# T E S T  R E P O R T

| | | |
|---|---|---|
| REPORT NUMBER | : | ANKK–102062 |
| APPLICANT | : | Hitachi Ltd.,<br>Digital Media Products Division |
| MODEL NUMBER | : | SH-P300 |
| FCC ID | : | ABLSP20 |
| REGULATION | : | FCC Part15B Class B<br>Canada ICES–003 Class B |

Conducted Emission Test
Radiated Emission Test

LAB CODE 100290–0

NVLAP accreditation is valid for FCC Part15 (Digital Devices), CISPR22 and AS/NZS 3548.
NVLAP accreditation does not cover ICES–003.

Akzo Nobel K. K.
EMC Division
Kashima Site

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ABBREVIATIONS

LISN = Line Impedance Stabilization Network

AMN = Artificial Mains Network

ISN = Impedance Stabilization Network

CDN = Coupling Decoupling Network

ANT = Antenna

BBA = Broadband Antenna

DIP = Dipole Antenna

AMP = Amplifier

ATT = Attenuator

EUT = Equipment Under Test

AE = Associated Equipment

Q–P = Quasi–peak

AVG = Average

## SECTION 1. TEST CERTIFICATION

### APPLICANT INFORMATION

| | | |
|---|---|---|
| Company | : | Hitachi Ltd., Digital Media Products Division |
| Address | : | 1410 Inada, Hitachinaka-shi, Ibaraki-ken, 312-8505 Japan |
| Telephone number | : | +81 29 276 8745 |
| Fax number | : | +81 29 276 0549 |

### DESCRIPTION OF TEST ITEM

| | | |
|---|---|---|
| Kind of equipment | : | Handy Phone |
| Condition of equipment | : | Pre production |
| Type | : | Tabletop (Handheld type) |
| Trademark | : | HITACHI |
| FCC ID | : | ABLSP20 |
| Model number | : | SH-P300 |
| Serial number | : | None |

### TEST PERFORMED

| | | |
|---|---|---|
| Location | : | Kashima No. 1 Test Site (FCC File No. : 31040/SIT) |
| EUT received | : | March 22, 2002 |
| Test started | : | March 22, 2002 |
| Test completed | : | March 25, 2002 |
| Purpose of test | : | FCC Docket 87–389 and Canadian Interference Causing Equipment Regulations |
| Regulation | : | FCC Part15B Class B and Canada ICES–003 Class B Unintentional Radiators |
| Test setup | : | ANSI C63.4–1992 |

Report number : ANKK–102062

Report issue date : April 9, 2002

Test engineer : Kazuhiro Ando

Report approved by : Junichi Okada
[Site Manager]

## SECTION 2. CONCLUSION

This test report clearly shows that the EUT is in compliance with the FCC Part 15B Class B and Canada ICES–003 Class B specification.

Traceability to national standards of test result is achieved by means of calibration traceability to national standards.

The minimum margins to the limits are as follows:

| | | | |
|---|---|---|---|
| Conducted Voltages on Mains Port | | | |
| RX mode (Channel High) | 2.5 dB | at | 1.7860 MHz |
| Radiated Electric Field | | | |
| RX mode (Channel High) | 2.9 dB | at | 6494.45 MHz |

Note : See Section 9 for details.

## SECTION 3. EQUIPMENT UNDER TEST

The equipment under test (EUT) consisted of the following equipment.
Indication in the following left side column corresponds to Section 6.

| Symbol | Item | Model No. | Serial No. | FCC ID / DoC | Manufacturer | Remarks |
|---|---|---|---|---|---|---|
| A) | Handy Phone | SH-P300 | None | ABLSP20 | Hitachi Ltd. | |
| B) | Desktop Charger | SH-P300DTC | None | N.A. | Hitachi Ltd. | Option |
| C) | Traveler Charger | SH-P300ACT | None | N.A. | Hitachi Ltd. | Accessory |

Power ratings of EUT : [Handy Phone] DC 3.7V (1000mAH battery)
[Traveler Charger] AC 120V, 60 Hz, 0.12 A

DoC : Device for Declaration of Conformity

3.1 Port(s)/Connector(s) :

| Port name | Connector type | Connector pin | Remarks |
|---|---|---|---|
| Receptacle | Hitachi-original | 18 pin | |
| Head set jack | Earphone Mic Jack | 1 pin | |

3.2 Oscillator(s)/Crystal(s) :

| Oscillator | Operating frequency | Board name | Remarks |
|---|---|---|---|
| 19.2 MHz | 19.2 MHz | Main Board | CPU PLL |
| | 2113.6 – 2173.6 MHz | Main Board | VCO, Highest frequency |
| | 1391.82 MHz | Main Board | GPS Low |
| | 527.2 MHz | Main Board | TX IF |
| | 367.2 MHz | Main Board | IF VCO |
| 48 MHz | 48 MHz | Main Board | USB Clock |
| 32.768 kHz | 32.768 kHz | Main Board | RTC |

## SECTION 4. SUPPORT EQUIPMENT USED

The EUT was supported by the following equipment during the test.
Indication in the following left side column corresponds to Section 6.

| Symbol Item | Model No. | Serial No. | FCC ID / DoC | Manufacturer | Remarks |
|---|---|---|---|---|---|
| D) Computer | Type 2628 | 97-4149B | DoC | IBM Corporation | |
| E) Printer | C3941A | JPCD204480 | B94C3941A | HP | |
| F) PC Head Set/Mic | None | None | N.A. | Microtronics | |
| G) AC Adapter | AA21131 | 1Z0ZA992GZA | DoC | IBM Corporation | |

DoC : Device was tested and authorized under a Declaration of Conformity to the applicable FCC rules.

## SECTION 5. CABLE (S) USED

The following cable(s) was used for the test.
Indication number in the following left side column corresponds to Section 6.

| Number | Name | Length | Shield | Connector | Core |
|---|---|---|---|---|---|
| 1) | Head Set/Mic cable (Curl cord) | 0.60 m | None | Metal | |
| 2) | USB cable | 0.50 m | Yes | Metal | |
| 3) | Centronics cable | 1.80 m | Yes | Metal | |
| 4) | Power cable for AC Adapter (C) | 1.40 m | None | | |
| 5) | Power cable for Computer | 1.80 m | None | | Fixed × 1 |
| 6) | Power cable for AC Adapter (G) | 1.00 m | None | | |
| 7) | Power cable for Printer | 1.80 m | None | | |

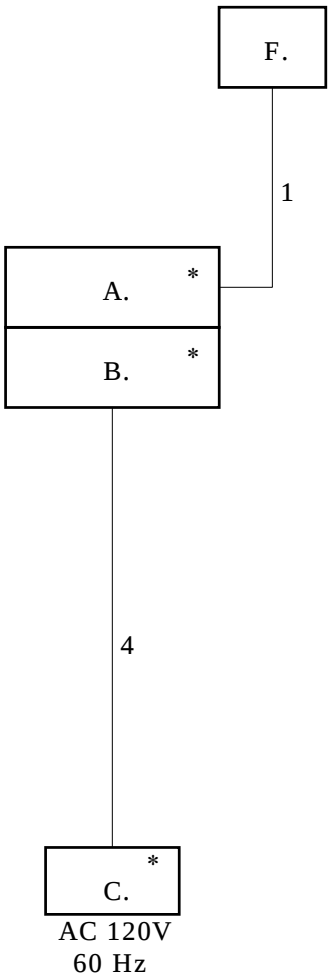
## SECTION 6. CONSTRUCTION OF EQUIPMENT

The construction of EUT during the test was as follows.

### 6.1 Rx mode

System configuration

* : EUT
■ : Ferrite core

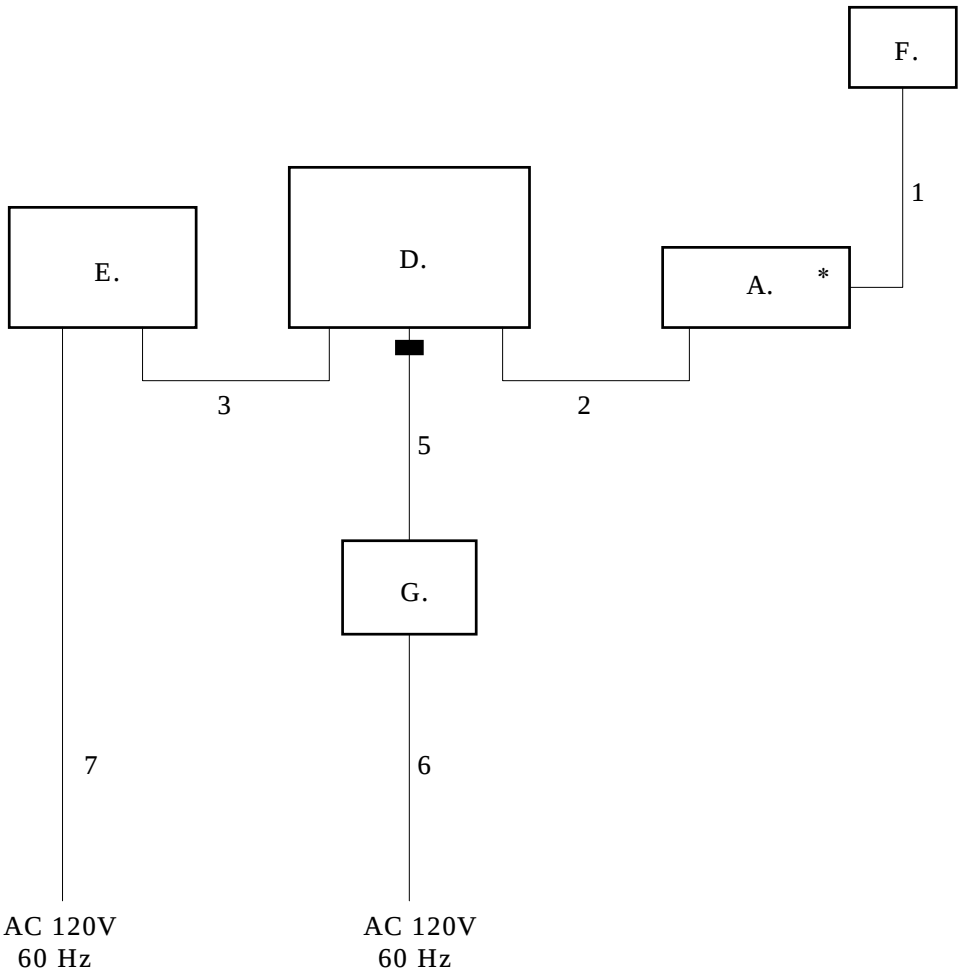



Symbols or numbers assigned to equipment or cables on this diagram are corresponded to the symbols or numbers assigned to equipment or cables on tables in Sections 3 to 5.

