





**ESTECH Co., Ltd.**  
Rm.1015, World Venture Center II,  
426-5, Gasan-dong, Geumcheon-gu,  
Seoul, 153-803, Korea

*Testing and Certification  
Laboratory*

## Test Report for FCC

|   |   |   |   |                  |    |
|---|---|---|---|------------------|----|
| Report Number   |   | ESTF150604-009  |   |                  |    |
| Applicant   | Company name  | COOL SKY CO. LTD  |   |                  |    |
|   | Address   | ShinSung Bldg., A-511 #1588-1, Seocho-Dong, Seocho-Gu, Seoul, Korea |   |                  |    |
|   | Telephone   | 82-2-6203-0812  |   |                  |    |
| Product   | Product name  | Digital Satellite Receiver  |   |                  |    |
|   | Model No.   | NEOSAT IPRO3000   | Manufacturer                                | COOL SKY CO. LTD |    |
|   | Serial No.  | NONE  | Country of origin                           | KOREA            |    |
| Test date   | 2006-03-24 ~ 2006-04-25   |   | Date of issue                               | 2006-04-26       |    |
| Test location   | ESTECH. Co., Ltd.<br>97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea                                    |   |   |                  |    |
| Standard  | FCC PART 15 (2005) ANSI C 63.4 2003   |   |   |                  |    |
| Test item   | <input checked="" type="checkbox"/> Conducted Emission  | <input type="checkbox"/> Class A                                    | <input checked="" type="checkbox"/> Class B | Test result      | OK |
|   | <input checked="" type="checkbox"/> Radiated Emission   | <input type="checkbox"/> Class A                                    | <input checked="" type="checkbox"/> Class B | Test result      | OK |
|   | <input checked="" type="checkbox"/> Antenna Conducted Power Measurements  | <input type="checkbox"/> Class A                                    | <input type="checkbox"/> Class B            | Test result      | OK |
|   | <input checked="" type="checkbox"/> Output Signal Conducted Level   | <input type="checkbox"/> Class A                                    | <input type="checkbox"/> Class B            | Test result      | OK |
|   | <input checked="" type="checkbox"/> Output Terminal Conducted Spurious Emission                                   | <input type="checkbox"/> Class A                                    | <input type="checkbox"/> Class B            | Test result      | OK |
|   | <input checked="" type="checkbox"/> Antenna Transfer Switch   | <input type="checkbox"/> Class A                                    | <input type="checkbox"/> Class B            | Test result      | OK |
| Measurement facility registration number  |   | 94696   |   |                  |    |
| Tested by   | Engineer J.H.Kim              |   |   |                  |    |
| Reviewed by   | Engineering Manager J.M.Yang  |   |   |                  |    |
| Abbreviation  | OK, Pass = Passed, Fail = Failed, N/A = not applicable  |   |   |                  |    |
| <p>* Note</p> <p>- This is certified that the above mentioned products have been tested for the sample provided by client</p> <p>- No part of this document may be duplicated or reproduced by any means without the express written permission of the Estech Co., Ltd.</p> |   |   |   |                  |    |



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Appendix 1. Spectral diagram



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## 1. Laboratory Information

### 1.1 General

This EUT (Equipment Under Test) has been shown to be capable of compliance with the applicable technical standards and is tested in accordance with the measurement procedures as indicated in this report.

ESTECH attests to accuracy of test data. All measurement reported herein were performed by ESTECH Co., Ltd.

ESTECH assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

### 1.2 Test Lab.

Corporation Name : ESTECH Co. Ltd

Head Office : Rm 1015, World Venture Center II, 426-5, Gasan-dong, Geumcheon-gu, Seoul, Korea  
(Safety & Telecom. Test Lab)

EMC Test Lab : 58-1 Osan-Ri, GaNam-Myon, YeoJoo-Gun, KyungKi-Do, Korea  
97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea

### 1.3 Official Qualification(s)

MIC : Granted Accreditation from Ministry of Information & Communication for EMC, Safety and Telecommunication

KOLAS : Accredited Lab By Korea Laboratory Accreditation Schema base on CENELEC requirements

FCC : Filed Laboratory at Federal Communications Commission

VCCI : Granted Accreditation from Voluntary Control Council for Interference from ITE



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## 2. Description of EUT

### 2.1 Summary of Equipment Under Test

Product : Digital Satellite Receiver

Model Number : NEOSAT IPRO3000

Serial Number : NONE

Manufacturer : COOL SKY CO. LTD

Country of origin : KOREA

Rating : AC120V / 60HZ

Receipt Date : 2006-03-24

### 2.2 General descriptions of EUT

|                     |                     |  |
|---------------------|---------------------|--|
| <i>LNB/Tuner</i>    | RF input frequency  | 950 to 2,150MHz                            |
|                     | RF input level      | -65 to -25dBm                              |
|                     | LNB control         | DiSEqC1.0/1.2                              |
|                     | LNB power           | 13V/18V(Max.400mA)                         |
|                     | LNB tone switch     | 22KH $\pm$ 2KHz(0.6Vp-p)                   |
|                     | External LNB switch | 0/12V(100mA)                               |
| <i>MPEG</i>         | Video               | MPEG-II Main Profile@Main Level            |
|                     | Audio               | MPEG-II layer I&II                         |
| <i>VIDEO</i>        | Resolution          | 720 $\times$ 576                           |
|                     | Video output level  | 1Vp-p into 75 $\Omega$                     |
|                     | Aspect ratio        | 4:3, 16:9                                  |
| <i>Audio</i>        | Frequency range     | 20Hz to 20KHz                              |
|                     | Sampling frequency  | 32/44.1/48KHz                              |
|                     | Frequency response  | 20Hz to 20KHz Hi-Fi Quality Digital stereo |
|                     | Audio output level  | 2V rms into 600 $\Omega$                   |
| <i>General Data</i> | Supply voltage      | 100~240V (AC, 50/60Hz)                     |
|                     | Power consumption   | Max.25W                                    |
|                     | Operating temp.     | 0 $^{\circ}$ C ~ 50 $^{\circ}$ C           |
|                     | Storage temp.       | -40 $^{\circ}$ C ~65 $^{\circ}$ C          |
|                     | Dimensions          | 340(W) $\times$ 247(D) $\times$ 67.5(H)mm  |
|                     | Weight              | 3.0Kg                                      |

USING FRQ :27MHz



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### 3. Test Standards

#### Test Standard : FCC PART 15 (2005)

This Standard sets out the regulations under which an intentional, unintentional, or incidental radiator may be operated without an individual license. It also contains the technical specifications, administrative requirements and other conditions relating to the marketing of Part 15 devices.

#### Test Method : ANSI C 63.4 (2003)

This standard sets forth uniform methods of measurement of radio-frequency (RF) signals and noise emitted from both unintentional and intentional emitters of RF energy in the frequency range 9 kHz to 40 GHz. Methods for the measurement of radiated and AC power-line conducted radio noise are covered and may be applied to any such equipment unless otherwise specified by individual equipment requirements. These methods cover measurement of certain devices that deliberately radiate energy, such as intentional emitters, but does not cover licensed transmitters. This standard is not intended for certification/approval of avionic equipment or for industrial, scientific, and medical (ISM) equipment. These methods apply to the measurement of individual units or systems comprised of multiple units.

