



UL Korea, Ltd

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Project: 10CA05635
File: TC8389
Report 10CA05635-FCC
Date: March 10, 2010
Model: FireCR (Basic) and VetCR

FCC Certification Report

For

Computed Radiography Scanner

**3D Imaging & Simulations Corp.
49-3, Moonpyung-Dong, Daedeok-Gu, Daejeon, Korea**

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33rdFl. Gangnam finance Center, 737 Yeoksam-Dong, Kangnam-Gu, Seoul, 135-984, Korea
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Project Number: 10CA05635 File Number: TC8389 Test Report No: 10CA05635-FCC
Model Number: FireCR Date of Issue: March 10, 2010

TEST REPORT DETAILS

Test report No: 10CA05635-FCC
Tests Performed By: UL Korea Ltd.
33rd FL. Gangnam Finance Center, 737 Yeoksam-dong,
Kangnam-ku, Seoul, 135-984, Korea
Test site: ESTECH
97-1, Hoeok-Ri,Majang-Myun,Icheon-City, kyonggi-do, Korea
Registration No: 100749
The test facility was deemed to have the environment and capabilities necessary to perform the tests included in the test package
Applicant: 3D Imaging & Simulation Corp.
49-3, Moonpyung-Dong, Daedeok-Gu, Daejeon, Korea
Manufacturer: 3D Imaging & Simulation Corp.
49-3, Moonpyung-Dong, Daedeok-Gu, Daejeon, Korea
Factory: 3D Imaging & Simulation Corp.
49-3, Moonpyung-Dong, Daedeok-Gu, Daejeon, Korea
Applicant Contact: Jungkook, Kim
Title: General Manager
Phone: +82-42-931-2100
E-mail: jkim@3-disc.com
Product Type: Computed Radiography Scanner
Trademark: 
3D Imaging & Simulations
Model Number: FireCR (Basic) and VetCR
FCC ID: X68CRSCANNER
Product standards: FCC Part 15 Subpart B Class B
Sample Serial Number: None (Proto type)
Sample Receive Date: March 2, 2010
Testing Start Date: March 2, 2010
Date Testing Complete: March 10, 2010
Overall Results: **PASS**

UL Korea Ltd. reports apply only to the specific samples tested under stated test conditions. All samples tested were in good operating condition throughout the entire test program. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. UL Korea Ltd. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from UL Korea Ltd. issued reports.

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TEST SUMMARY

TEST RESULT

| Requirement – Test | Reference standards | Verdict |
|---|---|----------|
| A.C. Power line Conducted Emission Test | 47CFR Part 15.107(a) / 47CFR Part 15.109(g) | Complied |
| Radiated Emission Test | | Complied |

The tests listed in the Summary of Testing section of this report have been performed and the results recorded by UL Korea, Ltd. in accordance with the procedures stated in each test requirement and specification. The applicant determined the list of tests performed were applicable to the Equipment Under Test. As a result, the subject product has been verified to comply or not comply as noted in the Summary of Testing with each test specification. The test results relate only to the items tested.

The equipment under test has

Met the technical requirements
 Not met the technical requirements


Tested by
Sung Hoon, Baek, Project Engineer
Conformity Assessment Services - 3014ASEO
UL Korea Ltd.
March 10, 2010


Reviewed by
Jeawoon, Choi, Senior Project Engineer
Conformity Assessment Services – 3014ASEO
UL Korea Ltd.
March 11, 2010

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1. EQUIPMENT UNDER TEST (EUT)

1.1 Report Revision history

| Revision Date | Description | Remarks | Revision reviewed By |
|---------------|-------------|---------|----------------------|
| Original | - | - | - |

1.2 Equipment Description

| Description: |
|---|
| This device is a Computed Radiography System and intended for use in producing digital X-Ray images for general radiography purposes. It comprises of scanner, cassette with reusable imaging plate and workstation software. It scans X-Ray exposed image plate and produces X-Ray image in digital form. Then, digital image is transferred to workstation for further processing and routing |

1.3 Details of Test Equipment (EUT)

| Equipment Configuration: | | | | |
|--|------------------------------|-------------------------------|----------------|-------------------------------|
| No. | Product Type | Manufacturer | Model | Comments |
| 1 | Computed Radiography Scanner | 3D Imaging & Simulation Corp. | FireCR (Basic) | VetCR (Model Number multiple) |
| Note: Description of variant model names. The manufacturer has declared to all the multiple model names into the basic model without any further evaluation by UL. The details model name differences are shown in the section 6. | | | | |