6.2 Data communications (USB) mode

System configuration

* : EUT
■ : Ferrite core




Symbols or numbers assigned to equipment or cables on this diagram are corresponded to the symbols or numbers assigned to equipment or cables on tables in Sections 3 to 5.

# SECTION 7. OPERATING CONDITIONS

The EUT was operated under the following conditions during the test.

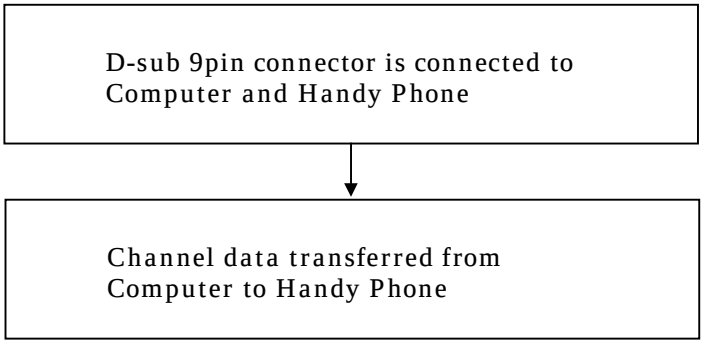
## 7.1 Operating condition

The test was carried out under Rx mode and Data communications (USB) mode. EUT was examined in the operating conditions that had maximum emissions.

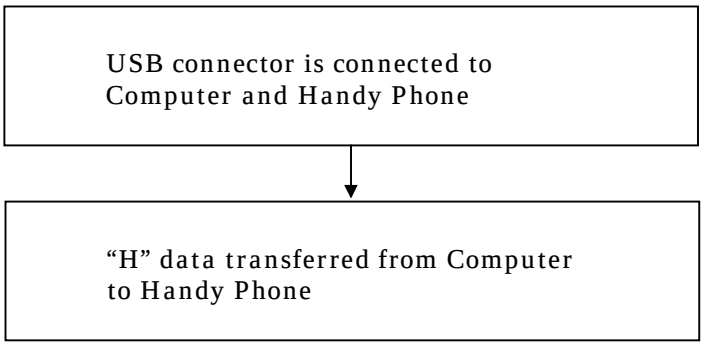
## 7.2 Operating flow

Following operations were performed continuously.

### 7.2.1 Rx mode




### 7.2.2 Data communications (USB) mode

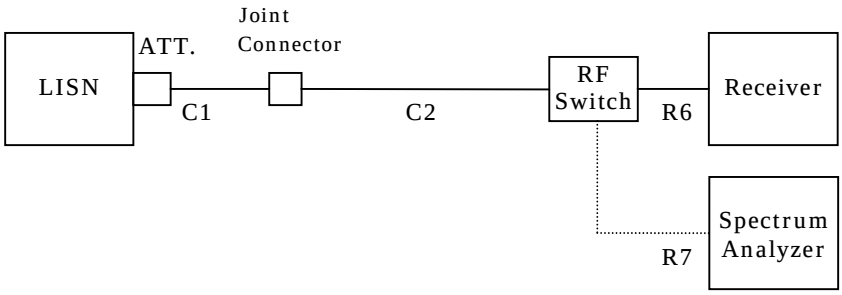


## SECTION 8. TEST PROCEDURE(S)

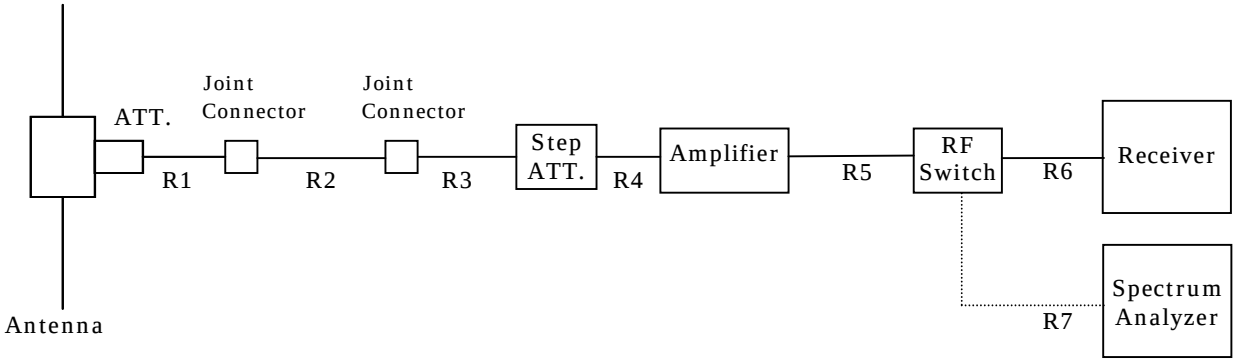
Test was carried out under the following conditions.
Test was carried out with no deviations from standards and test methods.

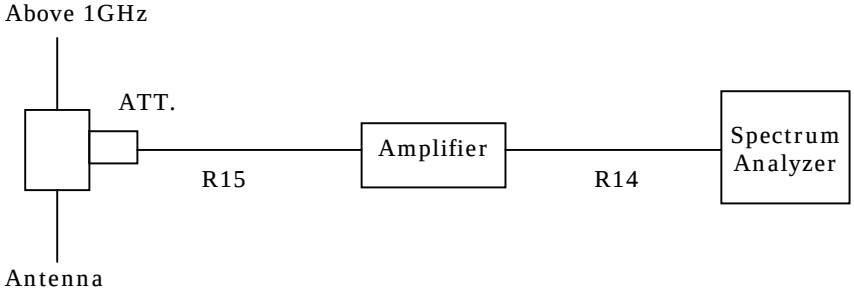
| Subject | Test procedure | Scanned frequency |
|---|---|---|
| Conducted Voltages on Mains Port | Akzo Nobel Document number : 03–10–004 | 0.45 – 30 MHz |
| Radiated Electric Field | Akzo Nobel Document number : 03–10–003 | 30 – 11000 MHz |

Schema for the conducted voltages on mains port measurement




Schema for the radiated electric field measurement



Summary ;

## 8.1 Conducted Voltages on Mains Port

### 8.1.1 Equipment Setup

System configuration and Equipment setup are shown on Section 6 and Section 10.

#### 8.1.1.1 Tabletop Equipment

EUT is placed on the wooden table, the top of which is 0.8meter above the metal ground plane.

#### 8.1.1.2 Interconnecting Cables

Excess part of the interconnecting cables longer than 1 meter are bundled in the center. Cables that hang closer than 40 cm to the ground plane is folded back and forth forming bundle 30 to 40 cm long, hanging approx, in the middle between ground plane and table.

#### 8.1.1.3 AC Power Cable

AC power cable for EUT is connected to one LISN which is placed on the ground plane. The LISN is placed in 80 cm from the nearest part of EUT chassis.
The excess power cable is bundled in the center, or shortened to appropriate length.
AC cables except from the EUT are connected second LISN.

### 8.1.2 Measuring Instruments

Measuring instruments list and their calibration schedule are shown on Section 11.
The brief description are as follows;

#### 8.1.2.1 Spectrum Analyzer

The Spectrum analyzer is used for preliminary measurement.

#### 8.1.2.2 EMI Test Receiver

The Quasi–peak detector (IF bandwidth : 10 kHz) and average detector (IF bandwidth : 10 kHz) built in test receiver is used for final measurement.
The test receiver is complied with the specification of the CISPR publication 16.

#### 8.1.2.3 LISN

Two 50μH//50Ω LISN are used. The chassis of the LISN is bonded to the ground plane by the copper blade.
One LISN is connected to the EUT. Other LISN (2nd LISN) is connected to the support equipment. The signal output of the 2nd LISN is terminated with a 50Ω termination.

8.1.3 Test Procedure

8.1.3.1 Preliminary Measurement

EUT is tested on all operating conditions.
The spectrum analyzer is controlled by the computer program to sweep the frequency range to be measured, then spectrum chart are plotted out to find the worst emission conditions in operating mode and/or configuration decision for the final test.
All leads other than safety ground are tested.

8.1.3.2 Final Measurement

The EUT is operated in the worst emission condition found by the preliminary test. The equipment and cables are arranged or manipulated within the range of the test standard in the above condition.
At least six highest spectrum are measured in quasi–peak using the test receiver. When the value in the quasi–peak mode is higher than the limit in the standard, the measurement in the average mode is done to compare to the value in the quasi–peak mode. If the value in the quasi–peak mode exceeds the value in the average mode by more than 6 dB, the value reducing 13 dB from the value in the quasi–peak mode is used to compare to the limit.

## 8.2 Radiated Electric Field

### 8.2.1 Equipment Setup

System configuration and Equipment setup are shown on Section 6 and Section 10.

#### 8.2.1.1 Tabletop Equipment

EUT is placed on the wooden table, the top of which is 0.8meter above the metal ground plane (turntable).

#### 8.2.1.2 Interconnecting Cables

Excess part of the interconnecting cables longer than 1 meter are bundled in the center. Cables that hang closer than 40 cm to the ground plane is folded back and forth forming bundle 30 to 40 cm long, hanging approx, in the middle between ground plane and table.

### 8.2.2 Measuring Instruments

Measuring instruments list and calibration schedule are shown on Section 11.
The brief description are as follows;

#### 8.2.2.1 Antennas

The broadband Tri–Log antenna is used for measurement on the frequency range 30 – 1000 MHz.
The Double ridged guide antenna is used for frequency higher than 1000 MHz.
If uncertain result was obtained, the broadband antenna is replaced by the half wave length dipole, then measurement is carried out over again.

#### 8.2.2.2 Pre–amplifier

The broadband pre–amplifier is used for Radiated Electric Field measurement.
The signal to noise ratio is improved by using pre–amplifier.

#### 8.2.2.3 Spectrum Analyzer

The spectrum analyzer is used for preliminary measurement of frequency range 30 – 1000 MHz, and also used for final measurement of higher than 1000 MHz (Resolution bandwidth : 1 MHz).

#### 8.2.2.4 EMI Test Receiver

The Quasi–peak detector (IF bandwidth : 120 kHz) built in test receiver is used for final measurement of the frequency 30 – 1000 MHz.
The test receiver is complied with the specification of the CISPR publication 16.

#### 8.2.2.5 Turntable

The turntable is capable for EUT weight and rotatable 0 to 360 degree horizontally by remote control in the test room.

#### 8.2.2.6 Antenna Mast

The antenna mast is attachable to all antennas described on clause 8.2.2.1 and antenna height is adjustable 1 to 4 meters continuously by remote control at the test room, and antenna polarization is also changed by the remote control.

8.2.3 Test Procedure

8.2.3.1 Preliminary Measurement

EUT is tested on all operating conditions.
The spectrum analyzer is set max–hold mode and swept during turntable was rotated 0 to 360 degree. Then spectrum chart are plotted out to find the worst emission conditions in configuration, operating mode, or ambient noise notation.

8.2.3.2 Final Measurement

The EUT operated in the worst emission condition found by the preliminary test. The turntable azimuth (EUT direction) and antenna height are adjusted the position so that maximum field strength is obtained for each frequency spectrum to be measured. The equipment and cables are arranged or manipulated within the range of the test standard in the above condition.
When the uncertain result was obtained, the measurement is retried by using the half wave dipole antenna instead of the broadband antenna.

## SECTION 9. EVALUATION OF TEST RESULTS

9.1 Conducted Voltages on Mains Port

9.1.1 Rx mode (Channel High)

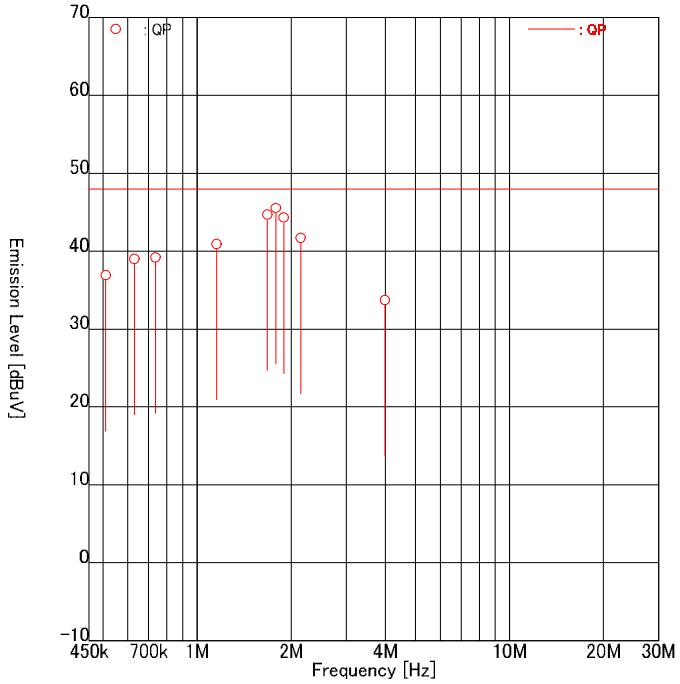
# Akzo Nobel K. K.

## Kashima Kashima No.1 Test Site

## Conducted Voltages on Mains Port

| | |
|---|---|
| APPLICANT | : Hiatchi Ltd. Digital Media Products Division |
| EUT NAME | : Handy Phone |
| MODEL NO. | : SH-P300 |
| SERIAL NO. | : None |
| TEST MODE | : Rx (Channel High) |
| POWER SOURCE | : AC120V60Hz |
| DATE TESTED | : Mar 25 2002 |
| FILE NO. | : ANKK-102062 |
| REGULATION | : FCC Part15B Class B |
| TEST METHOD | : ANSI C63.4-1992 |
| TEMPERATURE | : 21.0 [degC] |
| HUMIDITY | : 35.0 [%] |

ENGINEER : Kazuhiro Ando




| No | FREQUENCY [MHz] | READING [dBuV] Line1 | READING [dBuV] Line2 | FACTOR [dB] Line1 | FACTOR [dB] Line2 | EMISSION [dBuV] Line1 | EMISSION [dBuV] Line2 | LIMIT [dBuV] | MARGIN [dB] Line1 | MARGIN [dB] Line2 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5099 | 31.0 | 28.2 | 5.9 | 5.9 | 36.9 | 34.1 | 48.0 | 11.1 | 13.9 |
| 2 | 0.6298 | 33.1 | 30.2 | 5.9 | 5.9 | 39.0 | 36.1 | 48.0 | 9.0 | 11.9 |
| 3 | 0.7366 | 33.2 | 28.5 | 6.0 | 5.9 | 39.2 | 34.4 | 48.0 | 8.8 | 13.6 |
| 4 | 1.1553 | 34.9 | 32.3 | 6.0 | 6.0 | 40.9 | 38.3 | 48.0 | 7.1 | 9.7 |
| 5 | 1.6797 | 38.6 | 37.8 | 6.1 | 6.1 | 44.7 | 43.9 | 48.0 | 3.3 | 4.1 |
| 6 | 1.7860 | 39.4 | 38.2 | 6.1 | 6.1 | 45.5 | 44.3 | 48.0 | 2.5 | 3.7 |
| 7 | 1.8933 | 38.2 | 36.6 | 6.1 | 6.1 | 44.3 | 42.7 | 48.0 | 3.7 | 5.3 |
| 8 | 2.1454 | 35.6 | 34.9 | 6.1 | 6.1 | 41.7 | 41.0 | 48.0 | 6.3 | 7.0 |
| 9 | 3.9981 | 27.5 | 25.1 | 6.2 | 6.2 | 33.7 | 31.3 | 48.0 | 14.3 | 16.7 |

Other frequencies : Below the FCC Part15B Class B limit

Emisson Level = Read + Factor(LISN,Pad,Cable)

9.1.2 Rx mode (Channel Low)

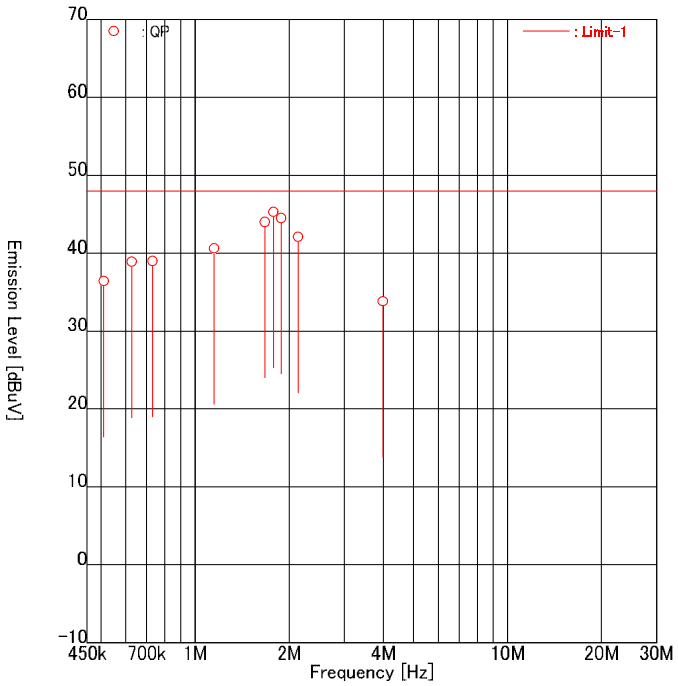
# Akzo Nobel K. K.

## Kashima Kashima No.1 Test Site

## Conducted Voltages on Mains Port

| | |
|---|---|
| APPLICANT | : Hiatchi Ltd. Digital Media Products Division |
| EUT NAME | : Handy Phone |
| MODEL NO. | : SH-P300 |
| SERIAL NO. | : None |
| TEST MODE | : Rx (Channel Low) |
| POWER SOURCE | : AC120V60Hz |
| DATE TESTED | : Mar 25 2002 |
| FILE NO. | : ANKK-102062 |
| REGULATION | : FCC Part15B Class B |
| TEST METHOD | : ANSI C63.4-1992 |
| TEMPERATURE | : 21.0 [degC] |
| HUMIDITY | : 35.0 [%] |

ENGINEER : Kazuhiro Ando




| No | FREQUENCY [MHz] | READING [dBuV] Line1 | READING [dBuV] Line2 | FACTOR [dB] Line1 | FACTOR [dB] Line2 | EMISSION [dBuV] Line1 | EMISSION [dBuV] Line2 | LIMIT [dBuV] | MARGIN [dB] Line1 | MARGIN [dB] Line2 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5102 | 30.5 | 28.4 | 5.9 | 5.9 | 36.4 | 34.3 | 48.0 | 11.6 | 13.7 |
| 2 | 0.6279 | 33.0 | 30.4 | 5.9 | 5.9 | 38.9 | 36.3 | 48.0 | 9.1 | 11.7 |
| 3 | 0.7314 | 33.0 | 28.5 | 6.0 | 5.9 | 39.0 | 34.4 | 48.0 | 9.0 | 13.6 |
| 4 | 1.1500 | 34.6 | 32.3 | 6.0 | 6.0 | 40.6 | 38.3 | 48.0 | 7.4 | 9.7 |
| 5 | 1.6723 | 37.9 | 37.5 | 6.1 | 6.1 | 44.0 | 43.6 | 48.0 | 4.0 | 4.4 |
| 6 | 1.7808 | 39.2 | 38.2 | 6.1 | 6.1 | 45.3 | 44.3 | 48.0 | 2.7 | 3.7 |
| 7 | 1.8882 | 38.4 | 36.9 | 6.1 | 6.1 | 44.5 | 43.0 | 48.0 | 3.5 | 5.0 |
| 8 | 2.1384 | 36.0 | 35.0 | 6.1 | 6.1 | 42.1 | 41.1 | 48.0 | 5.9 | 6.9 |
| 9 | 3.9887 | 27.6 | 24.8 | 6.2 | 6.2 | 33.8 | 31.0 | 48.0 | 14.2 | 17.0 |

Other frequencies : Below the FCC Part15B Class B limit

Emisson Level = Read + Factor(LISN,Pad,Cable)

9.1.3 Rx mode (Channel Middle)

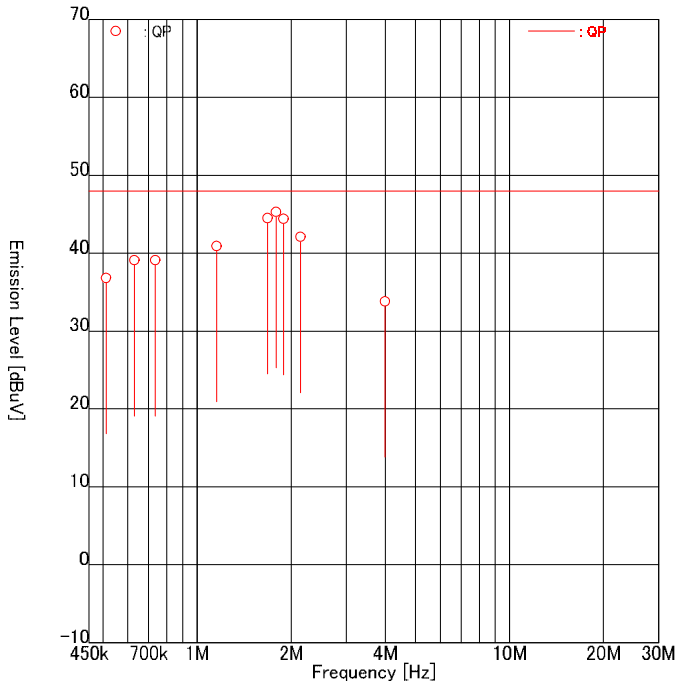
# Akzo Nobel K. K.

## Kashima Kashima No.1 Test Site

## Conducted Voltages on Mains Port

| | |
|---|---|
| APPLICANT | : Hiatchi Ltd. Digital Media Products Division |
| EUT NAME | : Handy Phone |
| MODEL NO. | : SH-P300 |
| SERIAL NO. | : None |
| TEST MODE | : Rx (Channel Middle) |
| POWER SOURCE | : AC120V60Hz |
| DATE TESTED | : Mar 25 2002 |
| FILE NO. | : ANKK-102062 |
| REGULATION | : FCC Part15B Class B |
| TEST METHOD | : ANSI C63.4-1992 |
| TEMPERATURE | : 21.0 [degC] |
| HUMIDITY | : 35.0 [%] |

ENGINEER : Kazuhiro Ando




| No | FREQUENCY [MHz] | READING [dBuV] Line1 | READING [dBuV] Line2 | FACTOR [dB] Line1 | FACTOR [dB] Line2 | EMISSION [dBuV] Line1 | EMISSION [dBuV] Line2 | LIMIT [dBuV] | MARGIN [dB] Line1 | MARGIN [dB] Line2 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5117 | 30.9 | 28.3 | 5.9 | 5.9 | 36.8 | 34.2 | 48.0 | 11.2 | 13.8 |
| 2 | 0.6301 | 33.2 | 30.2 | 5.9 | 5.9 | 39.1 | 36.1 | 48.0 | 8.9 | 11.9 |
| 3 | 0.7351 | 33.1 | 28.4 | 6.0 | 5.9 | 39.1 | 34.3 | 48.0 | 8.9 | 13.7 |
| 4 | 1.1551 | 34.9 | 32.3 | 6.0 | 6.0 | 40.9 | 38.3 | 48.0 | 7.1 | 9.7 |
| 5 | 1.6819 | 38.4 | 37.7 | 6.1 | 6.1 | 44.5 | 43.8 | 48.0 | 3.5 | 4.2 |
| 6 | 1.7885 | 39.2 | 38.2 | 6.1 | 6.1 | 45.3 | 44.3 | 48.0 | 2.7 | 3.7 |
| 7 | 1.8920 | 38.3 | 36.8 | 6.1 | 6.1 | 44.4 | 42.9 | 48.0 | 3.6 | 5.1 |
| 8 | 2.1428 | 36.0 | 34.8 | 6.1 | 6.1 | 42.1 | 40.9 | 48.0 | 5.9 | 7.1 |
| 9 | 3.9956 | 27.6 | 24.9 | 6.2 | 6.2 | 33.8 | 31.1 | 48.0 | 14.2 | 16.9 |

Other frequencies : Below the FCC Part15B Class B limit

Emisson Level = Read + Factor(LISN,Pad,Cable)

9.2 Radiated Electric Field

9.2.1 Rx mode (Channel High) [30 MHz - 1000 MHz]

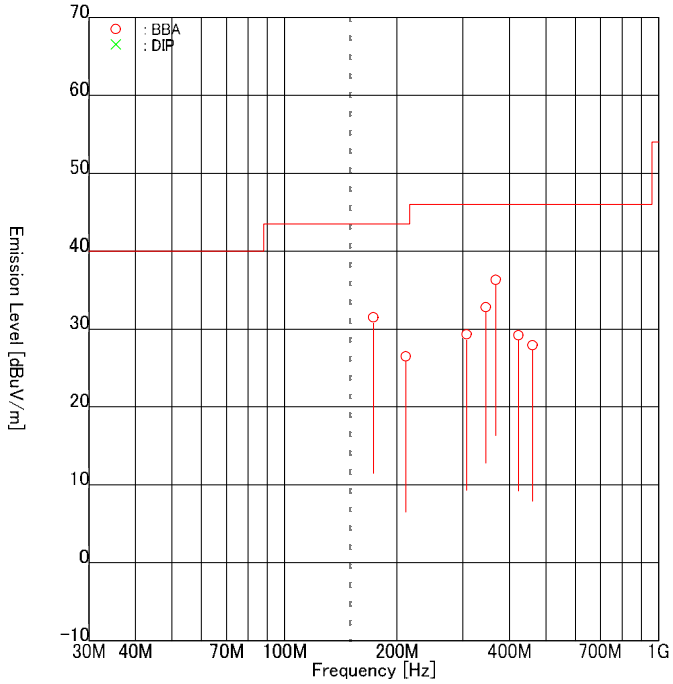
# Akzo Nobel K. K.

## Kashima Kashima No.1 Test Site

## Radiated Electric Field

| | |
|---|---|
| APPLICANT | : Hiatchi Ltd. Digital Media Products Division |
| EUT NAME | : Handy Phone |
| MODEL NO. | : SH-P300 |
| SERIAL NO. | : None |
| TEST MODE | : Rx (Channel High) |
| POWER SOURCE | : AC120V60Hz |
| DATE TESTED | : Mar 25 2002 |
| FILE NO. | : ANKK-102062 |
| REGULATION | : FCC Part15B Class B |
| TEST METHOD | : ANSI C63.4-1992 |
| DISTANCE | : 3.0 [m] |
| TEMPERATURE | : 21.0 [degC] |
| HUMIDITY | : 35.0 [%] |

ENGINEER : Kazuhiro Ando




| No | FREQUENCY [MHz] | ANT. | READING [dBuV] Hori | READING [dBuV] Vert | FACTOR [dB/m] Hori | FACTOR [dB/m] Vert | EMISSION [dBuV/m] Hori | EMISSION [dBuV/m] Vert | LIMIT [dBuV/m] | MARGIN [dB] Hori | MARGIN [dB] Vert |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 172.80 | BBA | 40.4 | 34.4 | -8.9 | -8.9 | 31.5 | 25.5 | 43.5 | 12.0 | 18.0 |
| 2 | 211.20 | BBA | 34.4 | - | -7.9 | -7.9 | 26.5 | - | 43.5 | 17.0 | - |
| 3 | 307.20 | BBA | 33.9 | - | -4.6 | -4.6 | 29.3 | - | 46.0 | 16.7 | - |
| 4 | 345.60 | BBA | 36.8 | - | -4.0 | -4.0 | 32.8 | - | 46.0 | 13.2 | - |
| 5 | 367.20 | BBA | 38.9 | 36.5 | -2.6 | -2.6 | 36.3 | 33.9 | 46.0 | 9.7 | 12.1 |
| 6 | 422.41 | BBA | 30.8 | - | -1.6 | -1.6 | 29.2 | - | 46.0 | 16.8 | - |
| 7 | 460.80 | BBA | 28.2 | - | -0.3 | -0.3 | 27.9 | - | 46.0 | 18.1 | - |

Other frequencies : Below the FCC Part15B Class B limit

Emisson Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)

ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

9.2.2 Rx mode (Channel High) [1000 MHz - 11000 MHz]

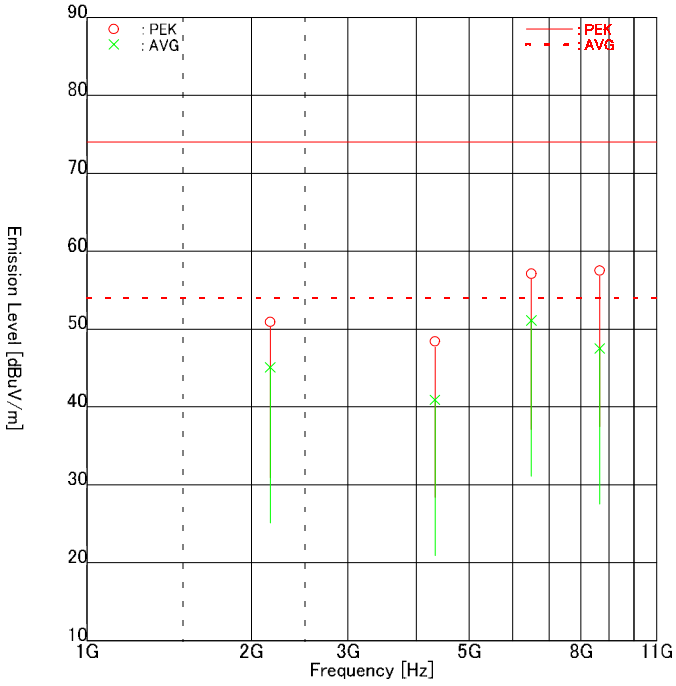
# Akzo Nobel K. K.

## Kashima Kashima No.1 Test Site

## Radiated Electric Field

APPLICANT : Hiatchi Ltd. Digital Media Products Division
EUT NAME : Handy Phone
MODEL NO. : SH-P300
SERIAL NO. : None
TEST MODE : Rx (Channel High)
POWER SOURCE : AC120V60Hz
DATE TESTED : Mar 22 2002
FILE NO. : ANKK-102062
REGULATION : FCC Part15B Class B
TEST METHOD : ANSI C63.4:1992
DISTANCE : 3.0 [m]
TEMPERATURE : 19.0 [degC]
HUMIDITY : 40.0 [%]

ENGINEER : Kazuhiro Ando




| No | FREQUENCY [MHz] | MODE | READING [dBuV] Hori | READING [dBuV] Vert | FACTOR [dB/m] Hori | FACTOR [dB/m] Vert | EMISSION [dBuV/m] Hori | EMISSION [dBuV/m] Vert | LIMIT [dBuV/m] | MARGIN [dB] Hori | MARGIN [dB] Vert |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2164.77 | PEK | 44.1 | 45.9 | 5.0 | 5.0 | 49.1 | 50.9 | 74.0 | 24.9 | 23.1 |
| 2 | 2164.77 | AVG | 37.6 | 40.1 | 5.0 | 5.0 | 42.6 | 45.1 | 54.0 | 11.4 | 8.9 |
| 3 | 4329.59 | PEK | 35.3 | 35.8 | 12.6 | 12.6 | 47.9 | 48.4 | 74.0 | 26.1 | 25.6 |
| 4 | 4329.59 | AVG | 26.5 | 28.3 | 12.6 | 12.6 | 39.1 | 40.9 | 54.0 | 14.9 | 13.1 |
| 5 | 6494.45 | PEK | 38.3 | 35.3 | 18.8 | 18.8 | 57.1 | 54.1 | 74.0 | 16.9 | 19.9 |
| 6 | 6494.45 | AVG | 32.3 | 25.5 | 18.8 | 18.8 | 51.1 | 44.3 | 54.0 | 2.9 | 9.7 |
| 7 | 8659.23 | PEK | 34.3 | 32.8 | 23.2 | 23.2 | 57.5 | 56.0 | 74.0 | 16.5 | 18.0 |
| 8 | 8659.23 | AVG | 24.3 | 21.0 | 23.2 | 23.2 | 47.5 | 44.2 | 54.0 | 6.5 | 9.8 |

Other frequencies : Below the FCC Part15B Class B limit
Emisson Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)

9.2.3 Rx mode (Channel Low) [30 MHz - 1000 MHz]

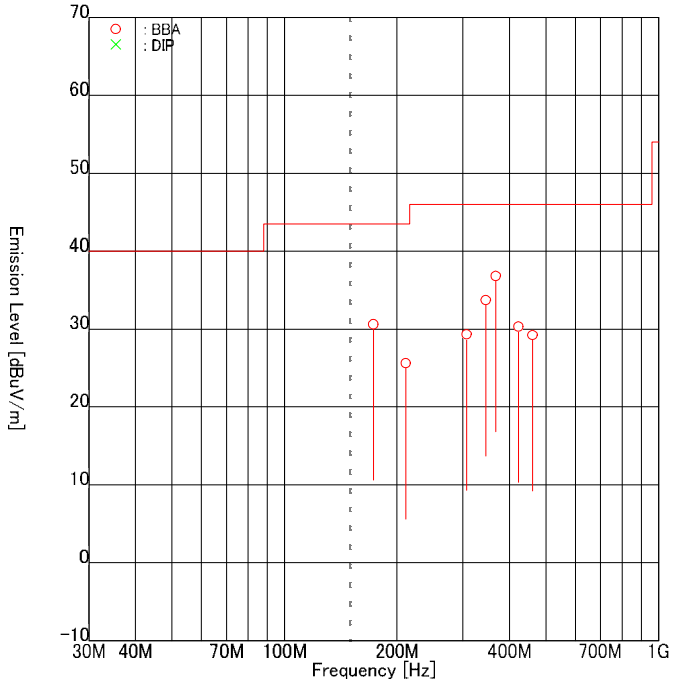
# Akzo Nobel K. K.

## Kashima Kashima No.1 Test Site

## Radiated Electric Field

APPLICANT : Hiatchi Ltd. Digital Media Products Division
EUT NAME : Handy Phone
MODEL NO. : SH-P300
SERIAL NO. : None
TEST MODE : Rx (Channel Low)
POWER SOURCE : AC120V60Hz
DATE TESTED : Mar 25 2002
FILE NO. : ANKK-102062
REGULATION : FCC Part15B Class B
TEST METHOD : ANSI C63.4-1992
DISTANCE : 3.0 [m]
TEMPERATURE : 21.0 [degC]
HUMIDITY : 35.0 [%]

ENGINEER : Kazuhiro Ando




| No | FREQUENCY [MHz] | ANT. | READING [dBuV] Hori | READING [dBuV] Vert | FACTOR [dB/m] Hori | FACTOR [dB/m] Vert | EMISSION [dBuV/m] Hori | EMISSION [dBuV/m] Vert | LIMIT [dBuV/m] | MARGIN [dB] Hori | MARGIN [dB] Vert |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 172.80 | BBA | 39.5 | 33.7 | -8.9 | -8.9 | 30.6 | 24.8 | 43.5 | 12.9 | 18.7 |
| 2 | 211.20 | BBA | 33.5 | - | -7.9 | -7.9 | 25.6 | - | 43.5 | 17.9 | - |
| 3 | 307.20 | BBA | 33.9 | - | -4.6 | -4.6 | 29.3 | - | 46.0 | 16.7 | - |
| 4 | 345.60 | BBA | 37.7 | - | -4.0 | -4.0 | 33.7 | - | 46.0 | 12.3 | - |
| 5 | 367.20 | BBA | 39.4 | 36.6 | -2.6 | -2.6 | 36.8 | 34.0 | 46.0 | 9.2 | 12.0 |
| 6 | 422.41 | BBA | 31.9 | - | -1.6 | -1.6 | 30.3 | - | 46.0 | 15.7 | - |
| 7 | 460.80 | BBA | 29.5 | - | -0.3 | -0.3 | 29.2 | - | 46.0 | 16.8 | - |

Other frequencies : Below the FCC Part15B Class B limit
Emisson Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

9.2.4 Rx mode (Channel Low) [1000 MHz - 11000 MHz]

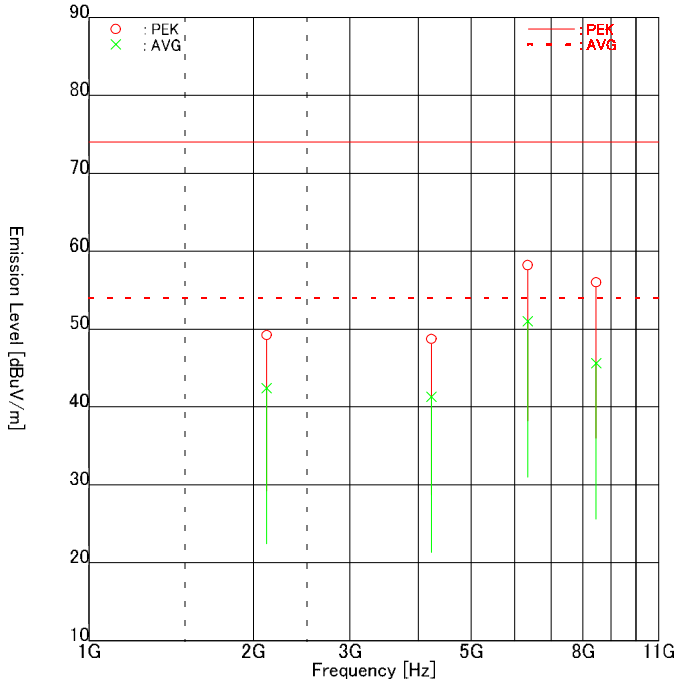
# Akzo Nobel K. K.

## Kashima Kashima No.1 Test Site

## Radiated Electric Field

| | |
|---|---|
| APPLICANT | : Hiatchi Ltd. Digital Media Products Division |
| EUT NAME | : Handy Phone |
| MODEL NO. | : SH-P300 |
| SERIAL NO. | : None |
| TEST MODE | : Rx (Channel Low) |
| POWER SOURCE | : AC120V60Hz |
| DATE TESTED | : Mar 22 2002 |
| FILE NO. | : ANKK-102062 |
| REGULATION | : FCC Part15B Class B |
| TEST METHOD | : ANSI C63.4:1992 |
| DISTANCE | : 3.0 [m] |
| TEMPERATURE | : 19.0 [degC] |
| HUMIDITY | : 40.0 [%] |

ENGINEER : Kazuhiro Ando




| No | FREQUENCY [MHz] | MODE | READING [dBuV] Hori | READING [dBuV] Vert | FACTOR [dB/m] Hori | FACTOR [dB/m] Vert | EMISSION [dBuV/m] Hori | EMISSION [dBuV/m] Vert | LIMIT [dBuV/m] | MARGIN [dB] Hori | MARGIN [dB] Vert |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2114.80 | PEK | 42.6 | 44.4 | 4.8 | 4.8 | 47.4 | 49.2 | 74.0 | 26.6 | 24.8 |
| 2 | 2114.80 | AVG | 35.0 | 37.6 | 4.8 | 4.8 | 39.8 | 42.4 | 54.0 | 14.2 | 11.6 |
| 3 | 4229.66 | PEK | 36.2 | 36.1 | 12.5 | 12.5 | 48.7 | 48.6 | 74.0 | 25.3 | 25.4 |
| 4 | 4229.66 | AVG | 28.8 | 28.0 | 12.5 | 12.5 | 41.3 | 40.5 | 54.0 | 12.7 | 13.5 |
| 5 | 6344.51 | PEK | 39.6 | 36.1 | 18.6 | 18.6 | 58.2 | 54.7 | 74.0 | 15.8 | 19.3 |
| 6 | 6344.51 | AVG | 32.4 | 27.8 | 18.6 | 18.6 | 51.0 | 46.4 | 54.0 | 3.0 | 7.6 |
| 7 | 8459.34 | PEK | 33.4 | 33.2 | 22.6 | 22.6 | 56.0 | 55.8 | 74.0 | 18.0 | 18.2 |
| 8 | 8459.34 | AVG | 23.0 | 21.0 | 22.6 | 22.6 | 45.6 | 43.6 | 54.0 | 8.4 | 10.4 |

Other frequencies : Below the FCC Part15B Class B limit

Emisson Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)

9.2.5 Rx mode (Channel Middle) [30 MHz - 1000 MHz]

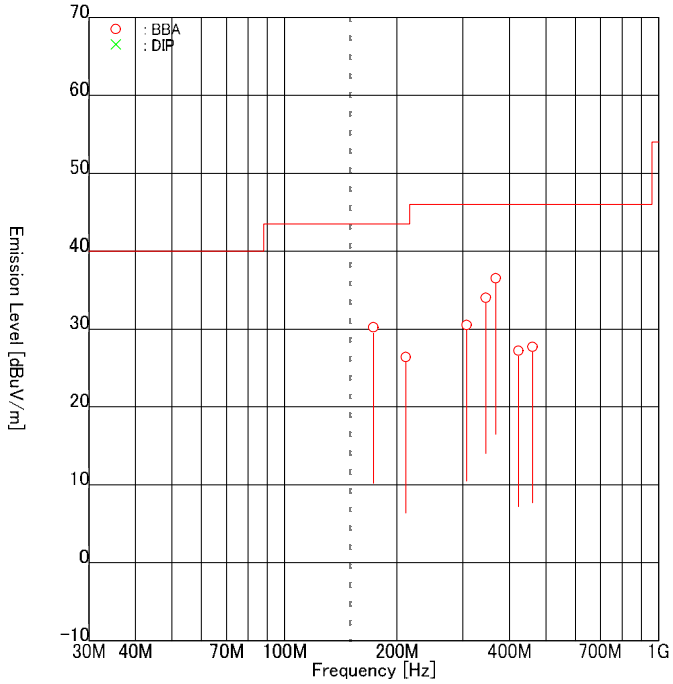
# Akzo Nobel K. K.

## Kashima Kashima No.1 Test Site

## Radiated Electric Field

| | |
|---|---|
| APPLICANT | : Hiatchi Ltd. Digital Media Products Division |
| EUT NAME | : Handy Phone |
| MODEL NO. | : SH-P300 |
| SERIAL NO. | : None |
| TEST MODE | : Rx (Channel Middle) |
| POWER SOURCE | : AC120V60Hz |
| DATE TESTED | : Mar 25 2002 |
| FILE NO. | : ANKK-102062 |
| REGULATION | : FCC Part15B Class B |
| TEST METHOD | : ANSI C63.4-1992 |
| DISTANCE | : 3.0 [m] |
| TEMPERATURE | : 21.0 [degC] |
| HUMIDITY | : 35.0 [%] |

ENGINEER : Kazuhiro Ando




| No | FREQUENCY [MHz] | ANT. | READING [dBuV] Hori | READING [dBuV] Vert | FACTOR [dB/m] Hori | FACTOR [dB/m] Vert | EMISSION [dBuV/m] Hori | EMISSION [dBuV/m] Vert | LIMIT [dBuV/m] | MARGIN [dB] Hori | MARGIN [dB] Vert |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 172.80 | BBA | 39.1 | 35.3 | -8.9 | -8.9 | 30.2 | 26.4 | 43.5 | 13.3 | 17.1 |
| 2 | 211.20 | BBA | 34.3 | - | -7.9 | -7.9 | 26.4 | - | 43.5 | 17.1 | - |
| 3 | 307.20 | BBA | 35.1 | - | -4.6 | -4.6 | 30.5 | - | 46.0 | 15.5 | - |
| 4 | 345.60 | BBA | 38.0 | - | -4.0 | -4.0 | 34.0 | - | 46.0 | 12.0 | - |
| 5 | 367.20 | BBA | 39.1 | 35.5 | -2.6 | -2.6 | 36.5 | 32.9 | 46.0 | 9.5 | 13.1 |
| 6 | 422.41 | BBA | 28.8 | - | -1.6 | -1.6 | 27.2 | - | 46.0 | 18.8 | - |
| 7 | 460.80 | BBA | 28.0 | - | -0.3 | -0.3 | 27.7 | - | 46.0 | 18.3 | - |

Other frequencies : Below the FCC Part15B Class B limit

Emisson Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)

ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

9.2.6 Rx mode (Channel Middle) [1000 MHz - 11000 MHz]

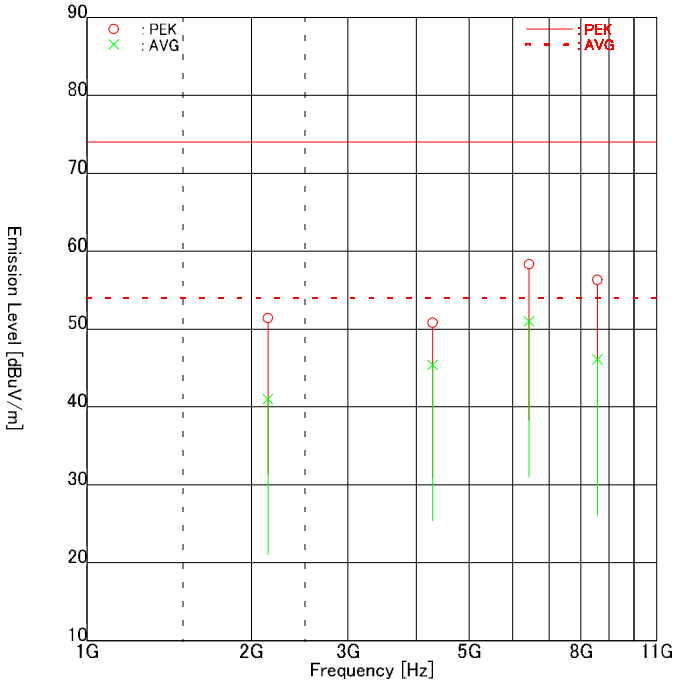
# Akzo Nobel K. K.

## Kashima Kashima No.1 Test Site

## Radiated Electric Field

APPLICANT : Hiatchi Ltd. Digital Media Products Division
EUT NAME : Handy Phone
MODEL NO. : SH-P300
SERIAL NO. : None
TEST MODE : Rx (Channel Middle)
POWER SOURCE : AC120V60Hz
DATE TESTED : Mar 22 2002
FILE NO. : ANKK-102062
REGULATION : FCC Part15B Class B
TEST METHOD : ANSI C63.4:1992
DISTANCE : 3.0 [m]
TEMPERATURE : 19.0 [degC]
HUMIDITY : 40.0 [%]

ENGINEER : Kazuhiro Ando




| No | FREQUENCY [MHz] | MODE | READING [dBuV] Hori | READING [dBuV] Vert | FACTOR [dB/m] Hori | FACTOR [dB/m] Vert | EMISSION [dBuV/m] Hori | EMISSION [dBuV/m] Vert | LIMIT [dBuV/m] | MARGIN [dB] Hori | MARGIN [dB] Vert |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2143.63 | PEK | 43.4 | 46.5 | 4.9 | 4.9 | 48.3 | 51.4 | 74.0 | 25.7 | 22.6 |
| 2 | 2143.63 | AVG | 35.0 | 36.1 | 4.9 | 4.9 | 39.9 | 41.0 | 54.0 | 14.1 | 13.0 |
| 3 | 4287.18 | PEK | 35.8 | 38.2 | 12.6 | 12.6 | 48.4 | 50.8 | 74.0 | 25.6 | 23.2 |
| 4 | 4287.18 | AVG | 26.4 | 32.8 | 12.6 | 12.6 | 39.0 | 45.4 | 54.0 | 15.0 | 8.6 |
| 5 | 6430.84 | PEK | 39.5 | 36.7 | 18.8 | 18.8 | 58.3 | 55.5 | 74.0 | 15.7 | 18.5 |
| 6 | 6430.84 | AVG | 32.2 | 28.2 | 18.8 | 18.8 | 51.0 | 47.0 | 54.0 | 3.0 | 7.0 |
| 7 | 8574.42 | PEK | 33.3 | 33.4 | 22.9 | 22.9 | 56.2 | 56.3 | 74.0 | 17.8 | 17.7 |
| 8 | 8574.42 | AVG | 23.2 | 22.6 | 22.9 | 22.9 | 46.1 | 45.5 | 54.0 | 7.9 | 8.5 |

Other frequencies : Below the FCC Part15B Class B limit
Emisson Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)

9.2.7 Data communications (USB) mode [30 MHz - 1000 MHz]

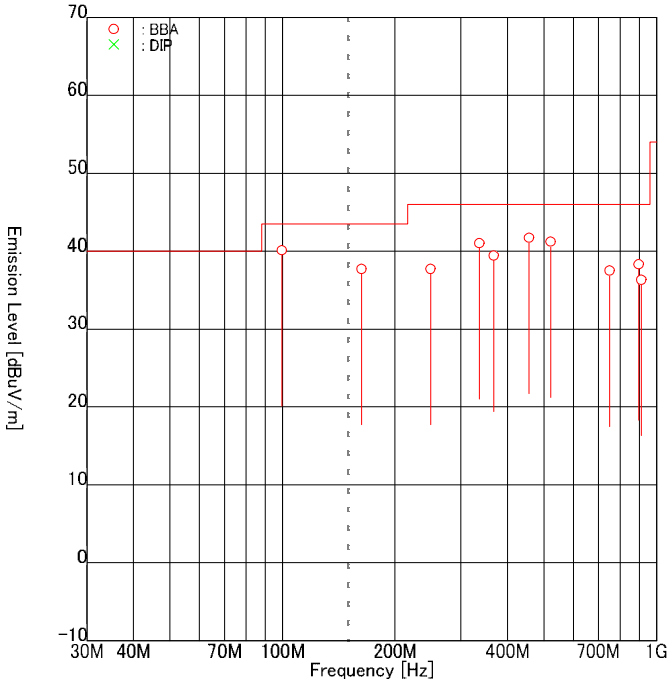
# Akzo Nobel K. K.

## Kashima Kashima No.1 Test Site

## Radiated Electric Field

| | |
|---|---|
| APPLICANT | : Hiatchi Ltd. Digital Media Products Division |
| EUT NAME | : Handy Phone |
| MODEL NO. | : SH-P300 |
| SERIAL NO. | : None |
| TEST MODE | : Data Communications (USB) |
| POWER SOURCE | : AC120V60Hz |
| DATE TESTED | : Mar 22 2002 |
| FILE NO. | : ANKK-102062 |
| REGULATION | : FCC Part15B Class B |
| TEST METHOD | : ANSI C63.4-1992 |
| DISTANCE | : 3.0 [m] |
| TEMPERATURE | : 19.0 [degC] |
| HUMIDITY | : 40.0 [%] |

ENGINEER : Kazuhiro Ando




| No | FREQUENCY [MHz] | ANT. | READING [dBuV] Hori | READING [dBuV] Vert | FACTOR [dB/m] Hori | FACTOR [dB/m] Vert | EMISSION [dBuV/m] Hori | EMISSION [dBuV/m] Vert | LIMIT [dBuV/m] | MARGIN [dB] Hori | MARGIN [dB] Vert |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 99.73 | BBA | 49.3 | 46.8 | -9.2 | -9.2 | 40.1 | 37.6 | 43.5 | 3.4 | 5.9 |
| 2 | 162.87 | BBA | 48.2 | 44.0 | -10.5 | -10.5 | 37.7 | 33.5 | 43.5 | 5.8 | 10.0 |
| 3 | 248.91 | BBA | 43.9 | - | -6.2 | -6.2 | 37.7 | - | 46.0 | 8.3 | - |
| 4 | 336.05 | BBA | 45.1 | - | -4.1 | -4.1 | 41.0 | - | 46.0 | 5.0 | - |
| 5 | 367.20 | BBA | 42.0 | - | -2.6 | -2.6 | 39.4 | - | 46.0 | 6.6 | - |
| 6 | 456.02 | BBA | 37.0 | 42.1 | -0.4 | -0.4 | 36.6 | 41.7 | 46.0 | 9.4 | 4.3 |
| 7 | 521.17 | BBA | - | 39.8 | 1.4 | 1.4 | - | 41.2 | 46.0 | - | 4.8 |
| 8 | 749.18 | BBA | - | 32.2 | 5.3 | 5.3 | - | 37.5 | 46.0 | - | 8.5 |
| 9 | 897.01 | BBA | - | 31.0 | 7.3 | 7.3 | - | 38.3 | 46.0 | - | 7.7 |
| 10 | 912.06 | BBA | - | 28.6 | 7.7 | 7.7 | - | 36.3 | 46.0 | - | 9.7 |

Other frequencies : Below the FCC Part15B Class B limit

Emisson Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)

ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

9.2.8 Data communications (USB) mode [1000 MHz - 11000 MHz]

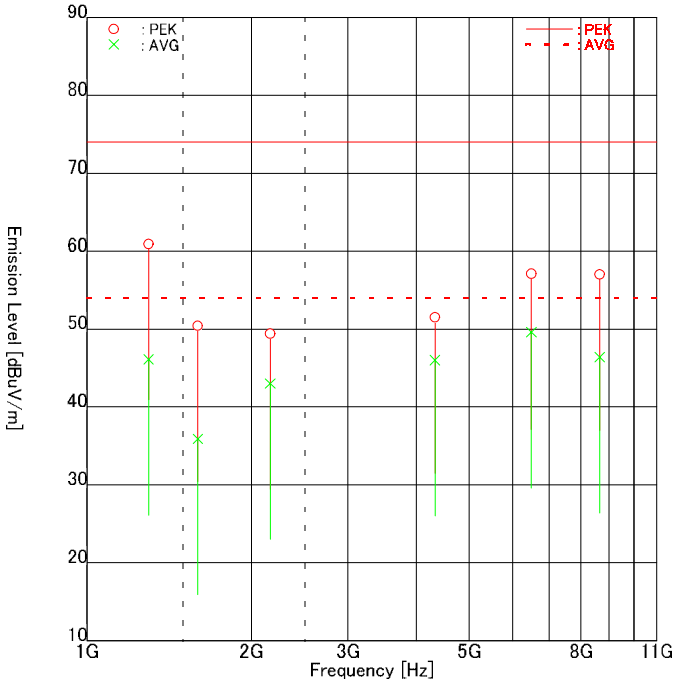
# Akzo Nobel K. K.

## Kashima Kashima No.1 Test Site

## Radiated Electric Field

APPLICANT : Hiatchi Ltd. Digital Media Products Division
EUT NAME : Handy Phone
MODEL NO. : SH-P300
SERIAL NO. : None
TEST MODE : Data Communications (USB)
POWER SOURCE : AC120V60Hz
DATE TESTED : Mar 22 2002
FILE NO. : ANKK-102062
REGULATION : FCC Part15B Class B
TEST METHOD : ANSI C63.4:1992
DISTANCE : 3.0 [m]
TEMPERATURE : 19.0 [degC]
HUMIDITY : 40.0 [%]

ENGINEER : Kazuhiro Ando




| No | FREQUENCY [MHz] | MODE | READING [dBuV] Hori | READING [dBuV] Vert | FACTOR [dB/m] Hori | FACTOR [dB/m] Vert | EMISSION [dBuV/m] Hori | EMISSION [dBuV/m] Vert | LIMIT [dBuV/m] | MARGIN [dB] Hori | MARGIN [dB] Vert |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1296.70 | PEK | 53.0 | 60.0 | 0.9 | 0.9 | 53.9 | 60.9 | 74.0 | 20.1 | 13.1 |
| 2 | 1296.70 | AVG | 39.0 | 45.2 | 0.9 | 0.9 | 39.9 | 46.1 | 54.0 | 14.1 | 7.9 |
| 3 | 1595.93 | PEK | 44.1 | 48.4 | 2.0 | 2.0 | 46.1 | 50.4 | 74.0 | 27.9 | 23.6 |
| 4 | 1595.93 | AVG | 32.9 | 33.9 | 2.0 | 2.0 | 34.9 | 35.9 | 54.0 | 19.1 | 18.1 |
| 5 | 2164.85 | PEK | 44.4 | 41.6 | 5.0 | 5.0 | 49.4 | 46.6 | 74.0 | 24.6 | 27.4 |
| 6 | 2164.85 | AVG | 38.0 | 31.9 | 5.0 | 5.0 | 43.0 | 36.9 | 54.0 | 11.0 | 17.1 |
| 7 | 4329.61 | PEK | 37.1 | 38.9 | 12.6 | 12.6 | 49.7 | 51.5 | 74.0 | 24.3 | 22.5 |
| 8 | 4329.61 | AVG | 29.6 | 33.4 | 12.6 | 12.6 | 42.2 | 46.0 | 54.0 | 11.8 | 8.0 |
| 9 | 6494.45 | PEK | 35.5 | 38.3 | 18.8 | 18.8 | 54.3 | 57.1 | 74.0 | 19.7 | 16.9 |
| 10 | 6494.45 | AVG | 24.6 | 30.8 | 18.8 | 18.8 | 43.4 | 49.6 | 54.0 | 10.6 | 4.4 |
| 11 | 8659.23 | PEK | 32.8 | 33.8 | 23.2 | 23.2 | 56.0 | 57.0 | 74.0 | 18.0 | 17.0 |
| 12 | 8659.23 | AVG | 20.8 | 23.2 | 23.2 | 23.2 | 44.0 | 46.4 | 54.0 | 10.0 | 7.6 |

Other frequencies : Below the FCC Part15B Class B limit

Emisson Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)

## 9.3 Sample Calculations

### 9.3.1 Conducted Voltages on Mains Port

Example @ 1.7860 MHz

| | | | | | |
|---|---|---|---|---|---|
| Emission Level | = | Meter Reading | | 39.4 | dBuV |
| | + | Factor | + | 6.1 | dB |
| | | | = | 45.5 | dBuV |
| Margin | = | Limit | | 48.0 | dBuV |
| | – | Emission Level | – | 45.5 | dBuV |
| | | | = | 2.5 | dB |

Factor = LISN Factor + Cable Loss + Pad Loss

### 9.3.2 Radiated Electric Field

Example @ 6494.45 MHz

| | | | | | |
|---|---|---|---|---|---|
| Emission Level | = | Meter Reading | | 32.3 | dBuV |
| | + | Factor | + | 18.8 | dB/m |
| | | | = | 51.1 | dBuV/m |
| Margin | = | Limit | | 54.0 | dBuV/m |
| | – | Emission Level | – | 51.1 | dBuV/m |
| | | | = | 2.9 | dB |

Factor = Antenna Factor + Cable Loss – Amplifier Gain + Pad Loss

## SECTION 10. PHOTOGRAPHS OF MAXIMUM EMISSION SET–UP

### 10.1 Conducted Voltages on Mains Port

Test setup in accordance with ANSI C63.4–1992

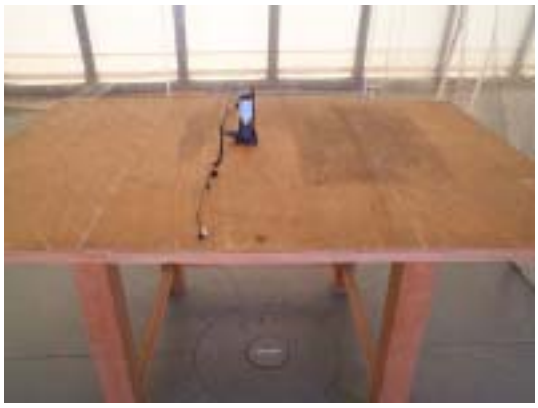
Front view

Side view

### 10.2 Radiated Electric Field

#### 10.2.1 Rx mode

Test setup in accordance with ANSI C63.4–1992



Front view

Rear view

#### 10.2.1 Data communications (USB) mode

Test setup in accordance with ANSI C63.4–1992

Front view

Rear view

Note : Maintaining 10cm spacing between all the equipment cabinets.

## SECTION 11. INSTRUMENTS USED FOR FINAL TEST

| Instrument | Model No. | Serial No. | Manufacturer | Last cal. date | Period |
|---|---|---|---|---|---|
| LISN (EUT) | ESH2-Z5 | 881492/014 | ROHDE & SCHWARZ | Oct. 3, 01 | 1 Year |
| 6dB Attenuator | CFA-01 | None | TME | Oct. 4, 01 | 1 Year |
| LISN (Peripheral) | KNW-242 | 8-851-21 | KYORITSU | Feb. 25, 02 | 1 Year |
| 50Ω Termination | CT-01 | A010CON50 | TME | Feb. 25, 02 | 1 Year |
| Coaxial cable | 5D-2W(7.0 m) | C1 | AKZO | Oct. 4, 01 | 1 Year |
| | 5D-2W(2.0 m) | C2 | AKZO | Oct. 4, 01 | 1 Year |
| | 5D-2W(1.0 m) | R6 | AKZO | Oct. 4, 01 | 1 Year |
| | 5D-2W(1.0 m) | R7 | AKZO | Oct. 4, 01 | 1 Year |
| Broad Band antenna | LPB-2513/A | 1103 | A.R.A. | May 17, 01 | 1 Year |
| Double Ridged antenna | 3115 | 5044 | EMCO | Jul. 16, 01 | 1 Year |
| 6dB Attenuator | MP721B | M57593 | ANRITSU | Oct. 4, 01 | 1 Year |
| | 6806.17.B | None | SUHNER | Mar. 18, 02 | 1 Year |
| Step Attenuator | 8494B | 2726A14513 | HEWLETT PACKARD | Oct. 4, 01 | 1 Year |
| Spectrum Analyzer | 8564E | 3643A00665 | HEWLETT PACKARD | Jul. 19, 01 | 1 Year |
| Amplifier | 8447D | 1937A03130 | HEWLETT PACKARD | Oct. 4, 01 | 1 Year |
| | 83051A | 3332A00329 | HEWLETT PACKARD | Aug. 21, 01 | 1 Year |
| Coaxial cable | 5D-2W(9.0 m) | R1 | AKZO | Oct. 4, 01 | 1 Year |
| | 10D-2W(5.5 m) | R2 | AKZO | Oct. 4, 01 | 1 Year |
| | 5D-2W(2.0 m) | R3 | AKZO | Oct. 4, 01 | 1 Year |
| | 5D-2W(0.2 m) | R4 | AKZO | Oct. 4, 01 | 1 Year |
| | 5D-2W(1.0 m) | R5 | AKZO | Oct. 4, 01 | 1 Year |
| | 5D-2W(1.0 m) | R6 | AKZO | Oct. 4, 01 | 1 Year |
| | 5D-2W(1.0 m) | R7 | AKZO | Oct. 4, 01 | 1 Year |
| | SUCOFLEX 102(1.0 m) | R14 712/2 | SUHNER | Mar. 18, 02 | 1 Year |
| | SUCOFLEX 102(5.0 m) | R15 713/2 | SUHNER | Mar. 18, 02 | 1 Year |
| Test receiver | ESS | 844861/004 | ROHDE & SCHWARZ | Apr. 11, 01 | 1 Year |
| RF Switch | ACX-150 | None | AKZO | Oct. 4, 01 | 1 Year |
| Site Attenuation | | | | May 28, 01 | 1 Year |

Note : Test instruments are calibrated according to Quality Manual and Calibration Rules of EMC division.

## SECTION 12. MEASUREMENT UNCERTAINTY

The uncertainty of the measurements performed for this report lies:

Radiated Electric Field at 3m

30 MHz – 1000 MHz ..... +/– 3.6 dB

Above 1 GHz ..... +/– 3.9 dB

Conducted Voltages on Mains Port

9 kHz – 30 MHz ..... +/– 1.8 dB

Note on Radiated Electric Field measurement uncertainty

The following items are not included in the calculations in spite of their own uncertainty components because it is impracticable to find the value.
It is our problem awaiting solution in future.

(1)Repeatability of measurement
It is not possible to calculate repeatability since the measurement was carried out only one time.

(2)Antenna factor variation
The definition of measured (radiated electric field strength) is not completed on the referred standard(s).

(3)Loss of EUT radiation propagation
It is certainly one of the uncertainty components, however is not able to calculate.

Please note that these uncertainties are not reflected to the compliance judgement of the test results in this report.

## SECTION 13. VALIDITY OF TEST REPORT

13.1 The test result of this report is effective for equipment under test itself and under the test configuration described on the report.

13.2 This test report does not assure that whether the test result taken in other testing laboratory is compatible or reproducible to the test result on this report or not.

13.3 This test report shall not be reproduced except in full, without issuer's permission.

## SECTION 14. DESCRIPTION OF TEST LABORATORY

### 14.1 Outline of Akzo Nobel K. K. (formerly Akzo Kashima Limited), EMC Division

Akzo Nobel K. K., the country organization in Japan for Akzo Nobel NV, was established in 1968. The shares are owned by Akzo Nobel NV (100%). Akzo Nobel NV, headquartered in the Netherlands, is one of the world's leading companies in selected areas of chemicals, coatings, healthcare products and fibers with work force of approximately 70,000 people in over 50 countries.

In 1984, in order to respond to the growing testing demand, in particular, for FCC filing, Akzo Nobel K. K. started EMI testing business, installing the first open air test site in Kashima, Ibaraki prefecture. Further the business has been expanded by installing additional testing facilities not only in Ibaraki but also in other areas such as Shizuoka, Nagano, Kanagawa and Tochigi. As results, Akzo Nobel K. K. has now 16 open air test sites and 4 anechoic chambers for EMI/EMC testing. As the largest EMC testing laboratory in number of testing facilities and staffs, EMC Division has been organized separately in the company and independently operated in conformity with the requirements of ISO Guide 25 (EN 45000) for its competency as a testing laboratory.

Akzo Nobel K. K. EMC Division is the first foreign private laboratory accredited by NVLAP, National Voluntary Laboratory Accreditation Program-NIST, USA. The division has been certified, authorized and/or filed as a competent testing laboratory by various testing organizations/authorities as described below.

### 14.2 Filing, certification, authorization and accreditation list

| EMI/EMC testing | | Telecommunications terminal testing | |
|---|---|---|---|
| FCC | (USA) | FCC | (USA) |
| NVLAP | (USA) | NVLAP | (USA) |
| NEMKO | (Norway) | NATA | (Australia) |
| VCCI | (Japan) | IC | (Canada) |
| ETL SEMKO Japan | (Sweden) | | |
| TÜV PRODUCT SERVICE | (Germany) | | |

Note 1 : NVLAP accreditation does not constitute any product endorsement by NVLAP or any agent of the U.S. Government.