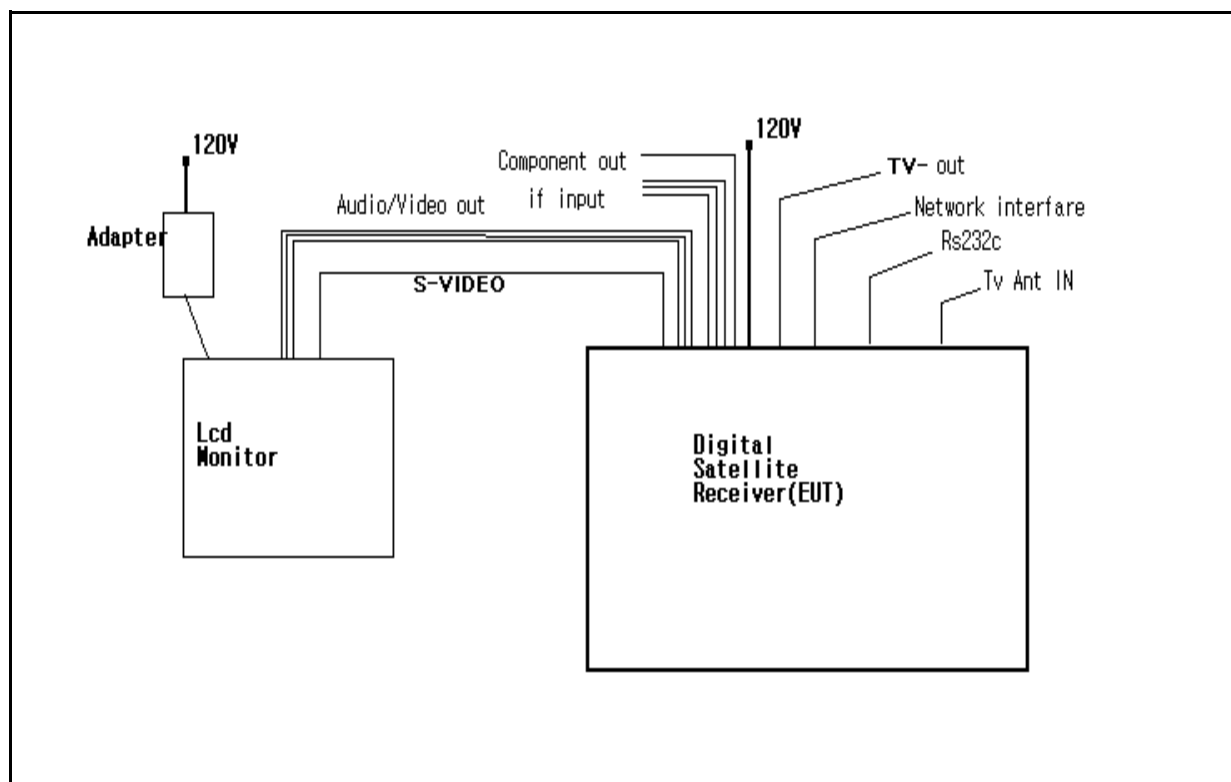


## 4. Measurement Condition

### 4.1 EUT Operation.

- \* The EUT was in the following operation mode during all testing
- \* The operational conditions of the EUT was determined by the manufacturer according to the typical use of the EUT with respect to the expected highest level of emission
- \* The EUT was set to the normal receiving mode in a TV mode during all the testing in a manner similar to a typical use.
- \* For the EUT operation, the satellite live signal was fed to the EUT through the LNB input.

### 4.2 Configuration and Peripherals





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#### 4.3 EUT and Support equipment

| Equipment Name             | Model Name      | S/N            | Manufacturer               | Remark (FCC ID) |
|----------------------------|-----------------|----------------|----------------------------|-----------------|
| Digital Satellite Receiver | NEOSAT IPRO3000 | NONE           | COOL SKY CO. LTD           | EUT             |
| LCD Monitor                | KD17NS          | N433HKX300852K | SAMSUNG                    |                 |
| ADAPTER                    | AP04914-UV      | 0401011616AC   | Anam Instruments Co., Ltd. |                 |
|                            |                 |                |                            |                 |
|                            |                 |                |                            |                 |

#### 4.4 Cable Connecting

| Start Equipment            |                   | End Equipment              |             | Cable Standard |          | Remark |
|----------------------------|-------------------|----------------------------|-------------|----------------|----------|--------|
| Name                       | I/O port          | Name                       | I/O port    | Length         | Shielded |        |
| Digital Satellite Receiver | S-Video           | LCD MONITOR                | S-Video     | 2              | Y        |        |
| Digital Satellite Receiver | Audio Output      | LCD MONITOR                | Audio Input | 2              | N        |        |
| Digital Satellite Receiver | IF Input          | Digital Satellite Receiver | RF          | 25             | N        |        |
| Digital Satellite Receiver | Component out     | -                          | -           | 2              | N        |        |
| Digital Satellite Receiver | TV out            | -                          | -           | 2              | N        |        |
| Digital Satellite Receiver | TV ANT IN         | -                          | -           | 2              | N        |        |
| Digital Satellite Receiver | RS232C            | -                          | -           | 2              | N        |        |
| Digital Satellite Receiver | Network interface | -                          | -           | 2              | N        |        |
| Digital Satellite Receiver | Video out         | LCD MONITOR                | Video in    | 2              | N        |        |
| LCD MONITOR                | Adapter           | ADAPTER                    | -           | 2              | N        |        |



## 5. Measurement of radiated disturbance

### 5.1 Radiated Emission

Above 30 MHz Electric Field strength was measured in accordance with FCC Part 15 (2005) & ANSI C 63.4 (2003). The test setup was made according to FCC Part 15 (2005) & ANSI C 63.4 (2003) on an open test site, which allows a 3m distance measurement. The EUT was placed in the center of wooden turntable. The height of this table was 0.8m. The measurement was conducted with both horizontal and vertical antenna polarization. The turntable has fully rotated. For further description of the configuration refer to the picture of the test setup.

### 5.2 Radiated Emission(Harmonics)

This is the additional radiatd emission test due to the local oscillator of the satellite receiver part in the EUT. The fundamental and 2nd harmonic frequencies of the local oscillator of the satellite receiver part was tested on a near top, middle and bottom tuning frequencies of the EUT according to section 15.31(m) and 15.33(b)(3)

### 5.3 Measurement equipments

| Equipment Name        | Type        | Manufacturer    | Serial No. | Next Calibration date |
|-----------------------|-------------|-----------------|------------|-----------------------|
| TEST Receive          | ESPI7       | Rohde & Schwarz | 100185     | 2006. 8. 22           |
| Spectrum Analyzer     | R3261C      | ADVANTEST       | 61720116   | 2007. 4. 19           |
| LogBicon Antenna      | VULB 9160   | S/B             | 3142       | 2006. 7. 04           |
| Horn Antenna          | BBHA 9120 D | SCHWARZBECK     | 352        | 2007. 3. 17           |
| Turn Table            | 2087        | EMCO            | 2129       | –                     |
| Antenna Mast          | 2070-01     | EMCO            | 9702-203   | –                     |
| ANT Mast Controller   | 2090        | EMCO            | 1535       | –                     |
| Turn Table Controller | 2090        | EMCO            | 1535       | –                     |