1.4 Equipment Specification

| Specifications | | |
|-------------------------------|------------------------|-------------|
| Sampling Pixel Pitch | Standard | 200um |
| | High | 100um |
| Pixel Matrix | Standard | 1750 x 2150 |
| | High | 3500 x 4300 |
| Scanning Time | Standard | 19 sec |
| | High | 38 sec |
| Accepted Cassette Size | 14 " x 17" | |
| Gray Scale Resolution | 16 bit | |
| Eraser | Embedded | |
| Erasing Time | 30 sec (User Settable) | |
| Scanning & Erasing Cycle Time | Standard | 49 sec |
| | High | 78 sec |

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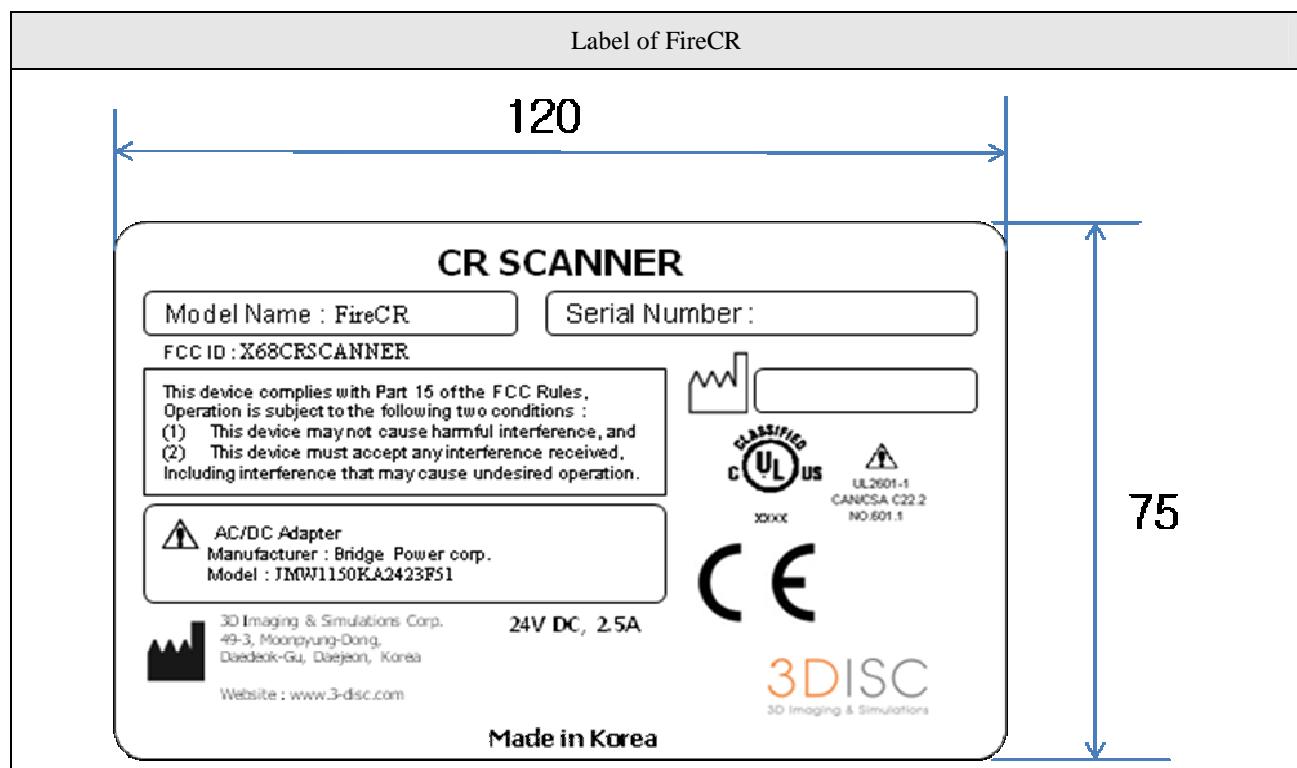
| | |
|----------------------|--|
| Computer Interface | USB 2.0 |
| Dimensions | 120 (H) x 460 (W) x 703 (D) mm 4.8 (H) x 18.3 (W) x 27.7 (D) inch |
| Weight | 30kg (65lbs) |
| Power Requirement | 100 ~ 240V / 50 ~ 60Hz |
| System Configuration | Tabletop |
| Application Software | Included |
| Image File Format | DICOM 3.0 |

1.5 Technical descriptions and documents:

| No. | Document Title and Description |
|-----|--------------------------------------|
| 1 | FireCR User Manual and specification |

Note: The manufacturer provided the following document.

