TEST RESULT SUMMARY

FCC Part 15 Subpart C Section 15.207
FCC Part 15 Subpart C Section 15.209
IC RSS-210 Issue 8
IC RSS-Gen Issue 3

MANUFACTURER'S NAME	Carestream Health Incorporated 150 Verona Street Rochester NY 14608
PRODUCT NAME	DRYVIEW 5700 Laser Imaging System
MODEL NUMBER(S) TESTED	DRYVIEW 5700 Laser Imaging System
SERIAL NUMBER(S) TESTED	EM7
PRODUCT DESCRIPTION	Laser Imager with a 13.56 MHz RFID
TEST REPORT NUMBER	WC1008566.3
TEST DATE(S)	10-13 December 2010

TÜV SÜD America Inc, as an independent testing laboratory, declares that the equipment tested as specified above conforms to the applicable EMC requirements of FCC Part 15 Subpart C Sections 15.207 “Conducted Limits” and 15.209 “Radiated emission limits; general requirements” and IC RSS-210 “Low-power License-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment” and IC RSS-Gen “General Requirements and Information for the Certification of Radiocommunication Equipment”.

It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics. Any modifications necessary for compliance made during testing on the above mentioned date(s) must be implemented in all production units for compliance to be maintained.

Date: 24 January 2011

Location: Taylors Falls MN
USA

Greg S Jakubowski
Senior EMC Technician

Joel T Schneider
Senior EMC Engineer

Not Transferable

EMC TEST REPORT

Test Report No.	**WC1008566.3**	Date of issue:	24 January 2011
Product Name	DRYVIEW 5700 Laser Imaging System		
Model(s) Tested	DRYVIEW 5700 Laser Imaging System		
Serial No(s) Tested	EM7		
Product Description	Laser Imager with 13.56 MHz RFID		
Manufacturer	Carestream Health Incorporated 150 Verona Street Rochester NY 14608		

Test Result ■ **Positive** ☐ **Negative**

TÜV SÜD America Inc reports apply only to the specific samples tested under stated test conditions. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. TÜV SÜD America Inc shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD America Inc issued reports.

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REVISION RECORD

REVISION	TOTAL NUMBER OF PAGES	DATE	DESCRIPTION
	31	24 January 2011	Initial Release

DIRECTORY

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EMC TEST REGULATIONS:
The tests were performed according to the following regulations:
FCC Part 15 Subpart C Section 15.207 Paragraph (a)
FCC Part 15 Subpart C Section 15.209 Paragraphs (a), (c), (f)
IC RSS-210 Issue 8 Section 2.5
IC RSS-Gen Issue 3 Sections 4.6.1, 7.2.5

ENVIRONMENTAL CONDITIONS IN THE LAB

	Actual
Temperature:	: 21-23°C
Atmospheric pressure	: 98-100kPa
Relative Humidity	: 5-8%

POWER SUPPLY UTILIZED

Power supply system	: 110 V / 60 Hz

TEST EQUIPMENT
All measurement instrumentation is traceable to the National Institute of Standards and Technology and is calibrated according to internal procedure.

MEASUREMENT UNCERTAINTY
The test system for conducted emissions is defined as the LISN, tuned receiver or spectrum analyzer, and coaxial cable. The test system has a measurement uncertainty of ±1.8 dB. The test system for radiated emissions is defined as the antenna, the pre-amplifier, the spectrum analyzer and the coaxial cable. The test system has a measurement uncertainty of ±4.8 dB. The equipment comprising the test systems is calibrated on an annual basis

SIGN EXPLANATIONS
☐ - not applicable
■ - applicable

General field strength limits 0.009 – 30 MHz
FCC 15.209(a), FCC 15.209(c), IC RSS-210 2.5, RSS-Gen 7.2.5

Test summary
The requirements are: ■ - MET ☐ - NOT MET
Testing was performed in accordance with the test procedure of ANSI C63.4 2003, clause 8.2.2.
Maximum field strength of the fundamental is -3.8 dBμV/m* or 0.646 μV/m at 30 meters at 13.56 MHz. Minimum margin of compliance of the fundamental is 33 dB. Maximum field strength of spurious emissions is -36 dBμV/m* or 0.015 μV/m at 30 meters at 27.12 MHz. Minimum margin of compliance of the spurious emission is 65 dB. No unwanted emissions exceed the level of the fundamental.
***Extrapolated levels using a 40 dB/decade falloff as indicated by the measurements.