### 5.4 Environmental Condition

Test Place : Open site(3m)  
Temperature (°C) : 11 °C  
Humidity (%) : 48 %



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## 5.5 Test data

Test Date : 27-Mar-06

Measurement Distance : 3 m

| Frequency<br>(MHz) | Reading<br>(dB $\mu$ V)  | Position<br>(V/H) | Height<br>(m) | Correction Factor  |               | Result Value            |                          |                |
|--------------------|--|-------------------|---------------|--------------------|---------------|-------------------------|--------------------------|----------------|
|                    |  |                   |               | Ant Factor<br>(dB) | Cable<br>(dB) | Limit<br>(dB $\mu$ V/m) | Result<br>(dB $\mu$ V/m) | Margin<br>(dB) |
| 30.39              | 23.00  | V                 | 1.0           | 12.24              | 0.9           | 40.0                    | 36.17                    | -3.83          |
| 32.62              | 23.50  | V                 | 1.0           | 12.27              | 0.9           | 40.0                    | 36.70                    | -3.30          |
| 50.40              | 15.00  | V                 | 1.0           | 12.57              | 1.2           | 40.0                    | 28.75                    | -11.25         |
| 79.42              | 21.00  | V                 | 1.0           | 9.93               | 1.4           | 40.0                    | 32.31                    | -7.69          |
| 85.90              | 21.00  | V                 | 1.0           | 8.69               | 1.5           | 40.0                    | 31.17                    | -8.83          |
| 94.43              | 18.50  | V                 | 1.0           | 9.36               | 1.5           | 43.5                    | 29.39                    | -14.11         |
| 114.89             | 22.50  | V                 | 1.0           | 11.13              | 1.7           | 43.5                    | 35.29                    | -8.21          |
| 152.32             | 16.50  | V                 | 1.0           | 13.93              | 1.9           | 43.5                    | 32.33                    | -11.17         |
| 54.04              | 15.00  | V                 | 1.0           | 12.62              | 1.2           | 40.0                    | 28.80                    | -11.20         |
| 162.03             | 23.00  | V                 | 1.0           | 13.90              | 2.0           | 43.5                    | 38.86                    | -4.64          |
| 159.75             | 18.00  | V                 | 1.0           | 14.01              | 1.9           | 43.5                    | 33.95                    | -9.55          |
| 216.01             | 22.00  | H                 | 1.6           | 10.65              | 2.3           | 43.5                    | 34.92                    | -8.58          |
| 243.02             | 20.50  | H                 | 1.0           | 11.75              | 2.4           | 46.0                    | 34.70                    | -11.30         |
| 250.02             | 21.50  | V                 | 1.0           | 11.92              | 2.6           | 46.0                    | 35.98                    | -10.02         |
| 378.06             | 16.50  | H                 | 1.0           | 14.62              | 3.2           | 46.0                    | 34.30                    | -11.70         |
| 432.00             | 20.50  | H                 | 1.0           | 15.85              | 3.6           | 46.0                    | 39.91                    | -6.09          |
| 108.00             | 18.50  | V                 | 1.0           | 10.35              | 1.6           | 43.5                    | 30.46                    | -13.04         |
| 675.00             | 7.50   | V                 | 1.0           | 19.92              | 4.6           | 46.0                    | 32.02                    | -13.98         |
| Remark             | H : Horizontal, V : Vertical<br>*Checked in each test mode and operation mode,<br>and the maximum measured data were reported. |                   |               |                    |               |                         |                          |                |

## 5.6 Test data(Harmonics)

|        |   |   |   |       |     |      |   |   |
|--------|---|---|---|-------|-----|------|---|---|
| 950    | -   | - | - | 23.51 | 5.8 | 46.0 | - | - |
| 955    | -   | - | - | 23.57 | 5.8 | 46.0 | - | - |
| 960    | -   | - | - | 23.43 | 5.9 | 54.0 | - | - |
| Remark | There was no found any emission during the above test |   |   |       |     |      |   |   |



## 6. Measurement of conducted disturbance

The continuous disturbance voltage of AC Mains in the frequency from 0.15 to 30 MHz was measured in accordance to FCC Part 15 (2005) & ANSI C 63.4 (2003). The test setup was made according to FCC Part 15 (2005) & ANSI C 63.4 (2003) in a shielded. The EUT was placed on a non-conductive table at least 80 above the ground plane. A grounded vertical reference plane was positioned in a distance of 40cm from the EUT. The distance from the EUT to other metal surfaces was at least 0.8m. The EUT was only earthen by its power cord through the line impedance stabilizing network. The power cord has been bundled to a length of 1.0m.. The test receiver with Quasi Peak detector complies with CISPR 16.

### 6.1 Measurement equipments

| Equipment Name | Type      | Manufacturer    | Serial No. | Next Calibration date |
|----------------|-----------|-----------------|------------|-----------------------|
| LISN           | ESH3-Z5   | Rohde & Schwarz | 838979/010 | 2007. 2. 27           |
| LISN           | NNLA8120A | Schwarzbeck     | NONE       | 2007. 2. 27           |
| TEST Receive   | ESPI7     | Rohde & Schwarz | 100185     | 2006. 8. 22           |
| Pulse Limiter  | ESH3Z2    | Rohde & Schwarz | NONE       | 2006. 6. 15           |

### 6.2 Environmental Condition

Test Place : Shield Room  
Temperature (°C) : 21 °C  
Humidity (%) : 42%



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### 6.3 Test data

Test date : 27-Mar-06

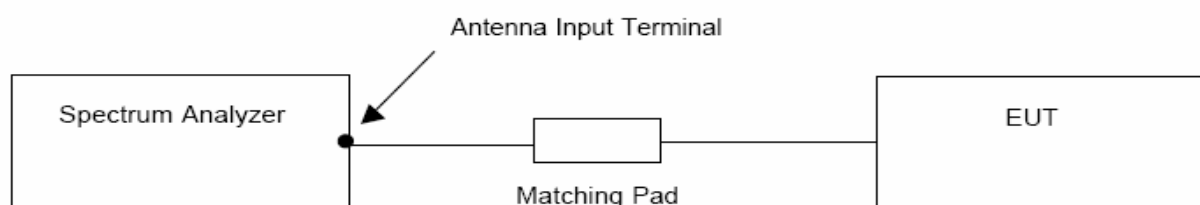
| Frequency<br>(MHz) | Correction Factor  |               | Line<br>(H/N) | Quasi-peak Value      |                         |                        | Average Value         |                         |                        |
|--------------------|--|---------------|---------------|-----------------------|-------------------------|------------------------|-----------------------|-------------------------|------------------------|
|                    | Lisn<br>(dB)   | Cable<br>(dB) |               | Limit<br>(dB $\mu$ V) | Reading<br>(dB $\mu$ V) | Result<br>(dB $\mu$ V) | Limit<br>(dB $\mu$ V) | Reading<br>(dB $\mu$ V) | Result<br>(dB $\mu$ V) |
| 0.15               | 0.07   | 0.0           | H             | 66.00                 | 45.09                   | 45.16                  | 56.00                 | 32.64                   | 32.71                  |
| 0.21               | 0.07   | 0.0           | H             | 63.41                 | 44.16                   | 44.27                  | 53.41                 | 38.76                   | 38.87                  |
| 0.62               | 0.08   | 0.2           | N             | 56.00                 | 44.29                   | 44.57                  | 46.00                 | 38.11                   | 38.39                  |
| 0.76               | 0.09   | 0.2           | N             | 56.00                 | 44.45                   | 44.74                  | 46.00                 | 38.95                   | 39.24                  |
| 1.17               | 0.09   | 0.2           | H             | 56.00                 | 43.01                   | 43.32                  | 46.00                 | 38.04                   | 38.35                  |
| 1.23               | 0.09   | 0.2           | N             | 56.00                 | 42.07                   | 42.39                  | 46.00                 | —                       | —                      |
| 1.30               | 0.10   | 0.2           | N             | 56.00                 | 42.86                   | 43.19                  | 46.00                 | 35.80                   | 36.13                  |
| 1.58               | 0.10   | 0.3           | H             | 56.00                 | 43.07                   | 43.43                  | 46.00                 | 36.59                   | 36.95                  |
| 2.13               | 0.11   | 0.3           | N             | 56.00                 | 45.22                   | 45.63                  | 46.00                 | 37.13                   | 37.54                  |
| 2.61               | 0.13   | 0.3           | H             | 56.00                 | 45.39                   | 45.82                  | 46.00                 | 36.30                   | 36.73                  |
| 2.67               | 0.13   | 0.3           | N             | 56.00                 | 45.84                   | 46.27                  | 46.00                 | 38.61                   | 39.04                  |
| 3.09               | 0.14   | 0.3           | N             | 56.00                 | 45.25                   | 45.69                  | 46.00                 | 39.73                   | 40.17                  |
| 3.57               | 0.16   | 0.3           | H             | 56.00                 | 43.58                   | 44.04                  | 46.00                 | 39.09                   | 39.55                  |
| 3.63               | 0.16   | 0.3           | N             | 56.00                 | 45.69                   | 46.15                  | 46.00                 | 38.45                   | 38.91                  |
| 4.59               | 0.19   | 0.3           | N             | 56.00                 | 46.44                   | 46.93                  | 46.00                 | —                       | —                      |
| 4.94               | 0.20   | 0.3           | N             | 56.00                 | 46.23                   | 46.73                  | 46.00                 | 40.02                   | 40.52                  |
| 5.42               | 0.22   | 0.3           | N             | 60.00                 | 43.15                   | 43.69                  | 50.00                 | 38.70                   | 39.24                  |
|                    |  |               |               |                       |                         |                        |                       |                         |                        |
|                    |  |               |               |                       |                         |                        |                       |                         |                        |
|                    |  |               |               |                       |                         |                        |                       |                         |                        |
|                    |  |               |               |                       |                         |                        |                       |                         |                        |
| Remark             | H : Hot Line, N : Neutral Line<br>*Checked in each test mode and operation mode,<br>and the maximum measured data were reported. |               |               |                       |                         |                        |                       |                         |                        |



