

EMC TEST REPORT For FCC



Test Report No. : 2005120014-1
Date of Issue : January 27, 2006
FCC ID : NLMDIGIMAXS500
Model/Type No. : Digimax S500
Kind of Product : Digital Camera
Applicant : Samsung Techwin Co., Ltd.
Applicant Address : 145-3 Sangdaewon 1-Dong, Jungwon-Gu, Sungnam-City,
Kyungki-Do, Korea
Manufacturer : 1) Samsung Techwin Co., Ltd.
2) Tianjin Samsung Opto-Electronics Co., LTD.
Manufacturer Address : 1) 42,Sungju-dong, Changwon City, Kyungnam, Korea
2) 7 Pingchang Road, Nabkai Dist., Tianjin, China
Contact Person : Jae-Hyun, Cho (Manager)
Telephone : +82-31-740-8256
Received Date : January 16, 2006
Test period : Start : January 23, 2006 End : January 23, 2006
Test Results : **In Compliance** **Not in Compliance**

The test results presented in this report relate only to the object tested.

CERTiTEK Standards Laboratory Co., Ltd. is accredited by Korea Laboratory Accreditation Scheme (KOLAS) which signed the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) for the above test item(s) and test method(s).

Tested by

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EMC Test Engineer
Date: January 27, 2006

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Date: January 27, 2006

REPORT REVISION HISTORY

| Date | Revision | Page No |
|-------------------|---|---------|
| December 16, 2005 | Issued (2005120014) | All |
| January 27, 2006 | Issued (2005120014-1) Alteration of USB/AV cable | All |
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1.0 General Product Description

1.0.1 Tested Equipment

- Unless otherwise indicated, all tests were conducted on Model Digimax S500.
- Tests performed on Model _____ were considered to be representative of Model(s) _____.

1.0.2 Equipment Size, Mobility and Identification

Dimensions: Approx. 96.8 by 61.8 by 32.8 mm inch
Mobility: Hand-held Table-top Built-in
 Traveling Floor-standing
Serial No.: Prototype

1.0.3 Electrical Ratings

| | | |
|---------|---------|-------------------------------|
| Adaptor | Input: | 100-240 Vac, 50-60 Hz, 0.15 A |
| | Output: | 3.0 Vdc, 700 mA |
| EUT | Input: | 3.0 Vdc |
| | Output: | - |

1.0.4 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

Voltage: 120 Vac
Frequency: 60 Hz

1.0.5 Clock & Other Frequencies Utilized

12 MHz, 54 MHz, 108 MHz

1.1 Model Differences

Not applicable

1.2 Device Modifications

The following modifications were necessary for compliance:

Not applicable

1.3 EUT Configuration(s)

See Appendix A for individual test set-up configuration(s). The following peripheral devices and/or interface cables were connected during the measurement:

Peripheral Devices

| Device | Manufacturer | Model No. | Serial No. | FCC ID or DoC |
|----------------------|-----------------------------------|----------------|-----------------|---------------|
| Cradle (for EUT) | TIANJIN H&T ELECTRONICS CO., LTD. | SCC-S4 | - | - |
| Personal Computer | Hewlett-Packard Company | Pavilion t812k | KRJ50403HK | DoC |
| Monitor | SAMSUNG | PG17HS | P0133H3NN703184 | DoC |
| Keyboard (PS/2 type) | Hewlett-Packard Company | 5219 | BN5017686 | DoC |
| Mouse (PS/2 type) | KYE SYSTEMS CORP. | N3+ Optical | K045205991 | DoC |
| Mouse (USB type) | SAMSUNG | OMS3CB | 0303009883 | DoC |

Cable Description

| # | Description | Ferrite Core | Length (m) | Other Details |
|---|--------------------------------|--------------|------------|----------------------------|
| 1 | AC power cable, Unshielded | No | 1.8 | Connect to AC power |
| 2 | AC power cable, Unshielded | No | 1.8 | Connect to AC power |
| 3 | Cradle Power Cable, Unshielded | No | 1.5 | Connect to AC power |
| 4 | USB cable, Shielded | No | 1.5 | Between the Cradle and PC |
| 5 | Monitor cable, Shielded | Yes | 1.5 | Between the PC and Monitor |
| 6 | Keyboard cable, Shielded | No | 1.5 | PS/2 type |
| 7 | Mouse cable, Shielded | No | 1.5 | PS/2 type |
| 8 | Mouse cable, Shielded | No | 1.5 | USB type |

1.4 Test Software

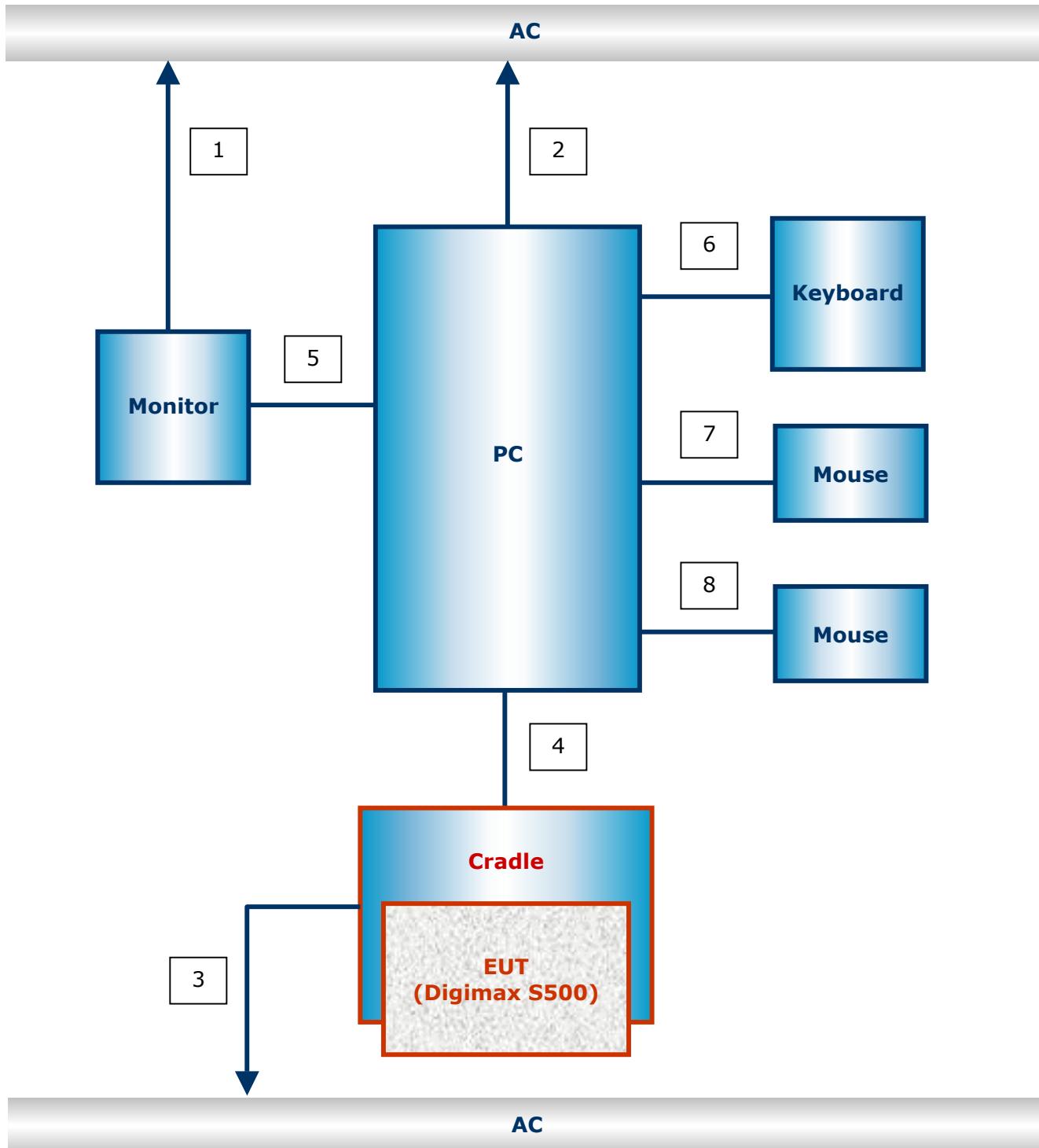
EMC Test V 1.0
 Display Test Patterns – V1.5
 Ping.exe
 Not applicable

1.5 EUT Operating Mode(s)

Equipment under test was operated during the measurement under the following conditions:

| | |
|--|--|
| <input type="checkbox"/> Standby | <input type="checkbox"/> Scrolling 'H' |
| <input type="checkbox"/> Display circles pattern | <input type="checkbox"/> Read / Write |
| <input checked="" type="checkbox"/> Practice operation – USB downloading mode. | AV output monitoring mode. |

1.6 Configuration



1.7 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

1.8 Test Facility

The measurement facility is located at 386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

1.9 Measurement Procedure

Preliminary AC power line conducted emissions tests were performed shielded room. To find worst mode, several typical mode and typical cable position were tested. Final AC power line conducted emissions test was performed shielded room. (location is same as Preliminary test) Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

Preliminary radiated emissions test were performed anechoic chamber (Distance of antenna and EUT was 3 m). To find worst mode, several typical mode and typical cable position were tested and peak level and frequency were recorded.

Final radiated emissions test was performed Open Area Test Site. Based on the preliminary tests of the EUT, final test was proceeded worst case test mode and cable configuration.

* Measurement procedures was In accordance with ANSI C63.4-2003 7.2.3, 7.2.4, 8.3.1.1, 8.3.1.2

1.10 Laboratory Accreditations and Listings

| Country | Agency | Scope of Accreditation | Logo |
|---------------|--------|---|---|
| USA | FCC | 3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements. |  93250 |
| JAPAN | VCCI | 10 meter Open Area Test Site and one conducted site. |  R-948, C-986 |
| KOREA | MIC | EMI (10 meter Open Area Test Site and two conducted sites) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions) |  No. 51, KR0025 |
| International | KOLAS | EMC |  |
| Europe | GLAS | EMC EN 55011, EN 55022, EN 61000-6-3, EN 61000-6-4, EN 61000-3-2, EN 61000-3-3, EN 61000-6-1, EN 61000-6-2, EN 50130-4, EN 55024, EN 61204-3, EN 60601-1-2, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11 |  No.13000796-02 |

2.0 Emissions Test Regulations

The emissions tests were performed according to following regulations:

| | | |
|--|----------------------------------|---|
| <input type="checkbox"/> EN 61000-6-3:2001 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> EN 61000-6-4:2001 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> EN 50083-2:2001 | | |
| <input type="checkbox"/> EN 55011:1998 +A1:1999 | <input type="checkbox"/> Group 1 | <input type="checkbox"/> Group 2 |
| | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> EN 55011:1998 +A1:1999 +A2:2002 | <input type="checkbox"/> Group 1 | <input type="checkbox"/> Group 2 |
| | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> EN 55013:1990 +A12:1994 +A13:1996 +A14:1999 | | |
| <input type="checkbox"/> EN 55013:2001 | | |
| <input type="checkbox"/> EN 55014-1:2000 | | |
| <input type="checkbox"/> EN 55014-1:2000 +A1:2001 | | |
| <input type="checkbox"/> EN 55015:2000 | | |
| <input type="checkbox"/> EN 55015:2000 +A1:2001 | | |
| <input type="checkbox"/> EN 55022:1994 +A1:1995 +A2:1997 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> EN 55022:1998 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> EN 55022:1998 +A1:2000 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> EN 55022:1998 +A1:2000 +A2:2003 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> EN 61000-3-2:2000 | | |
| <input type="checkbox"/> EN 61000-3-3:1995 +A1:2001 | | |
| <input type="checkbox"/> VCCI V-3/2004.04 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> AS/NZS 3548:1995 +A1:1997 +A2:1997 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input checked="" type="checkbox"/> FCC Part 15 Subpart B | <input type="checkbox"/> Class A | <input checked="" type="checkbox"/> Class B |
| <input checked="" type="checkbox"/> CISPR 22:1997 | <input type="checkbox"/> Class A | <input checked="" type="checkbox"/> Class B |
| The unit was tested to CISPR 22 and complied with the alternate methods allowed by FCC under paragraphs 15.107 and 15.109. | | |
| <input type="checkbox"/> CISPR 22:1997 +A1:2000 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |

2.1 Conducted Voltage Emissions

Test Date

January 23, 2006

Test Location

Shielded Room

Test Equipment

| | Name of Equipment | Manufacturer | Model No. | Serial No. | Due Date |
|-------------------------------------|----------------------|-----------------|-----------|------------|------------|
| <input checked="" type="checkbox"/> | Field Strength Meter | Rohde & Schwarz | ESHS30 | 828144/002 | 2006-02-01 |
| <input checked="" type="checkbox"/> | LISN | EMCO | 3825/2 | 9607-2575 | 2006-09-03 |
| <input checked="" type="checkbox"/> | LISN | EMCO | 3825/2 | 9409-2246 | 2006-09-03 |

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

MET

| Frequency (MHz) | Measured Data (dBuV) | Margin (dB) | Remark |
|-----------------|----------------------|-------------|------------|
| 0.16 | 61.9 | 3.6 | Quasi-peak |

NOT MET

| Frequency (MHz) | Measured Data (dBuV) | Margin (dB) | Remark |
|-----------------|----------------------|-------------|--------|
| | | | |

NOT APPLICABLE

Remarks

See Appendix A for test data.

2.2 Radiated Electric Field Emissions

Test Date

January 23, 2006

Test Location

Testing was performed at a test distance of 3 & 10 meter Open Area Test Site

Test Equipment

| | Name of Equipment | Manufacturer | Model No. | Serial No. | Due Date |
|-------------------------------------|-------------------------|----------------------|-----------|------------|------------|
| <input checked="" type="checkbox"/> | Field Strength Meter | Rohde & Schwarz | ESVS30 | 826638/008 | 2006-04-14 |
| <input checked="" type="checkbox"/> | EMC Analyzer | Agilent Technologies | E7403A | MY42000054 | 2007-01-15 |
| <input checked="" type="checkbox"/> | ULTRA Broadband Antenna | Rohde & Schwarz | HL562 | 361324/014 | 2006-05-27 |
| <input type="checkbox"/> | Biconical Antenna | EMCO | 3110 | 9202-1510 | 2006-04-13 |
| <input type="checkbox"/> | Log-periodic Antenna | EMCO | 3146 | 9607-4567 | 2006-04-08 |

Frequency Range of Measurement

30 MHz to 1 GHz: 10 meter Open Area Test Site

1 GHz to 2 GHz: 3 meter Open Area Test Site

Instrument Settings

IF Band Width: 120 kHz

Test Results

The requirements are:

MET

| Frequency (MHz) | Measured Data (dBuV/m) | Margin (dB) | Remark |
|-----------------|------------------------|-------------|------------|
| 497.76 | 33.6 | 3.4 | Quasi-peak |

NOT MET

| Frequency (MHz) | Measured Data (dBuV/m) | Margin (dB) | Remark |
|-----------------|------------------------|-------------|--------|
| | | | |

NOT APPLICABLE

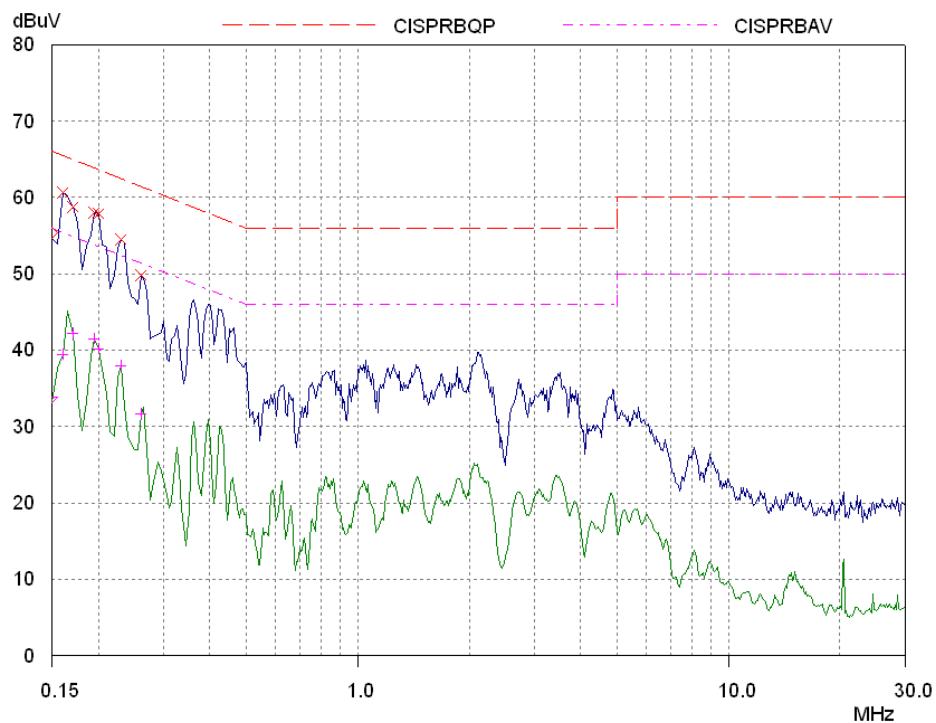
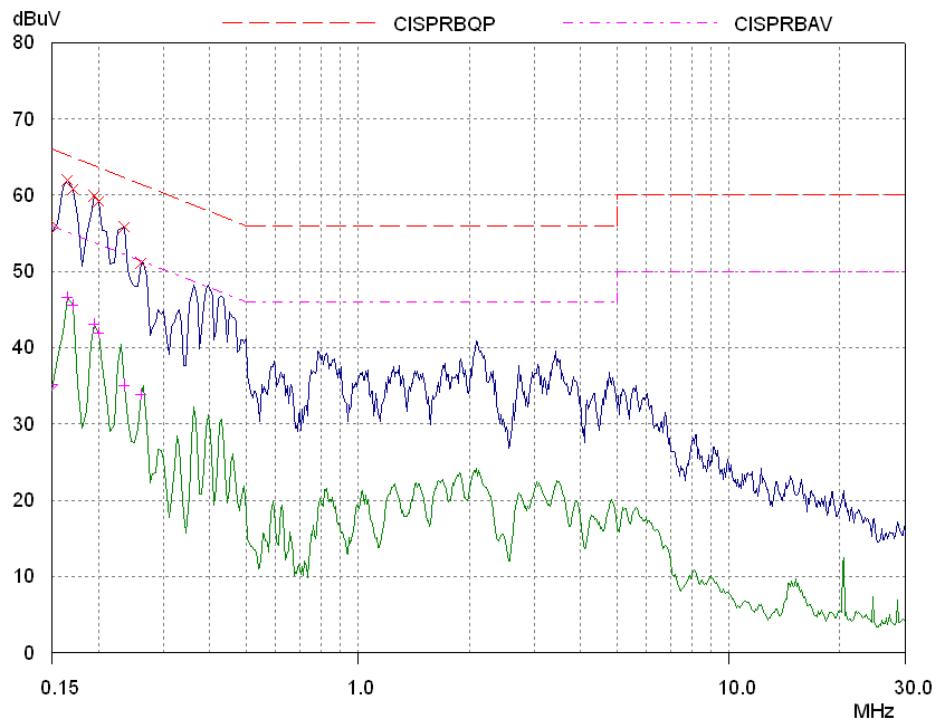
Remarks

See Appendix A for test data

APPENDIX A – TEST DATA

Conducted Voltage Emissions

| Frequency [MHz] | Correction Factor | | Line | Quasi-peak | | | | Average | | | |
|--------------------|----------------------|-------|------|-----------------|-------------------|------------------|----------------|-----------------|-------------------|------------------|----------------|
| | LISN | Cable | | Limit [dBuV] | Reading [dBuV] | Result [dBuV] | Margin [dB] | Limit [dBuV] | Reading [dBuV] | Result [dBuV] | Margin [dB] |
| | | | | | | | | | | | |
| 0.16 | 0.2 | 0.1 | H | 65.5 | 61.6 | 61.9 | 3.6 | 55.5 | 46.2 | 46.5 | 9.0 |
| 0.17 | 0.2 | 0.1 | H | 65.0 | 60.5 | 60.8 | 4.2 | 55.0 | 45.3 | 45.6 | 9.4 |
| 0.19 | 0.2 | 0.1 | H | 64.0 | 59.6 | 59.9 | 4.1 | 54.0 | 42.8 | 43.1 | 10.9 |
| 0.20 | 0.2 | 0.1 | H | 63.6 | 58.9 | 59.2 | 4.4 | 53.6 | 41.5 | 41.8 | 11.8 |
| 0.23 | 0.1 | 0.1 | H | 62.4 | 55.6 | 55.8 | 6.6 | 52.4 | 34.7 | 34.9 | 17.5 |
| 0.26 | 0.1 | 0.1 | H | 61.4 | 50.9 | 51.1 | 10.3 | 51.4 | 33.6 | 33.8 | 17.6 |



Radiated Electric Field Emissions

| Frequency [MHz] | Reading [dBuV/m] | Pol. | Height [m] | Correction Factor | | Limits [dBuV/m] | Result [dBuV/m] | Margin [dB] |
|--------------------|---------------------|------|---------------|----------------------|-------|--------------------|--------------------|----------------|
| | | | | Antenna | Cable | | | |
| 54.34 | 25.4 | V | 1.0 | 4.7 | 1.4 | 30.0 | 22.6 | 7.4 |
| 450.58 | 14.6 | V | 1.0 | 14.6 | 4.1 | 37.0 | 32.3 | 4.7 |
| 487.22 | 12.0 | V | 2.6 | 15.3 | 4.3 | 37.0 | 33.2 | 3.8 |
| 497.76 | 13.5 | V | 2.1 | 15.6 | 4.4 | 37.0 | 33.6 | 3.4 |
| 562.51 | 12.0 | V | 1.0 | 16.4 | 4.5 | 37.0 | 32.5 | 4.5 |
| 606.23 | 8.8 | H | 3.5 | 17.1 | 4.6 | 37.0 | 32.6 | 4.4 |