Test location
■ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)

Test distance
■ - 0.3 meters
■ - 1.0 meters
■ - 3 meters

Test equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Due
WRLE02517	HFH2-Z2	Polarad	Loop Antenna	879285/036	29-Jul-11

Test limit

Frequency (MHz)	Field strength μV/m	Measurement distance (m)
0.009-0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30	30	30

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

Test Data, dBμV/m

Frequency (MHz)	Detector	Distance 0.3 m	1.0 m	3.0 m	dBμV/m 30 m	μV/m 30 m	Limit dBμV/m 30 m	Limit μV/m 30 m	Delta (dB)
13.56	QP		60.1	36.2	-3.8*	0.646*	29.5	30	-33.3
27.12	QP	44	nf	nf	-36*	0.015*	29.5	30	-65.5

* Extrapolated value using 40 dB per decade fall off as indicated by measurements
nf = noise floor No other signals detected up to 30 MHz.

Radiated emissions in the frequency range of 10 kHz to 30 MHz, including the fundamental transmit signal, are measured using a receiver capable of quasi-peak/average/peak measurements and a magnetic loop antenna. The transmitter and loop antenna are rotated through 3 orthogonal axes in order to determine the maximum emission levels. If the signal cannot be measured at the specified limit distance, measurements are recorded at multiple distances nearer to the device and the final level mathematically extrapolated. Measurements between 150 kHz and 30 MHz are made with a 9 kHz resolution bandwidth. Measurements between 9 kHz and 150 kHz are made with a 200 Hz resolution bandwidth.

Radiated Emissions 30 - 8000 MHz

FCC 15.209(c), FCC 15.209(f), IC RSS-210 2.5, RSS-Gen 7.2.5

Test summary

The requirements are: ■ - MET ☐ - NOT MET

Testing was performed in accordance with the test procedure of ANSI C63.4 2003, clause 8.3. Maximum spurious emission below 135.6 MHz is 37.48 dBμV/m (74.8 μV/m) at 3 meters at 44.36 MHz. Minimum margin of compliance is 2.52 dB. Maximum spurious emission of incorporated digital device above 135.6 MHz and below 1000 MHz is 47.24 dBμV/m (230 μV/m) at 3 meters at 672 MHz. Minimum margin of compliance is 9.16 dB to extrapolated 3 meter limit. No radiated emissions were detected from the receiver. Maximum spurious emission of incorporated digital device above 1000 MHz is 55.38 dBμV/m (587 μV/m) in peak detection mode at 3 meters at 1.596 GHz vs. the average limit. Minimum margin of compliance is 4.62 dB to extrapolated 3 meter limit.

Test limits

Transmitter and 15.205 restricted bands

Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

Incorporated digital device/Receiver – Class A device

Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)	Field strength @ 3 m (μV/m)
30 - 88	90	39	10	300
88 - 216	150	43.5	10	500
216 - 960	210	46.4	10	700
Above 960	300	49.5	10	1000

The emission limits shown in the above tables are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. When average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, *e.g.*, see §§ 15.250, 15.252, 15.255, and 15.509–15.519, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. Radiated emissions from the EUT are measured in the frequency range of 30 to 1000 MHz using a spectrum analyzer and appropriate broadband linearly polarized antennas. Measurements between 30 MHz and 1000 MHz are made with a 120 kHz / 6 dB bandwidth and quasi-peak detection and measurements above 1000 MHz are made with a 1 MHz RBW/VBW / 6 dB bandwidth and peak detection, 1 MHz RBW/ 10 Hz VBW for average detection. Table top equipment is placed on a non-conductive support 80 cm above the ground plane. Interface cables that are closer than 40 centimeters to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimeters from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screen room located outside the test area. The antenna is positioned 3, 10 or 30 meters horizontally from the EUT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 meters, measurement scans are made with both horizontal and vertical antenna polarizations and the EUT is rotated 360 degrees. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB / decade (inverse linear-distance for field strength measurements).