## 7. Measurement of Antenna conducted power

Power on the receive antenna terminals was to be determined by measurement of the voltage present at these terminals. Antenna-conducted power measurements is performed with the EUT antenna terminals connected directly to a spectrum analyzer, if the antenna impedance matches the impedance of the measuring instrument. Otherwise, use an impedance-matching network to connect the measuring instrument to the antenna terminals of the EUT. Losses in decibels in any impedance-matching network used is added to the measured value in dBμV.

With the EUT tuned to one of the frequency over which device operates , measure both the frequency and voltage present at the antenna input terminals over the frequency range specified in the individual equipment requirements. Repeat this measurement with the receiver tuned to another frequency until the number of frequencies specified have been successively measured. Power on the receive antenna terminals is the ratio of  $V^2/R$ , where V is the loss-corrected voltage measured at the antenna terminals, and R is the impedance of the measuring instrument.



### 7.1 Measurement equipments

| Equipment Name    | Type        | Manufacturer | Serial No. | Next Calibration date |
|-------------------|-------------|--------------|------------|-----------------------|
| Matching Pad      | 358.5414.02 | R/S          | 862571/051 | —                     |
| Spectrum Analyzer | R3261C      | ADVANTEST    | 61720116   | 2007. 4. 19           |
|                   |             |              |            |                       |

### 7.2 Environmental Condition

Test Place : Shield Room  
Temperature (°C) : 21 °C  
Humidity (%) : 44%



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### 7.3 Test data

Test date : 29-Mar-06

| Frequency<br>(MHz) | Reading<br>(dBμV) | Emission level<br>(dBμV) | Cable loss<br>(dB) | Result Value    |                |
|--------------------|-------------------|--------------------------|--------------------|-----------------|----------------|
|                    |                   |                          |                    | Limit<br>(dBμV) | Margin<br>(dB) |
| 85.2               | 15.65             | 22.65                    | 7.00               | 50.0            | 27.35          |
| 92.5               | 25.87             | 32.87                    | 7.00               | 50.0            | 17.13          |
| 184.7              | 24.75             | 31.75                    | 7.00               | 50.0            | 18.25          |
| 368.7              | 16.87             | 24.07                    | 7.20               | 50.0            | 25.93          |
| 648                | 12.75             | 20.05                    | 7.30               | 50.0            | 29.95          |
| 717                | 13.62             | 20.92                    | 7.30               | 50.0            | 29.08          |
| 900                | 13.15             | 20.55                    | 7.40               | 50.0            | 29.45          |
| 1014.3             | 13.92             | 21.72                    | 7.80               | 50.0            | 28.28          |
| 1102.9             | 13.60             | 21.60                    | 8.00               | 50.0            | 28.40          |
| 1290.9             | 13.50             | 21.60                    | 8.10               | 50.0            | 28.40          |
|                    |                   |                          |                    |                 |                |

Notes :

1. Emission level = Reading level + Cable loss / Margin = limit – Emission level
2. Cable loss = Cable loss+Matching Pad
- 3.Checked in each test mode and operation mode,and the maximum measured data were reported.



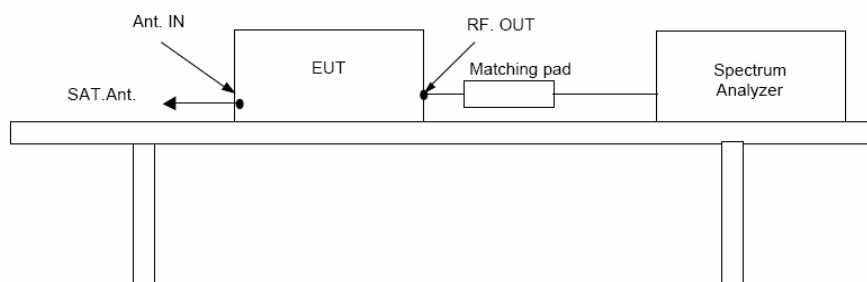
## 8. Measurement of output signal conducted level

The output signal level is the maximum voltage level present at the output terminals of the EUT on a particular frequency during normal use of the device.

The signal level was measured by direct connection to the spectrum analyzer with 50/75 ohm matching transformer between the spectrum analyzer and the TV interface device. The RF output signal level measured was the highest RF level present at the output terminals during normal use of the device. Measurements were made of the levels of both the visual (61.25 MHz) and audio (71.75 MHz) carrier for each TV channel (3 and 4) on which the device operates. The cable was supported between the EUT and the measuring instrument in a straight horizontal line so it had at least 75cm clearance from any conducting surface.

The EUT is provided with a typical signal consistent with normal operation. For each channel on which the EUT operates and in each mode in which the device operates, the video and audio carrier level is measured and recorded.

The voltage corresponding to the peak envelope power of the video modulated signal during maximum amplitude peaks across a resistance ( $R$  ohms) matching the rated output impedance of the device, must not exceed  $346.4 R^{1/2} \mu V$  for all other TV interface device. The voltage corresponding to peak envelope power of the audio modulated signal, if provided by the TV interface device, must not exceed  $155 R^{1/2} \mu V$  for cable system terminal device of TV interface device used with a master antenna, and  $77.5 R^{1/2} \mu V$  for all other TV interface device. Losses in decibels in any impedance-matching network used is added to the measured value in dBmV. The EUT was configured in accordance with ANSI C 63.4 2003 Section 12.2 as below configuration block diagram and the EUT configuration can also be seen in Appendix B. Photographs of the test setup.