1.6 Equipment Marking Plate



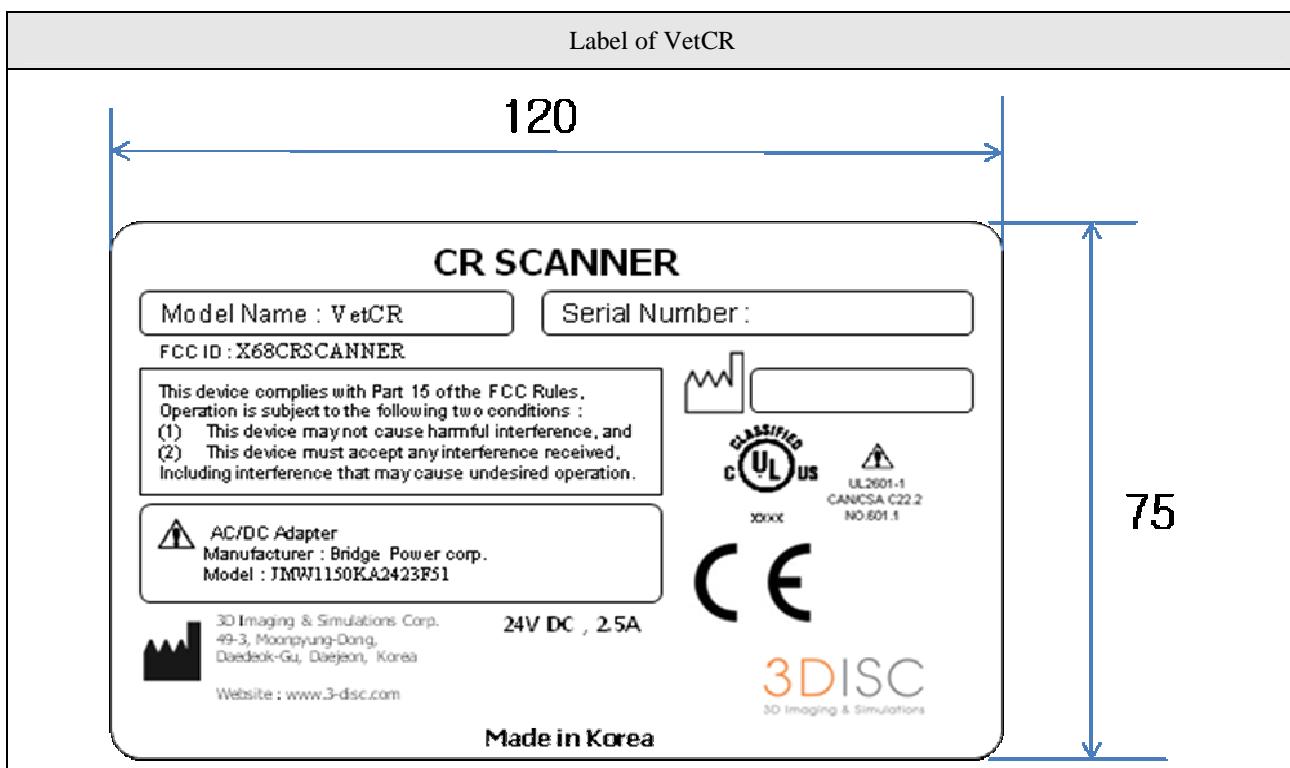
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1.7 Equipment Used During Test

| Use* | Product Type | Manufacturer | Model | Comments |
|------|------------------------------|-------------------------------|------------------|---------------------|
| EUT | Computed Radiography Scanner | 3D Imaging & Simulation Corp. | FireCR | - |
| EUT | A.C. to D.C. Adapter | AULT KOREA Corp. | JMW1150KA2423F51 | - |
| AE | PC | SMASUNG ELECTRONICS INC. | DM-Z69 | SN: BY3696BQ800836W |
| AE | LCD monitor | DELL INC | E228WFPc | SN: E228WFPc |
| AE | Mouse | PRIMAX Electronics Inc. | MOARUO | SN: MS-S5-AR03-01 |
| AE | Keyboard | MONTEREY INTERNATIONAL CORP | K6712MB | SN: 87A4532 |

* Note: **EUT** - Equipment Under Test, **AE** - Auxiliary/Associated Equipment, **SIM** - Simulator (Not Subjected to Test)

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1.8 EUT Input/Output Ports

| Port # | Name | Type* | Cable Max. >3m | Cable Shielded | Comments |
|--------|-------|-------|-------------------|-------------------|-------------------|
| 1 | Mains | AC | 1.0m | Unshielded | - |
| 2 | USB | I/O | 1.5m | Shielded | Connected with PC |

Note:

*AC = AC Power Port , DC = DC Power Port, N/E = Non-Electrical

I/O = Signal Input or Output Port (Not Involved in Process Control), TP= Telecommunication Ports