Test location
■ - Wild River Lab Large Test Site (Open Area Test Site)

Test distance
■ - 3 meters

Test Equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Due
NBLE03196	8566B	Hewlett-Packard	Spectrum Analyzer	2240A01856	19-Oct-11
NBLE03195	85662A	Hewlett-Packard	Analyzer Display	2648A13518	19-Oct-11
OWLE02074	3115	EMCO	Ridge Guide Ant. 1-18 GHz	2504	09-Feb-11
WRLE10527	SL18B4020	Phase One Microwave	Preamplifier 1 – 18 GHz	0001	Code B 05-Oct-11

Cal Code B = Calibration verification performed internally.

Test data - See following pages

Measurement summary for limit1: FCC 15.209 to 135.6MHz (Qp) and restricted bands of 15.205

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC 15.209 to 135.6MHz	FINAL (uV / m)
44.362 MHz	50.86 Qp	0.47 / 15.84 / 29.69 / 0.0	37.48	V / 1.00 / 127	-2.52	74.8
84.424 MHz	56.54 Qp	0.78 / 7.17 / 29.64 / 0.0	34.84	V / 1.44 / 39	-5.16	
250.004 MHz	51.75 Qp	1.45 / 12.01 / 29.56 / 0.0	35.65	H / 1.00 / 270	-10.35	
240.722 MHz	50.65 Qp	1.42 / 11.66 / 29.6 / 0.0	34.13	H / 1.00 / 0	-11.87	
272.81 MHz	49.4 Qp	1.52 / 12.64 / 29.48 / 0.0	34.08	V / 1.00 / 270	-11.92	
125.0 MHz	49.1 Qp	1.0 / 8.6 / 29.6 / 0.0	29.1	V / 1.00 / 0	-14.4	
331.784 MHz	44.8 Qp	1.7 / 14.14 / 29.48 / 0.0	31.15	V / 1.00 / 0	-14.85	
400.484 MHz	42.75 Qp	1.9 / 15.78 / 29.38 / 0.0	31.06	V / 1.00 / 180	-14.94	
162.734 MHz	47.0 Qp	1.15 / 8.67 / 29.56 / 0.0	27.26	H / 2.00 / 180	-16.24	
128.834 MHz	46.75 Qp	1.02 / 8.37 / 29.6 / 0.0	26.54	V / 1.00 / 0	-16.96	
282.632 MHz	40.25 Qp	1.55 / 12.58 / 29.45 / 0.0	24.94	V / 1.00 / 0	-21.06	
256.772 MHz	39.15 Qp	1.47 / 12.26 / 29.54 / 0.0	23.34	H / 1.00 / 270	-22.66	