### 8.1 Measurement equipments

| Equipment Name    | Type        | Manufacturer | Serial No. | Next Calibration date |
|-------------------|-------------|--------------|------------|-----------------------|
| Spectrum Analyzer | R3261C      | ADVANTEST    | 61720116   | 2007. 4. 19           |
| Matching Pad      | 358.5414.02 | R/S          | 862571/051 | —                     |

### 8.2 Environmental Condition

Test Place : Shield Room  
Temperature (°C) : 21 °C  
Humidity (%) : 44%



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### 8.3 Test data

Test date : 29-Mar-06

| Test RF channel | Emission frequency (MHz) | Reading (dB $\mu$ V) | Cable loss (dB) | Emission level (dB $\mu$ V) | Result Value       |             |
|-----------------|--------------------------|----------------------|-----------------|-----------------------------|--------------------|-------------|
|                 |                          |                      |                 |                             | Limit (dB $\mu$ V) | Margin (dB) |
| 3               | 61.25                    | 58.52                | 7               | 65.52                       | 69.5               | 3.98        |
|                 | 65.75                    | 42.25                | 7               | 49.25                       | 56.5               | 7.25        |
|                 |                          |                      |                 |                             |                    |             |
|                 |                          |                      |                 |                             |                    |             |

Notes :

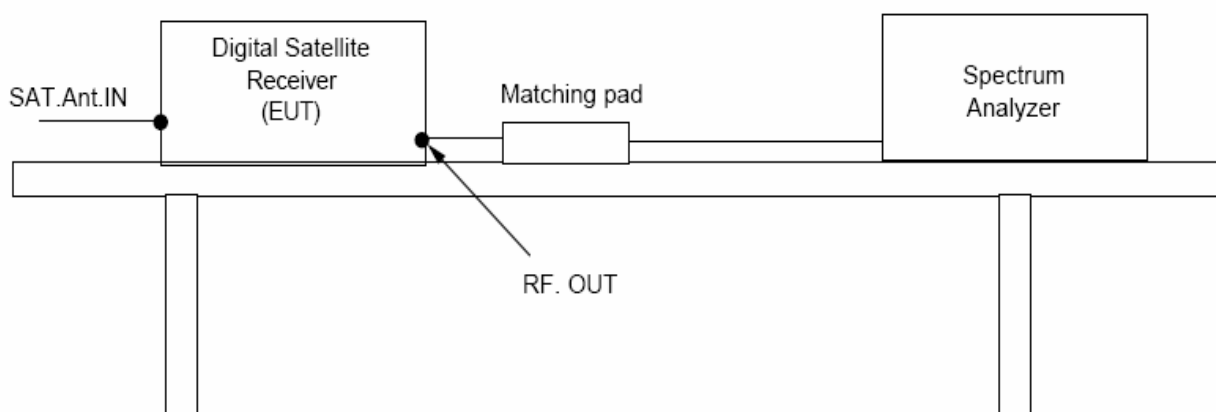
1. Emission level = Reading level + Cable loss / Margin = limit - Emission level.
2. Cable loss = Cable loss + Matching Pad
3. Checked in each test mode and operation mode, and the maximum measured data were reported.



## 9. Measurement of output terminal conducted spurious emission

The RF output signal was fed to the TV receiver via coaxial cable. Measurements were made by direct connection to the spectrum analyzer and TV interface device with 50/75 ohm matching transformer. The frequency range 30 to 1000 MHz was investigated for significant emission.

The maximum RMS voltage of any emission appearing on frequencies removed by more than 4.6 MHz below and 7.4 MHz above the video carrier frequency on which the TV interface device is operated must not exceed  $692.8 R^{1/2} \mu V$  for cable system terminal device or TV interface device used with a master antenna and  $10.95 R^{1/2} \mu V$  for all other TV interface device when terminated with a resistance (R ohms) matching the rated output impedance of the TV interface device. The EUT was configured in accordance with ANSI C 63.4 2003 Section 12.2 as below configuration block diagram and the EUT configuration can also be seen in Appendix B. Photographs of the test setup.



### 9.1 Measurement equipments

| Equipment Name    | Type        | Manufacturer | Serial No. | Next Calibration date |
|-------------------|-------------|--------------|------------|-----------------------|
| Spectrum Analyzer | R3261C      | ADVANTEST    | 61720116   | 2007. 4. 19           |
| Matching Pad      | 358.5414.02 | R/S          | 862571/051 | —                     |

### 9.2 Environmental Condition

Test Place : Shield Room  
Temperature (°C) : 21°C  
Humidity (%) : 44%



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### 9.3 Test data

Test date : 29-Mar-06

| Test RF channel | Emission frequency (MHz)  | Reading (dB $\mu$ V) | Cable loss (dB) | Emission level (dB $\mu$ V) | Result Value       |             |
|-----------------|---|----------------------|-----------------|-----------------------------|--------------------|-------------|
|                 |   |                      |                 |                             | Limit (dB $\mu$ V) | Margin (dB) |
| 3               | 51.66   | NF                   | 7               | –                           | 39.5               | –           |
|                 | 70.22   | NF                   | 7               | –                           | 39.5               | –           |
|                 | 108.22  | NF                   | 7               | –                           | 39.5               | –           |
|                 | 125.80  | NF                   | 7               | –                           | 39.5               | –           |
|                 | 183.84  | 21.2                 | 7               | 28.20                       | 39.5               | 11.30       |
|                 | 306.00  | NF                   | 7.2             | –                           | 39.5               | –           |
|                 |   |                      |                 |                             |                    |             |
|                 |   |                      |                 |                             |                    |             |
|                 |   |                      |                 |                             |                    |             |
|                 |   |                      |                 |                             |                    |             |
| Remark          | There was no found any output conducted spurious emission during the above test<br>*Note – NF:Noise Floor |                      |                 |                             |                    |             |

Notes :

1. Emission level = Reading level + Cable loss / Margin = limit – Emission level.
2. Cable loss = Cable loss + Matching Pad
3. The spectrum was checked in each test mode and operation mode, and the maximum measured data were reported.



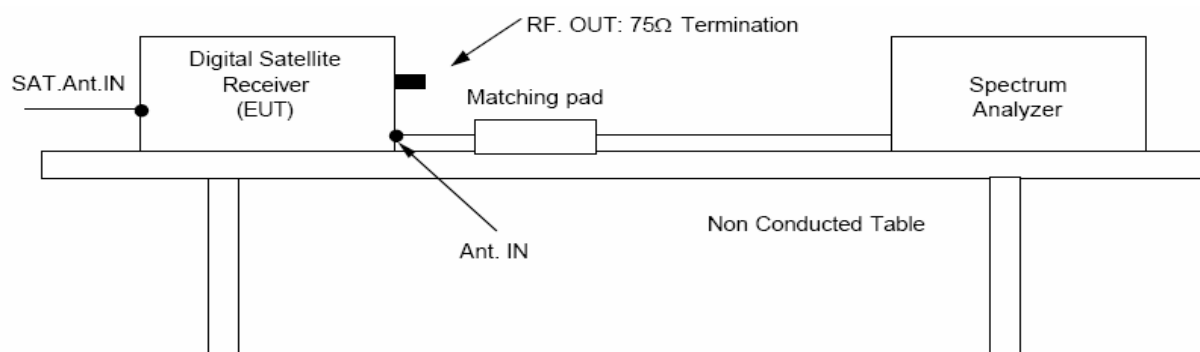
## 10. Measurement of antenna transfer switch

Isolation was measured for all positions of an antenna transfer switch on all output channels of the EUT. TV interface device transfer switch isolation is the difference the levels of a signal going into one antenna input port of the switch and that of the same signal coming out of another antenna terminal of transfer switch. The isolation of an antenna transfer switch equipped with coaxial connectors is performed by measuring the maximum voltage of the visual carrier. Measurements were made of the maximum RMS voltage at the antenna input terminals of the switch for all positions of the transfer switch. The maximum voltage corresponds to the peak envelope power of the video signal during maximum amplitude peaks. In either position of the receiver transfer switch, the maximum voltage at the receiving antenna input terminals of the switch when terminated with a resistance ( $R$  ohms) matching the rated impedance of the antenna input of the switch, must not exceed  $0.346 R^{1/2} \mu V$ .