1.9 EUT Internal Operating Frequencies

| Frequency (MHz) | Description | Frequency (MHz) | Description |
|-----------------|------------------------|-----------------|--------------|
| 50.00 MHz | System reference Clock | 83.00 MHz | System Clock |
| 83.00 MHz | Memory Clock | - | - |

1.10 Power Interface

| Mode # | Voltage (V) | Current (A) | Power (W) | Frequency (DC/AC-Hz) | Comments |
|--------|-------------|-------------|-----------|----------------------|-------------------------------|
| Rated | 100-240Vac | 3.0A | - | 50-60Hz | Rated of A.C. to D.C. Adapter |
| 1 | 120 V | - | - | 60 Hz | - |

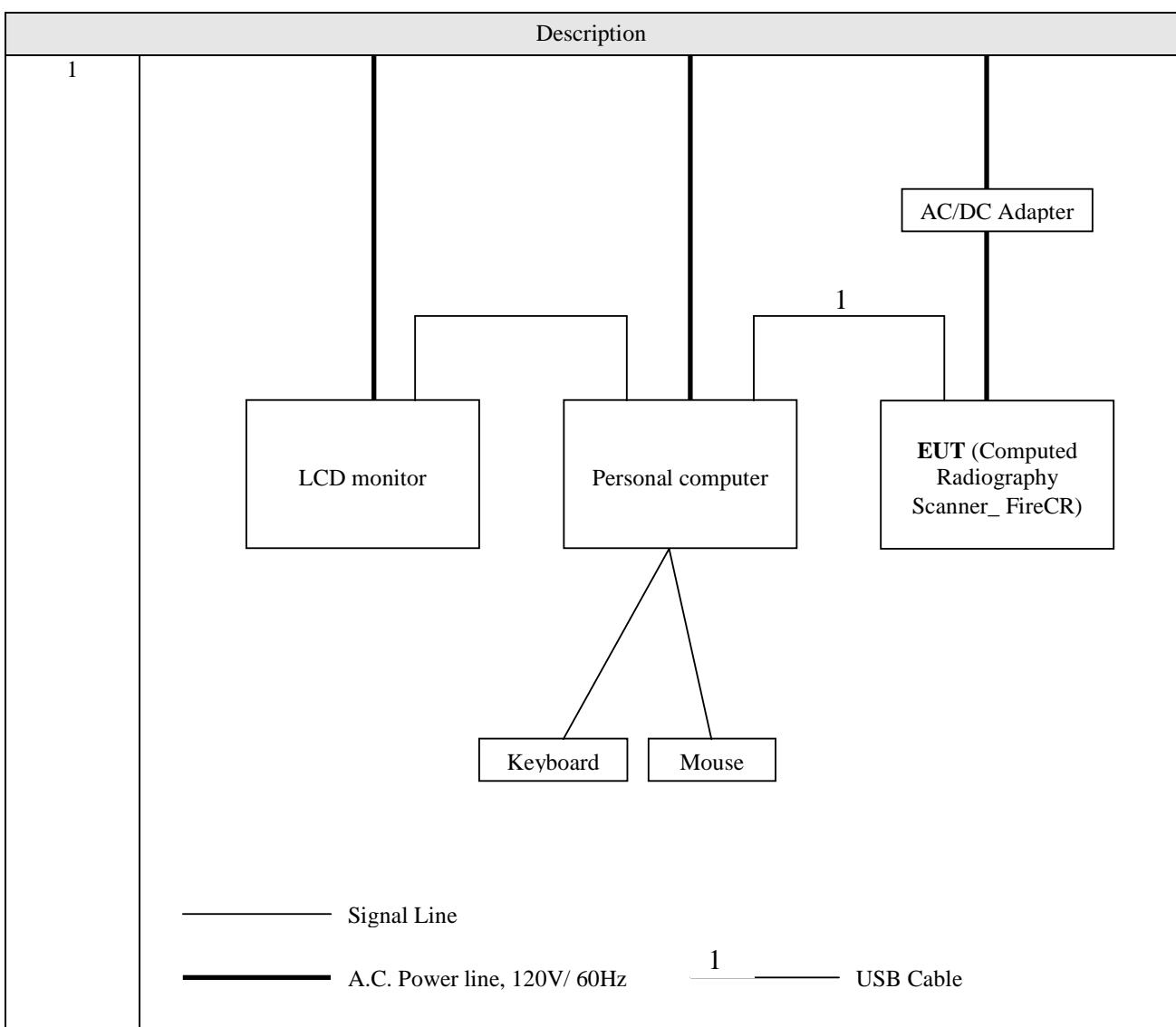
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2.0 TEST CONDITION