Measurement summary for limit1: FCC-A <1GHz 3m (Qp)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-A <1GHz 3m	FINAL (uV / m)
672.009 MHz	54.35 Qp	2.58 / 19.69 / 29.39 / 0.0	47.24	H / 2.00 / 0	-9.16	230
189.98 MHz	59.15 Qp	1.26 / 10.45 / 29.53 / 0.0	41.32	H / 1.00 / 270	-12.18	
480.003 MHz	52.85 Qp	2.1 / 17.23 / 29.35 / 0.0	42.83	V / 1.00 / 270	-13.57	
185.594 MHz	57.85 Qp	1.24 / 10.14 / 29.54 / 0.0	39.69	H / 1.00 / 270	-13.81	
198.314 MHz	56.95 Qp	1.29 / 10.63 / 29.53 / 0.0	39.35	H / 2.00 / 270	-14.15	
500.007 MHz	49.6 Qp	2.15 / 17.6 / 29.38 / 0.0	39.97	V / 1.00 / 270	-16.43	
304.904 MHz	52.75 Qp	1.61 / 13.29 / 29.42 / 0.0	38.23	V / 1.00 / 270	-18.17	
768.011 MHz	42.3 Qp	2.82 / 21.53 / 29.22 / 0.0	37.42	V / 1.00 / 270	-18.98	
350.012 MHz	50.3 Qp	1.75 / 14.74 / 29.46 / 0.0	37.34	V / 1.00 / 270	-19.06	
375.014 MHz	48.45 Qp	1.83 / 15.6 / 29.36 / 0.0	36.52	V / 1.00 / 270	-19.88	
319.496 MHz	48.35 Qp	1.66 / 13.75 / 29.45 / 0.0	34.3	H / 1.00 / 270	-22.1	
288.008 MHz	49.3 Qp	1.56 / 12.75 / 29.43 / 0.0	34.19	V / 1.00 / 180	-22.21	
194.27 MHz	48.55 Qp	1.28 / 10.75 / 29.53 / 0.0	31.05	H / 1.00 / 90	-22.45	
336.008 MHz	47.3 Qp	1.71 / 14.27 / 29.49 / 0.0	33.79	V / 1.00 / 0	-22.61	
700.007 MHz	39.75 Qp	2.65 / 20.14 / 29.36 / 0.0	33.18	H / 1.00 / 180	-23.22	
344.072 MHz	45.0 Qp	1.73 / 14.54 / 29.48 / 0.0	31.79	V / 1.00 / 0	-24.61	
720.005 MHz	37.3 Qp	2.7 / 20.27 / 29.32 / 0.0	30.95	H / 1.00 / 180	-25.45	
144.008 MHz	47.25 Qp	1.08 / 9.02 / 29.58 / 0.0	27.76	H / 2.00 / 270	-25.74	
715.919 MHz	36.9 Qp	2.69 / 20.13 / 29.33 / 0.0	30.39	V / 1.00 / 0	-26.01	
148.124 MHz	42.7 Qp	1.09 / 9.49 / 29.58 / 0.0	23.7	V / 1.00 / 0	-29.8	

Measurement summary for limit1: FCC-A >1GHz 3m av (Av)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-A >1GHz 3m av	FINAL (uV / m)
1.596 GHz**	67.55 Pk	3.82 / 26.16 / 42.15 / 0.0	55.38	V / 1.00 / 317	-4.62*	587*
1.708 GHz**	65.94 Av	4.02 / 26.7 / 42.42 / 0.0	54.23	V / 1.44 / 102	-5.77	515
1.597 GHz**	65.5 Pk	3.82 / 26.17 / 42.15 / 0.0	53.34	V / 1.00 / 0	-6.66*	
1.237 GHz**	62.0 Pk	3.34 / 25.73 / 41.75 / 0.0	49.32	V / 1.00 / 0	-10.68*	
1.248 GHz	61.42 Av	3.35 / 25.7 / 41.65 / 0.0	48.83	V / 1.00 / 60	-11.17	
1.138 GHz**	60.65 Pk	3.23 / 25.46 / 40.81 / 0.0	48.52	V / 1.00 / 0	-11.48*	
1.06 GHz**	59.5 Pk	3.13 / 25.03 / 40.27 / 0.0	47.39	V / 1.00 / 0	-12.61*	
2.994 GHz	52.3 Pk	5.46 / 29.84 / 43.26 / 0.0	44.34	V / 1.00 / 0	-15.66*	
2.566 GHz	54.2 Pk	4.99 / 28.63 / 43.94 / 0.0	43.89	V / 1.00 / 0	-16.11*	
1.33 GHz**	55.05 Pk	3.44 / 25.61 / 41.07 / 0.0	43.03	V / 1.00 / 0	-16.97*	
1.283 GHz	54.2 Pk	3.39 / 25.63 / 41.33 / 0.0	41.9	V / 1.50 / 73	-18.1*	
1.281 GHz	53.03 Av	3.39 / 25.64 / 41.34 / 0.0	40.71	V / 1.52 / 68	-19.29	
1.709 GHz**	51.2 Pk	4.02 / 26.7 / 42.43 / 0.0	39.5	V / 1.00 / 0	-20.5*	
2.563 GHz	49.45 Pk	4.99 / 28.62 / 43.94 / 0.0	39.12	V / 1.00 / 0	-20.88*	
1.056 GHz**	51.2 Pk	3.13 / 25.01 / 40.33 / 0.0	39.01	V / 1.00 / 0	-20.99*	
1.824 GHz	43.9 Pk	4.21 / 27.26 / 42.87 / 0.0	32.5	V / 1.00 / 0	-27.5*	
2.136 GHz	44.2 Pk	4.54 / 27.76 / 44.07 / 0.0	32.42	V / 1.00 / 0	-27.58*	