The maximum voltage corresponds to the peak envelope power of the video modulated signal during maximum amplitude.

The EUT was configured in accordance with ANSI C 63.4 2003 Section 12.2 as below configuration block diagram, and the EUT configuration can also be seen in Appendix B. Photographs of the test setup.

The unused RF input/output terminals are terminated in a proper impedance. The antenna input terminal is connected to the input of preamplifier through the matching transformer coaxial cable. And the output of preamplifier is connected to the spectrum analyzer. Then, the signal level on the antenna input terminal is measured under the EUT condition produced the maximum signal level.



### 10.1 Measurement equipments

| Equipment Name    | Type        | Manufacturer | Serial No. | Next Calibration date |
|-------------------|-------------|--------------|------------|-----------------------|
| Spectrum Analyzer | R3261C      | ADVANTEST    | 61720116   | 2007. 4. 19           |
| Matching Pad      | 358.5414.02 | R/S          | 862571/051 | —                     |

### 10.2 Environmental Condition

Test Place : Shield Room  
Temperature (°C) : 21°C  
Humidity (%) : 44%



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### 10.3 Test data

Test date : 29-Mar-06

| Test RF channel | Emission frequency (MHz)  | Meter Reading (dB $\mu$ V) | Correction Factor (dB) | Emission level (dB $\mu$ V) | Result Value       |             |
|-----------------|---|----------------------------|------------------------|-----------------------------|--------------------|-------------|
|                 |   |                            |                        |                             | Limit (dB $\mu$ V) | Margin (dB) |
| 3               | 61.25   | –                          | 4.8                    | –                           | 9.5                | –           |
| Remark          | There was no found any antenna transfer switch emission during the above test |                            |                        |                             |                    |             |

Notes :

1. Emission level = Reading level + Cable loss / Margin = limit – Emission level.
2. Cable loss = Cable loss + 6dB(Matching Pad)
3. The spectrum was checked in each test mode and operation mode, and the maximum measured data were reported.



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## 11. Photographs of test setup

### Setup for Radiated Test

[ Front ]



[ Rear ]





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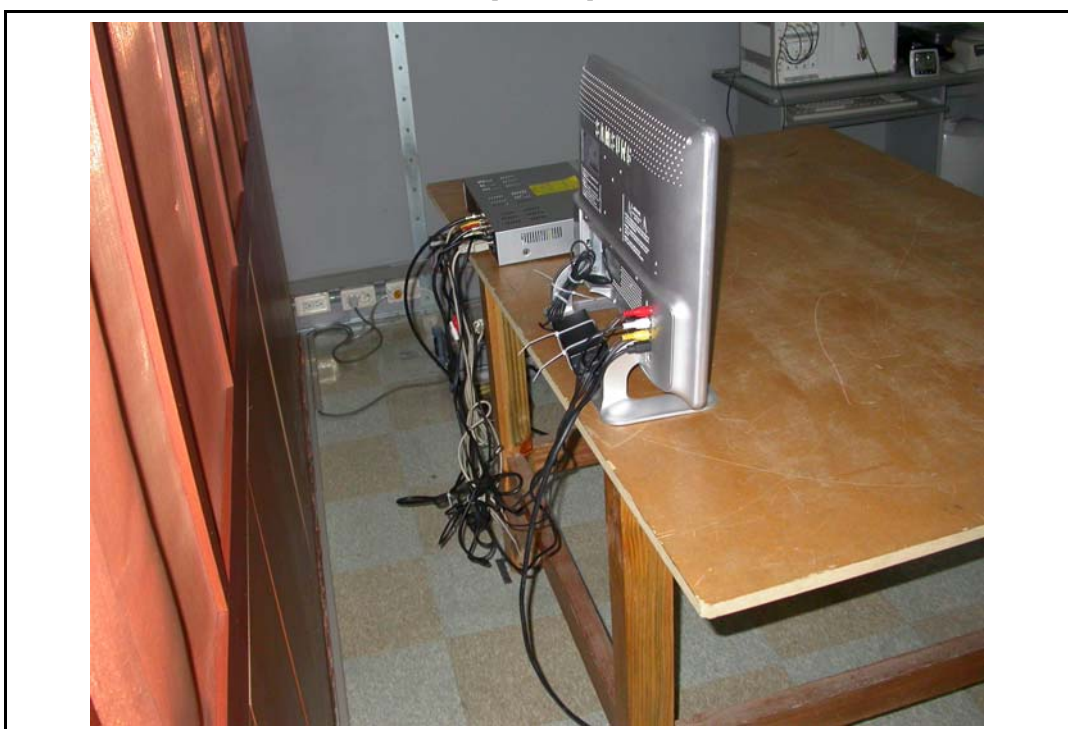
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## Setup for Conducted Test : 0.15 ~ 30 MHz

[ Front ]



[ Rear ]