2.1 Test mode

| Mode # | Description |
|-----------|--|
| Test Mode | The measurement has been performed in the representative operation mode Computed Radiography Scanner (EUT) was powered by A.C. to D.C. adapter and Computed Radiography Scanner (EUT) has been performed under continuous scanning and the image in the memory of the Computed Radiography Scanner (EUT) is sending to the PC by using the software through the USB cable. |

2.2 Test configuration



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3.0 A.C. POWER LINE CONDUCTED EMISSION TEST

| TEST: Limits of mains terminal disturbance voltage | | | | | | |
|--|--|---|--|------------|--|--|
| Method | Measurements were made on a ground plane that extends 1-meter minimum beyond all sides of the system under test. All power was connected to the system through Artificial Mains Network (AMN). Conducted voltage measurements on mains lines were made at the output of the AMN. | | | | | |
| Parameters recorded during the test | | Laboratory Ambient Temperature | 16 °C | | | |
| | | Relative Humidity | 40 % | | | |
| - | | Frequency range on each side of line | Measurement Point | | | |
| Fully configured sample scanned over the following frequency range | | 150 kHz to 30 MHz | A.C. power ports of A.C. to D.C. Adapter | | | |
| Limits – Class B | | | | | | |
| Frequency (MHz) | Limit (dB μ V) | | | | | |
| | Quasi-Peak | Results | Average | Results | | |
| 0.15 to 0.50 | 66 to 56 | Pass | 56 to 46 | Pass | | |
| 0.50 to 5 | 56 | Pass | 46 | Pass | | |
| 5 to 30 | 60 | Pass | 50 | Pass | | |
| Conducted Emissions EUT Configuration Settings | | | | | | |
| Power Interface Mode # (See Section 1.10) | | EUT Operation Mode # (See Section 2.1) | EUT Configurations Mode # (See Section 2.2) | | | |
| 1 | | 1 | 1 | | | |
| Test Equipment Used | | | | | | |
| Description | Manufacturer | Model | Identifier | Cal. Due | | |
| LISN | Rohde & Schwarz | ESH3-Z5 | 838979/010 | 2011.02.01 | | |
| TEST Receive | Rohde & Schwarz | ESPI7 | 100185 | 2011.02.01 | | |
| Pulse Limiter | Rohde & Schwarz | ESH3Z2 | None | 2011.02.01 | | |
| LISN | Rohde & Schwarz | ESH3-Z5 | 838979/010 | 2011.02.01 | | |

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Figure 1. Conducted Emission Test Setup

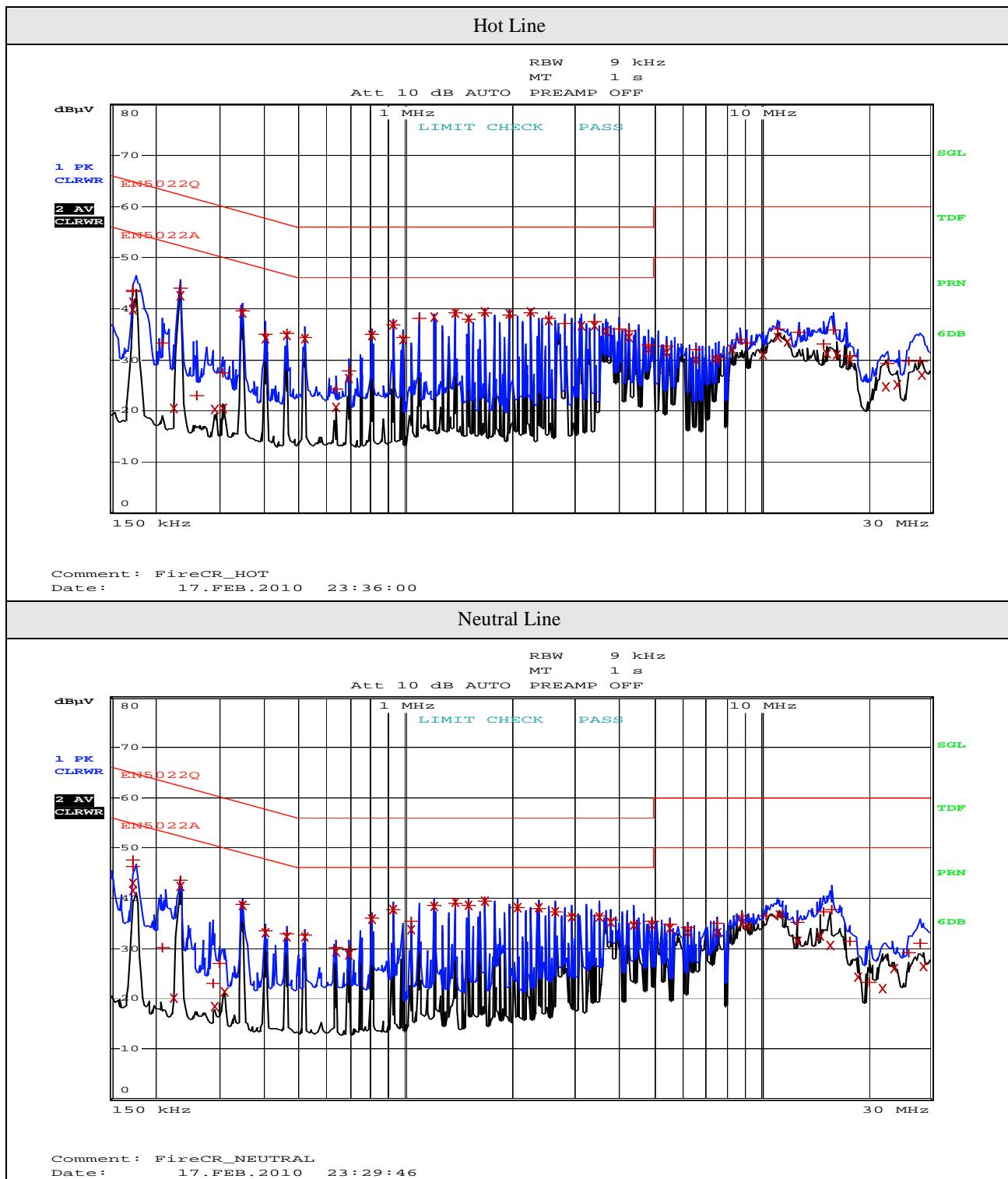


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Figure 2. Graphical representation



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Table 1. Test data for conducted emission

| Test Frequency (MHz) | Correction Factor | | Reading value (dBuV) | | Line | Level (dBuV) | | Limit (dBuV) | | Margin (dB) | |
|----------------------|-------------------|------|----------------------|-------|------|--------------|-------|--------------|-------|-------------|-------|
| | Cable | LISN | QP | AV | | QP | AV | QP | AV | QP | AV |
| 0.17 | 0.3 | 0.09 | 47.62 | 42.89 | N | 47.96 | 43.23 | 64.77 | 54.77 | 16.81 | 11.54 |
| 0.23 | 0.3 | 0.09 | 43.92 | 42.53 | H | 44.26 | 42.87 | 62.41 | 52.41 | 18.15 | 9.54 |
| 0.35 | 0.3 | 0.09 | 39.65 | 39.25 | H | 40.02 | 39.62 | 59.01 | 49.01 | 18.99 | 9.39 |
| 1.39 | 0.5 | 0.12 | 39.17 | 39.09 | H | 39.78 | 39.70 | 56.00 | 46.00 | 16.22 | 6.30 |
| 1.50 | 0.5 | 0.13 | 38.46 | 38.44 | N | 39.06 | 39.04 | 56.00 | 46.00 | 16.94 | 6.96 |
| 1.68 | 0.5 | 0.13 | 39.43 | 39.32 | N | 40.02 | 39.91 | 56.00 | 46.00 | 15.98 | 6.09 |
| 2.25 | 0.4 | 0.15 | 39.26 | 39.23 | H | 39.86 | 39.83 | 56.00 | 46.00 | 16.14 | 6.17 |
| 11.21 | 0.9 | 0.44 | 36.10 | 34.43 | H | 37.48 | 35.81 | 60.00 | 50.00 | 22.52 | 14.19 |
| 15.94 | 1.0 | 0.71 | 37.79 | 30.47 | N | 39.52 | 32.20 | 60.00 | 50.00 | 20.48 | 17.80 |

Note:

1. Margin (dB)= Limit (dBuV) - Level (dBuV)
2. If no frequencies are specified in the tables, no measurement for quasi-peak or average was necessary.

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4.0 RADIATED EMISSION TEST

| TEST: Limits for radiated disturbance | | | | |
|--|--|-----------|--|------------|
| Method | Measurements were made at Open area test site that complies to CISPR 16/ANSI C63.4. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3-meter. The EUT was rotated 360° about its azimuth with the receive antenna located at 1, 2, 3 and 4 meter heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable. | | | |
| Parameters recorded during the test | Laboratory Ambient Temperature | | 17 °C | |
| | Relative Humidity | | 38 % | |
| - | Frequency range | | Measurement Point | |
| Fully configured sample scanned over the following frequency range | 30 MHz – 1.0 GHz | | 3 meter measurement distance | |
| Limits - Class B | | | | |
| Frequency (MHz) | Limit (dB μ V/m) | | Results | |
| 30 to 88 | 40 | | Pass | |
| 88 to 216 | 43.5 | | Pass | |
| 216 to 960 | 46 | | Pass | |
| Above 960 | 54 | | Pass | |
| Radiated Emissions EUT Configuration Settings | | | | |
| Power Interface Mode # (See Section 1.10) | EUT Operation Mode # (See Section 2.1) | | EUT Configurations Mode # (See Section 2.2) | |
| 1 | 1 | | 1 | |
| Test Equipment Used | | | | |
| Description | Manufacturer | Model | Identifier | Cal. Due |
| Receiver | Rohde & Schwarz | ESVS10 | 838562/002 | 2011.01.29 |
| Spectrum Analyzer | ADVANTEST | R3273 | 110600592 | 2011.02.01 |
| Logbicon Antenna | Schwarzbeck | VULB 9160 | 3142 | 2010.05.13 |
| Amplifier | HP | 8447F | 2805A02972 | 2011.02.01 |

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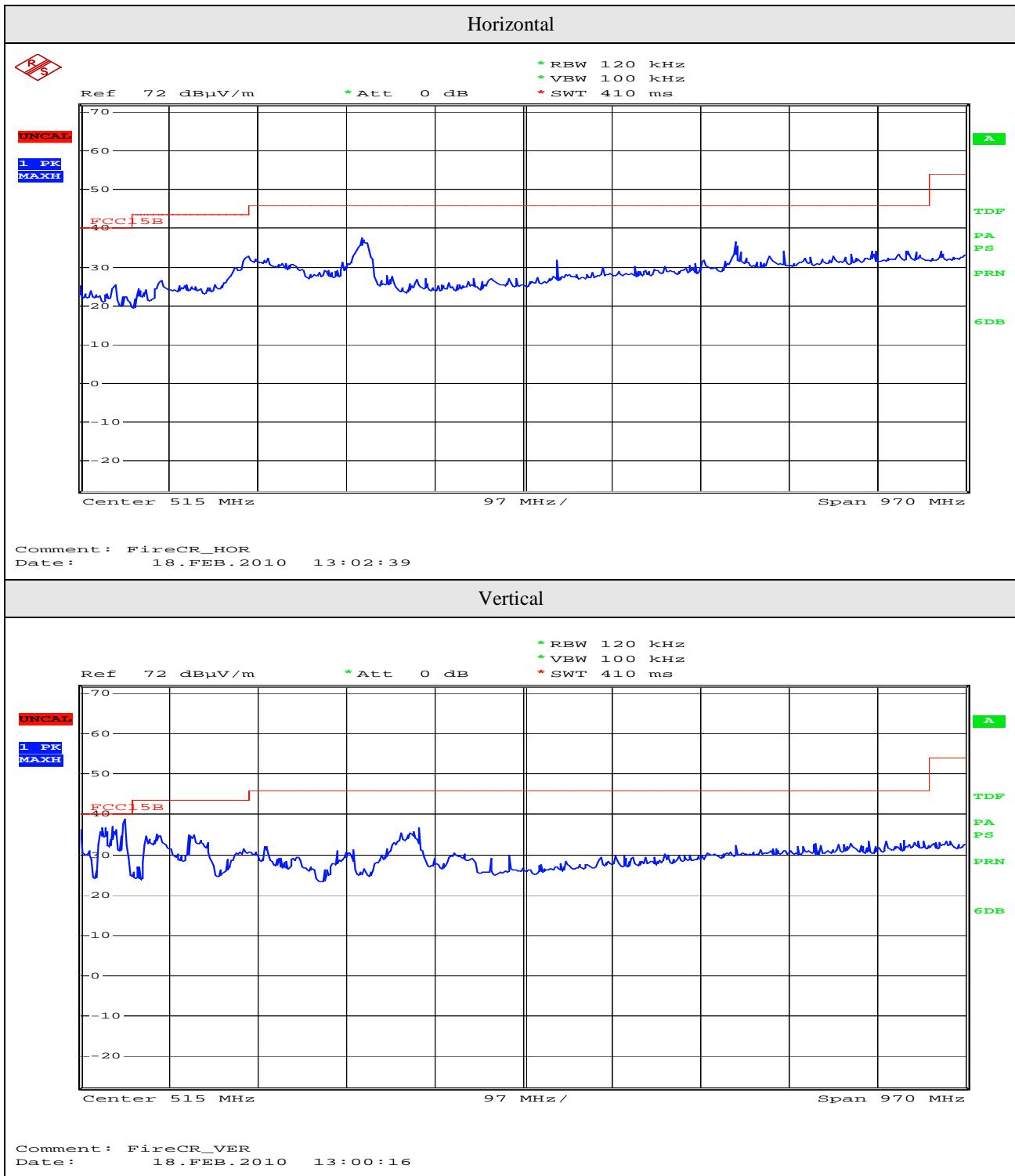
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Figure 3. Photo of Radiated emission test setup



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Figure 4. Graphical representation



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Table 2. Radiated emission Test data

| Frequency Reading (MHz) | Reading (dBuV/m) | Polarization | Ant. Factor (dB) | Cable Loss (dB) | Limit (dBuV/m) | Emission Level (dBuV/m) | Margin (dB) |
|-------------------------|------------------|--------------|------------------|-----------------|----------------|-------------------------|-------------|
| 30.00 | 21.30 | V | 10.94 | 0.9 | 40.0 | 33.12 | 6.88 |
| 40.47 | 10.20 | H | 11.85 | 1.0 | 40.0 | 23.02 | 16.98 |
| 80.21 | 21.40 | V | 8.47 | 1.4 | 40.0 | 31.25 | 8.75 |
| 108.01 | 21.30 | H | 10.17 | 1.6 | 43.5 | 33.06 | 10.44 |
| 117.87 | 14.50 | H | 11.07 | 1.7 | 43.5 | 27.30 | 16.20 |
| 220.15 | 10.40 | V | 10.46 | 2.5 | 46.00 | 23.39 | 22.61 |
| 312.00 | 10.30 | V | 13.45 | 3.3 | 46.00 | 27.06 | 18.94 |
| 360.03 | 7.00 | H | 14.42 | 3.7 | 46.00 | 25.11 | 20.89 |
| 400.10 | 9.00 | H | 15.43 | 4.0 | 46.00 | 28.43 | 17.57 |
| 480.08 | 18.20 | V | 17.10 | 4.6 | 46.00 | 39.89 | 6.11 |
| 516.84 | 8.50 | V | 17.71 | 4.9 | 46.00 | 31.10 | 14.90 |
| 620.31 | 7.20 | V | 20.02 | 5.5 | 46.00 | 32.77 | 13.23 |
| 851.89 | 3.10 | H | 23.06 | 7.3 | 46.00 | 33.47 | 12.53 |

Supplementary information:

- The correction value has been included the Emission level measured value with offset
- Correction = Cable loss + Antenna Factor

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5.0 MEASUREMENT UNCERTAINTY

| Measurement Uncertainty | |
|---|--|
| All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are test receiver, cable loss, antenna factor calibration, Antenna directivity, antenna factor variation with height, antenna phase center variation, antenna frequency interpolation, measurement distance variation, site imperfection, mismatch, and system repeatability. Based on CISPR 16-4-2, the measurement uncertainty level with a 95% confidence level was applied. | |
| Conducted emission measurement :(k=2, 95%) | |
| Frequency | dB |
| 9kHz-150 kHz | ± 3.05 [dBuV] |
| 150kHz-30 MHz | ± 2.53 [dBuV] |
| Radiated Emission measurement :(k=2, 95%) | |
| 30-300 MHz | 3 m: ±3.53 [dBuV/m], 10 m: ± 3.52 [dBuV/m] |
| 300-1000 MHz | 3 m: ±3.70 [dBuV/m], 10 m: ± 3.69 [dBuV/m] |

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6.0 AFFIDAVIT FOR MULTILISTING MODEL DESCRIPTION



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Homepage : www.3-disc.com e-mail : jiinjung@3-disc.com

AFFIDAVIT FOR MULTILISTING MODEL DESCRIPTION

We hereby confirm that the Computed radiography system, model FireCR manufactured by 3D Imaging & Simulations Corp. as a basic application. The Computed radiography system has several mutilating models as described below and these mutilating models are the same as basic model except the model name designation and are the same characteristic and construction in electronically and mechanically. So, we declare that these mutilating models to be added on the basic application could be applied without any further engineering investigation and evaluation.

Basic model : FireCR

| Model Name Designation | Definition of model name differentiation |
|--|--|
| FireCR |  |
| VetCR |  |
| Both products are identical, only difference is the model name printed on the enclosure. | |

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Sincerely,



Signature

Typed Name : Sungwoon, Lee
Title : CEO
Department :
Company : 3D IMAGING & SIMULATIONS CORP
Tel : +82-42-931-2100
E-mail : swlee@3-disc.com

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7.0 ACCREDITATIONS AND AUTHORIZATIONS



MIC: Designated as a testing laboratory by Radio Research Laboratory in accordance with the Regulation on Designation of Testing Laboratory for Information and Communication Equipment. Registration No. : KR0033



FCC: Filed Laboratory at Federal Communications Commission (reference no : 100749)



VCCI : Granted Accreditation from Voluntary Control Council for Interference from ITE (reference no : C-1872, R-1757)