*** Peak measurement against the average limit** ****Not due to transmitter.**

Measurement summary for limit2: FCC A >1G 3 M pk (Pk)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA2 FCC A >1G 3 M pk	FINAL (uV / m)
1.708 GHz**	67.3 Pk	4.02 / 26.7 / 42.42 / 0.0	55.59	V / 1.44 / 102	-24.41	602
1.596 GHz**	67.55 Pk	3.82 / 26.16 / 42.15 / 0.0	55.38	V / 1.00 / 317	-24.62	
1.597 GHz**	65.5 Pk	3.82 / 26.17 / 42.15 / 0.0	53.34	V / 1.00 / 0	-26.66	
1.248 GHz	62.9 Pk	3.35 / 25.7 / 41.65 / 0.0	50.31	V / 1.00 / 60	-29.69	
1.237 GHz**	62.0 Pk	3.34 / 25.73 / 41.75 / 0.0	49.32	V / 1.00 / 0	-30.68	
1.138 GHz**	60.65 Pk	3.23 / 25.46 / 40.81 / 0.0	48.52	V / 1.00 / 0	-31.48	
1.06 GHz**	59.5 Pk	3.13 / 25.03 / 40.27 / 0.0	47.39	V / 1.00 / 0	-32.61	
2.994 GHz	52.3 Pk	5.46 / 29.84 / 43.26 / 0.0	44.34	V / 1.00 / 0	-35.66	
2.566 GHz	54.2 Pk	4.99 / 28.63 / 43.94 / 0.0	43.89	V / 1.00 / 0	-36.11	
1.281 GHz	55.55 Pk	3.39 / 25.64 / 41.34 / 0.0	43.23	V / 1.52 / 68	-36.77	
1.33 GHz**	55.05 Pk	3.44 / 25.61 / 41.07 / 0.0	43.03	V / 1.00 / 0	-36.97	
1.283 GHz	54.2 Pk	3.39 / 25.63 / 41.33 / 0.0	41.9	V / 1.50 / 73	-38.1	
1.709 GHz**	51.2 Pk	4.02 / 26.7 / 42.43 / 0.0	39.5	V / 1.00 / 0	-40.5	
2.563 GHz	49.45 Pk	4.99 / 28.62 / 43.94 / 0.0	39.12	V / 1.00 / 0	-40.88	
1.056 GHz**	51.2 Pk	3.13 / 25.01 / 40.33 / 0.0	39.01	V / 1.00 / 0	-40.99	
1.824 GHz	43.9 Pk	4.21 / 27.26 / 42.87 / 0.0	32.5	V / 1.00 / 0	-47.5	
2.136 GHz	44.2 Pk	4.54 / 27.76 / 44.07 / 0.0	32.42	V / 1.00 / 0	-47.58	

Occupied bandwidth
RSS-Gen 4.6.1

Test summary
The requirements are: ■ - MET ☐ - NOT MET
Test was performed in accordance with the article “The Measurement of Occupied Bandwidth” by Industry Canada’s certification bureau.
Occupied bandwidth = 2.83 kHz

Test location
■ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)

Test equipment

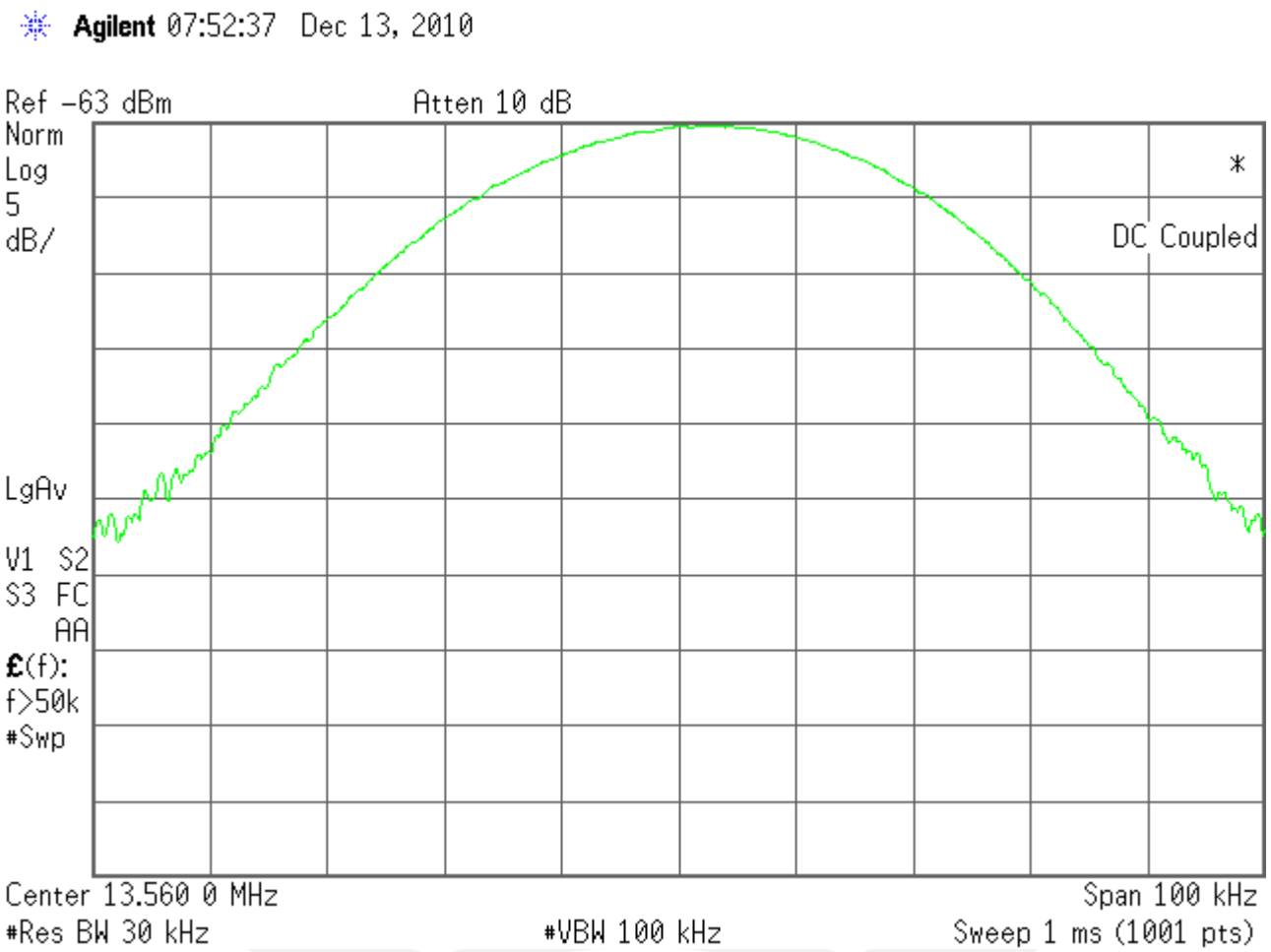
TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
WRLE02517	HFH2-Z2	Polarad	Loop Antenna	879285/036	29-Jul-11
WRLE03371	E4440A	Agilent	Spectrum Analyzer	MY43362222	09-Aug-11

Cal Code B = Calibration verification performed internally. Cal Code Y = Calibration not required when used with other calibrated equipment.

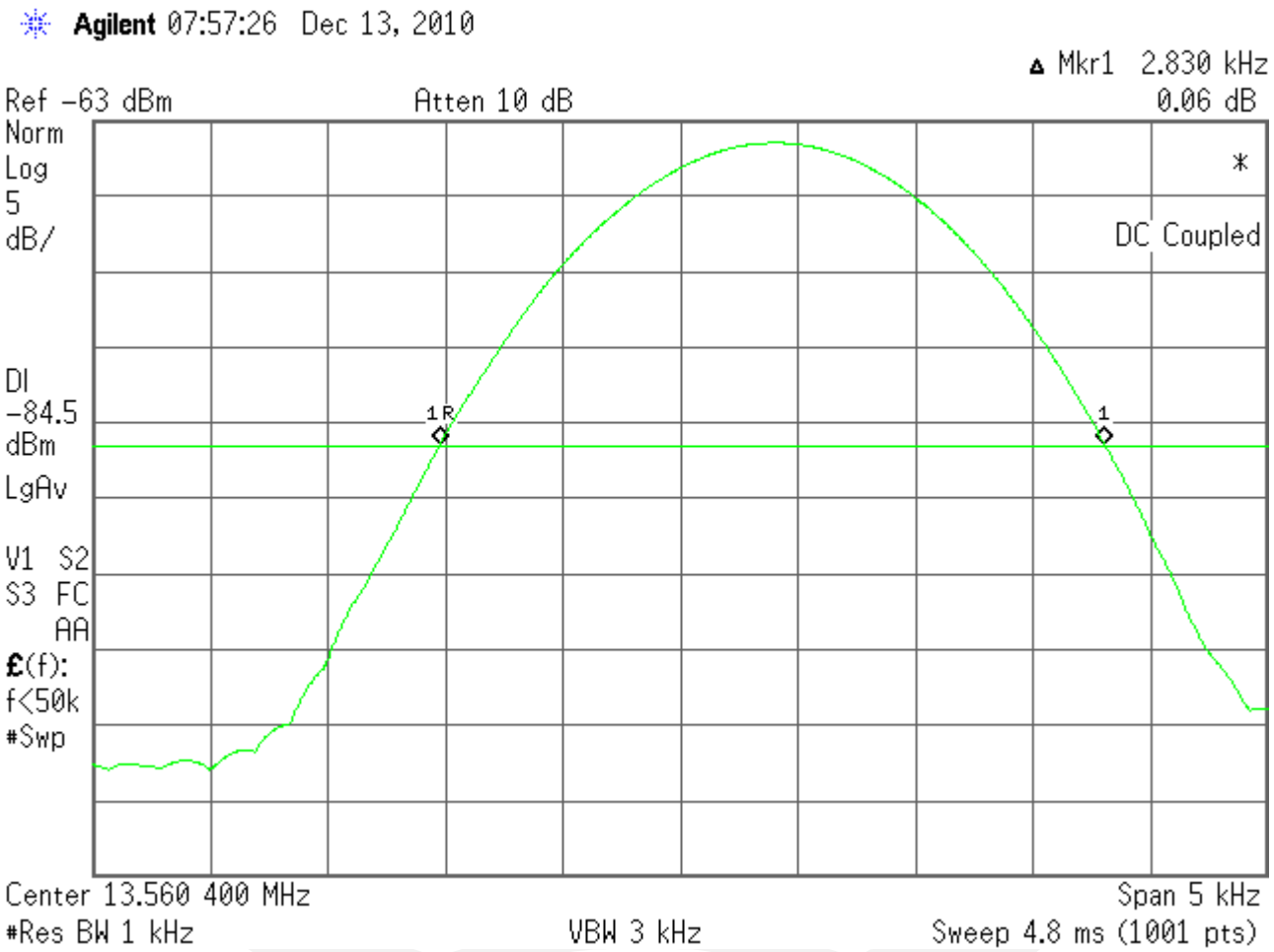
Test limit
No limit specified

Test data
See following pages

99% Occupied bandwidth
1 of 2



99% