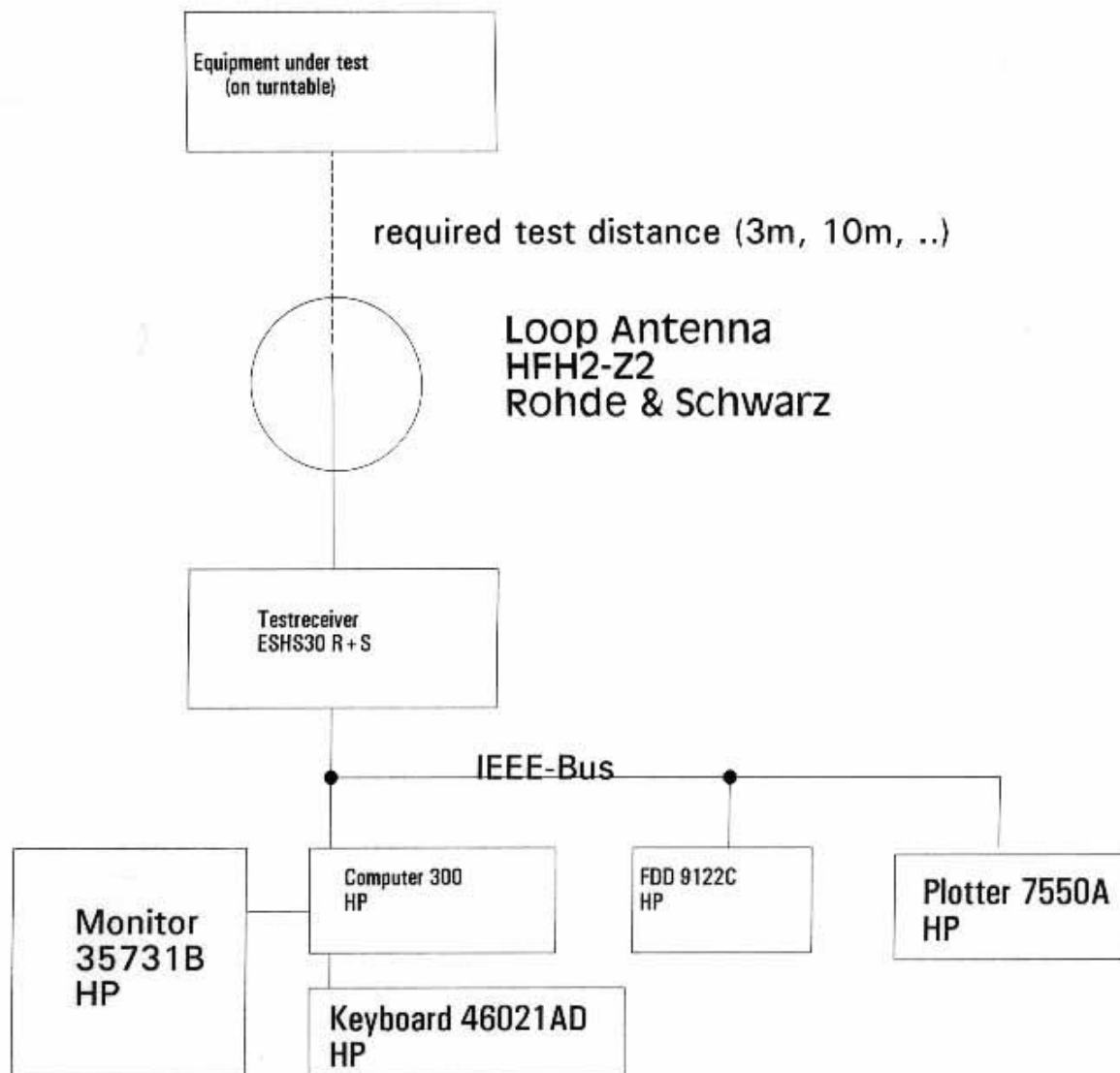
## TEST EQUIPMENT LIST

| Quantity | Equipment                        | Serial-number | Manufacturer    |
|----------|----------------------------------|---------------|-----------------|
| 2        | Receiver ESVS 30                 | #82852/006    | Rohde & Schwarz |
|          | Receiver ESVS 30                 | #833825/010   | Rohde & Schwarz |
| 3        | Receiver ESHS 30                 | #839667/002   | Rohde & Schwarz |
|          | Receiver ESHS 30                 | #839667/008   | Rohde & Schwarz |
|          | Receiver ESHS 30                 | #39667/008    | Rohde & Schwarz |
| 2        | Broadband antenna 30MHz-1000 MHz | #1064         | Chase           |
|          | CBL 6111                         | #1331         |                 |
| 1        | Loop Antenna 9kHz-30MHz          | #871336/48    | Rohde & Schwarz |
|          | HFH2-Z2                          |               |                 |
| 1        | Turntable DT 312                 | #312/336      | Deisel          |
| 3        | Shielded room DC...              |               |                 |
|          | 10 GHz 3,5 m x 3,5 m             |               | Siemens         |
| 2        | LISN ESH2-Z5                     | #831079/018   | Rohde & Schwarz |
|          | LISN ESH2-Z5                     | #879675/028   | Rohde & Schwarz |
| 1        | LISN NSLK 8127                   | #8127230      | Schwarzbeck     |
| 2        | Antenna mast system AM 9104      |               | Schwarzbeck     |
| 3        | Plotter HP7550A                  | #2936A43117   | Hewlett Packard |
|          | Plotter HP7550A                  | #2631A46736   | Hewlett Packard |
|          | Plotter HP7550B                  | #3026A03892   | Hewlett Packard |
| 1        | Spectrum Analyzer 8562A          | #3043A05643   | Hewlett Packard |
| 3        | Controller 300                   |               | Hewlett Packard |
|          | Controller 300                   |               | Hewlett Packard |
|          | Controller 300                   |               | Hewlett Packard |
| 3        | Floppy-Disk-Drive 9122C          | #2804A04362   | Hewlett Packard |
|          | Floppy-Disk-Drive 9122D          | #2614A63990   | Hewlett Packard |
|          | Floppy-Disk-Drive 9122D          | #2339A13495   | Hewlett Packard |
| 3        | Monitor 35741B                   | #8838J26540   | Hewlett Packard |
|          | Monitor 35731B                   | #8627K33194   | Hewlett Packard |
|          | Monitor 35731B                   | #8619K25961   | Hewlett Packard |
| 3        | Keyboard 46021AD                 | #2844S60217   | Hewlett Packard |
|          | Keyboard 46021AD                 | #2645S20154   | Hewlett Packard |
|          | Keyboard 46021AD                 | #2706S40044   | Hewlett Packard |



# Radiated Emission Testprocedure Magnetic field emissions

## TESTFACILITY





## **Notes for Radiation Measurement**

(Magnetic field emissions)  
acc. to ANSI C63.4 - 1992

**1. Measurement facility:**

Measurement facility located at Frontenhausen (Germany) on field with the FCC Pursuant to Section 2.948 of the FCC Rules.

**2. Distance between the EUT and measuring antenna:**

3 meters.

**2. Measuring instrumentations:**

Rohde & Schwarz ESHS 30 Test Receiver ( 9 KHz - 30 MHz ) with a CISPR weighting QP detector, 6 dB bandwidth set at 10 KHz.

**3. Frequency range scanned:**

The frequency range 9KHz - 30 MHz has been scanned. Readings of the highest emissions relating to the limit were reported as above.

**4. Measuring antenna:**

Loop Antenna for the frequency range 9kHz - 30MHz, connected with 10 meters coaxial cable. Cable loss of the coaxial cable included in the Antenna Factor for measurement data. The center of the loop 1m above the ground plane, positioned with its plane vertical at the specified distance and rotated about its vertical axis for maximum response at each azimuth about the EUT.

**5. Arrangement of EUT:**

During the test, the sample was operated at rated supply voltage and arranged for maximum emissions.

**6. 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".



electronic GmbH

# FCC - Testreport

No. FCC-22336

Date: 03.05.2000

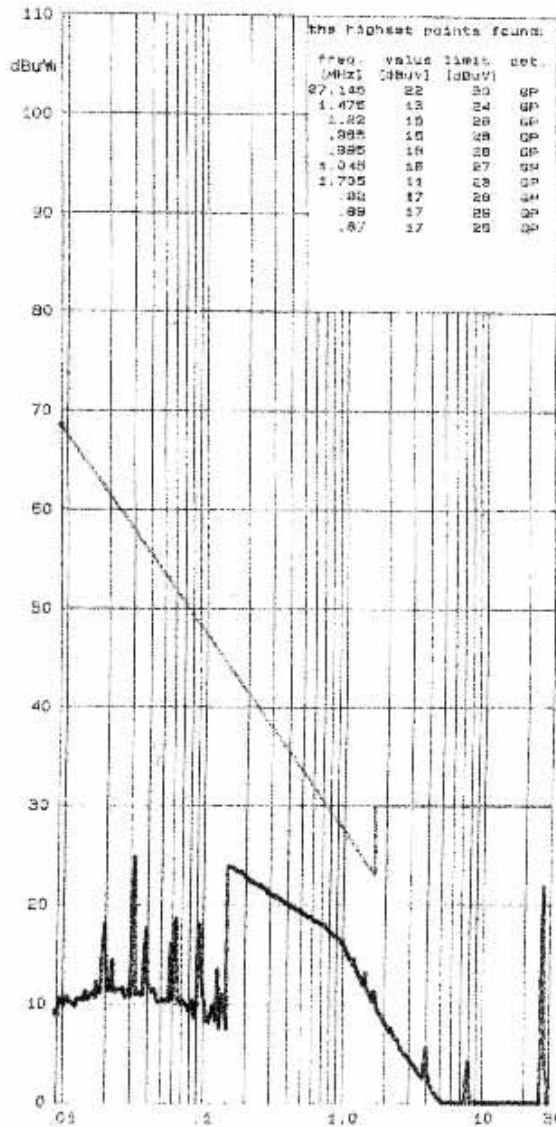
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IT 3/4

Interference RADIATION 9 KHz - 30 MHz

FCC Part 15 Subpart C Section 15.227+15.209

Cabin 2



Model/System: 80-2774 (27MHz)

pkM/Ser. No: 01

Manuf./Imp.: ECHO T8YS

Date: 02.05.2000

Sat under test: SCHOOL BUS

Test equipment:

Rohde & Schwarz ESH3-30

HFH2-ZE Rohde&Schwarz

Connected nets:

Operating Mode:

TRANSMITTING

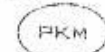
test distance 30m

RFI suppression parts:

22336  
# two dB safety margin for  
type approval necessary

Operator: BL

Result:



pkM electronic GmbH  
Friedenhausen

f (MHz)



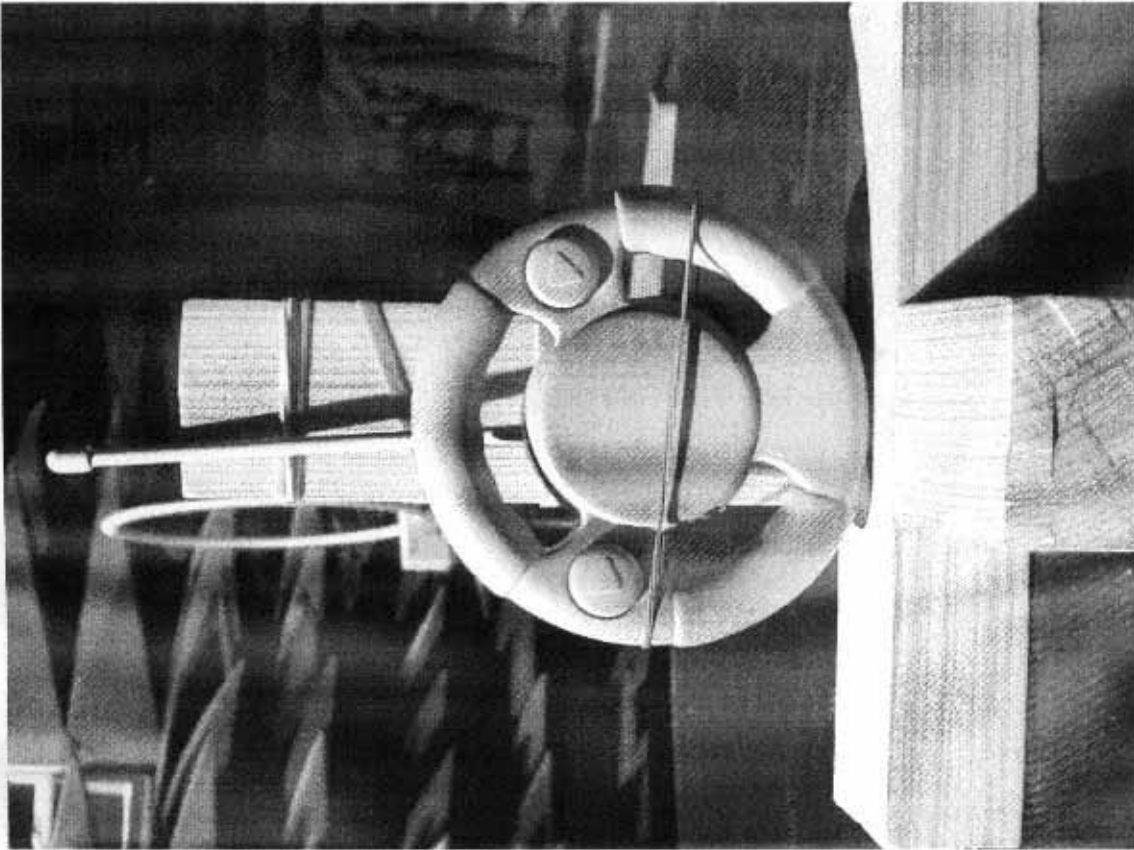
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