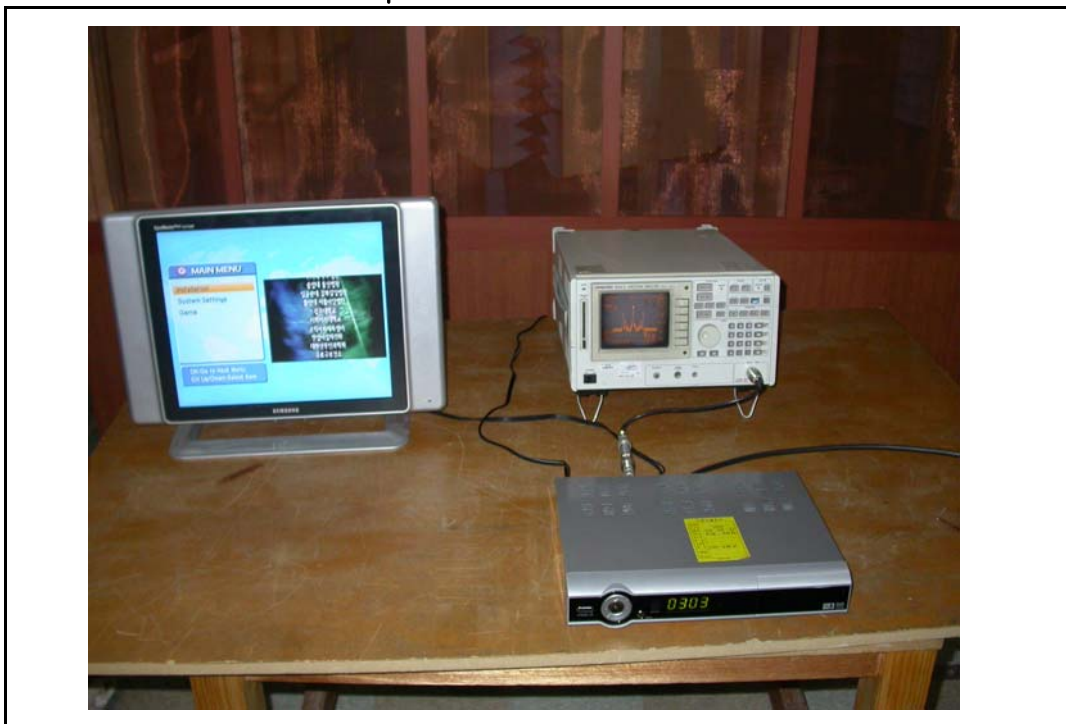




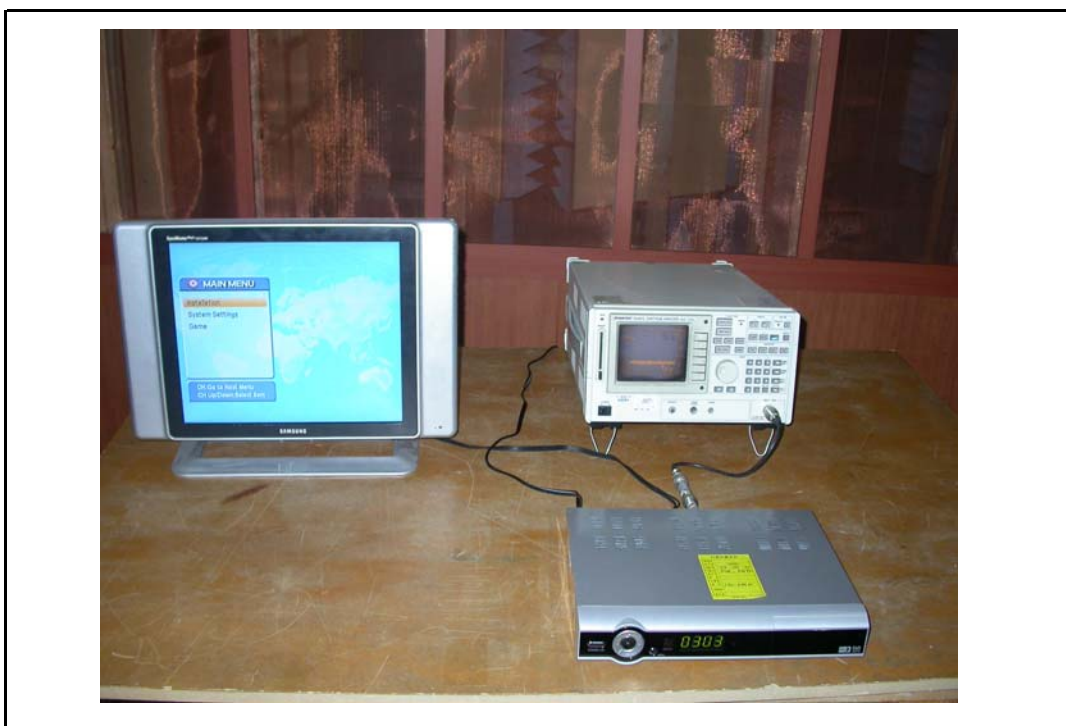
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### Setup for Antenna conducted power



### Setup for Output signal conducted level

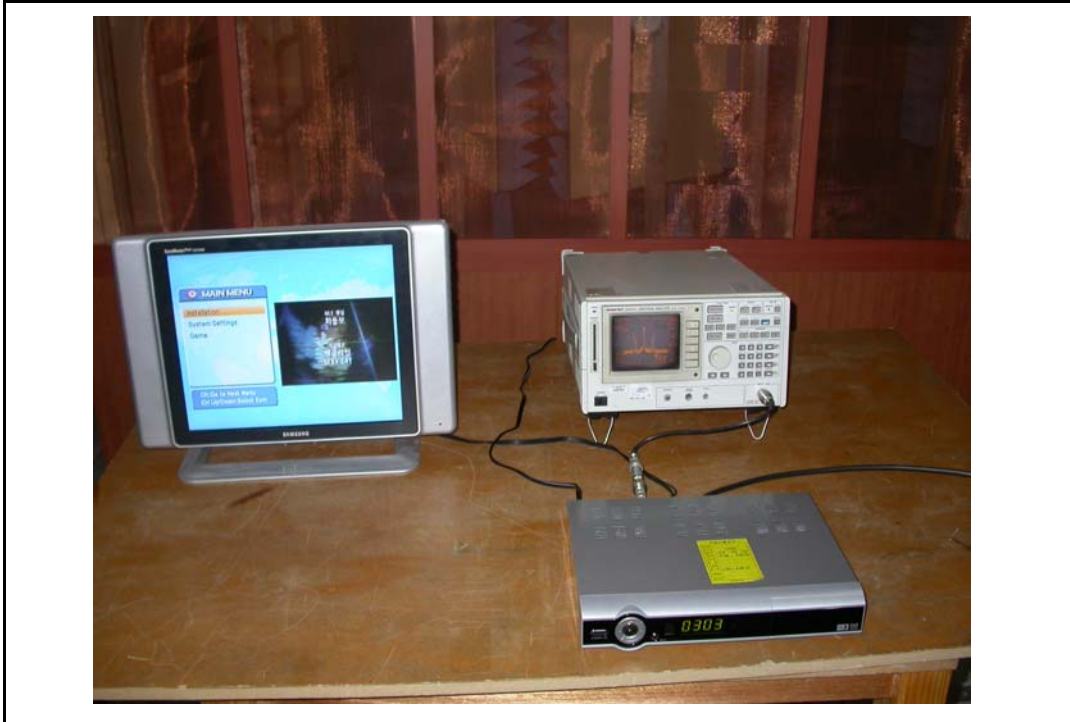




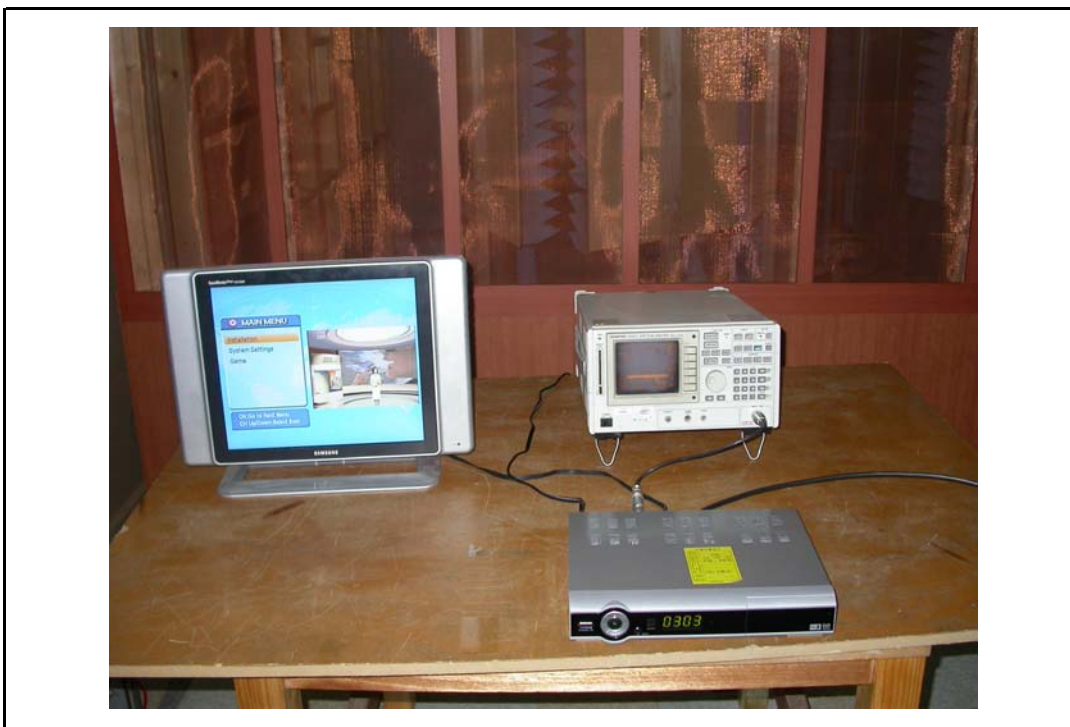
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## Setup for Output terminal conducted spurious emission



## Setup for antenna transfer switch





## 12. Photographs of EUT

A silver and black Sony DVD player is shown from a front-three-quarter view. The device has a sleek, rectangular design. The top surface is silver with a grid of ventilation slots. The front face is black, featuring a circular disc tray on the left, a small digital display in the center showing '7 20:00', and a disc tray on the right. The Sony logo is visible on the right side of the front panel. A black power cord is plugged into the back of the unit. The player is resting on a white, wrinkled fabric surface.

# Appendix 1. Spectral diagram

\*HOT



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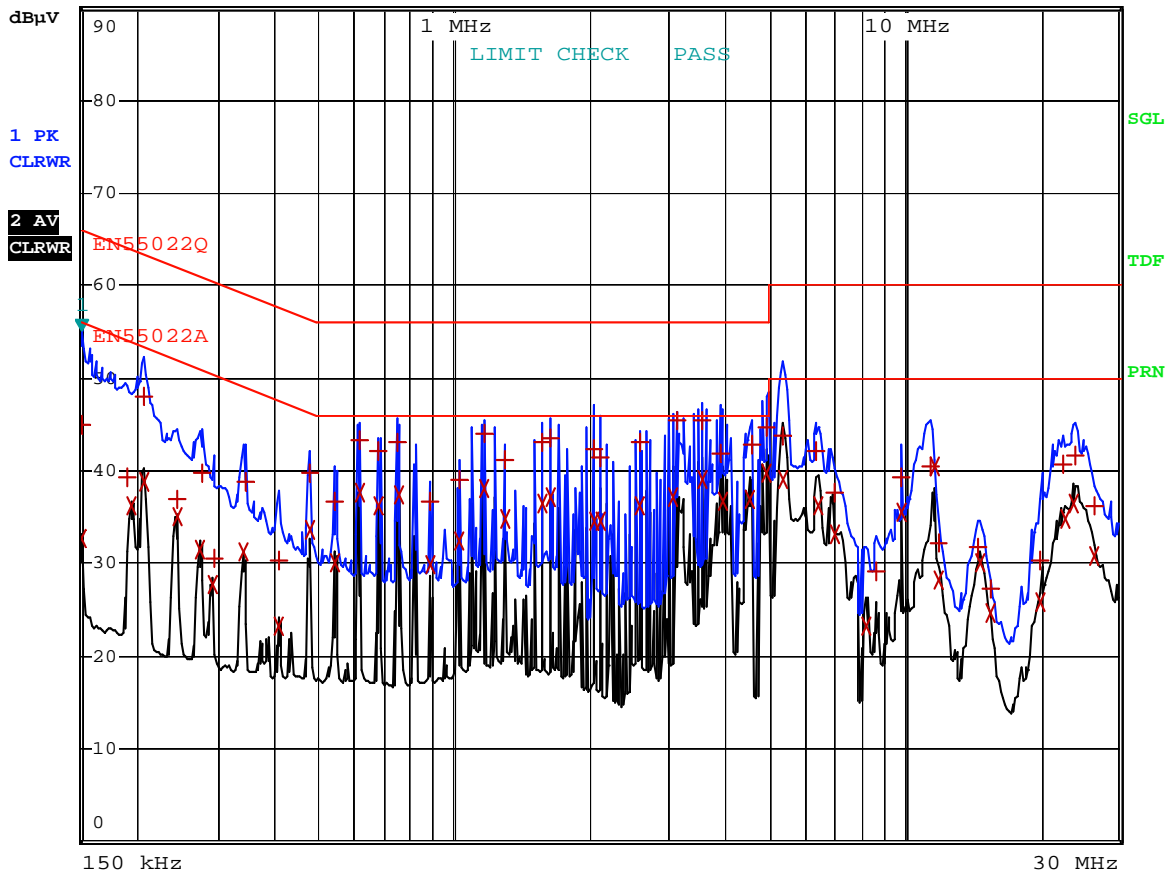
RBW 9 kHz Marker 1 [T1 ]

MT 1 s 55.09 dBμV

Att 10 dB

PREAMP OFF

150.00000000 kHz



Comment: COOLSKY Neosat IPRO 3000 HOT

Date: 27.MAR.2006 18:33:46

\*NETRUL

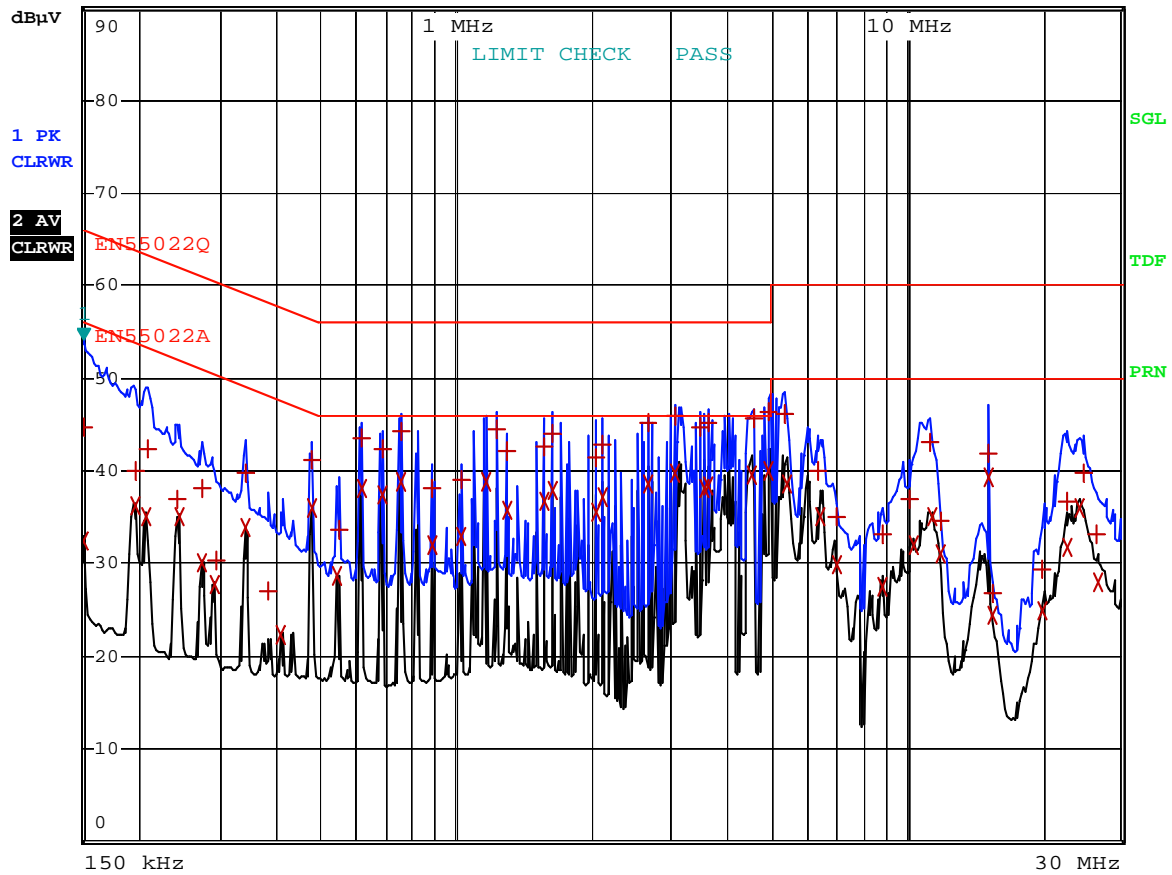


ESTECH

RBW 9 kHz Marker 1 [T1 ]

MT 1 s 54.25 dBμV

Att 10 dB PREAMP OFF 150.00000000 kHz



Comment: COOLSKY NEOSAT IPRO3000 NEUTRAL

Date: 27.MAR.2006 18:47:01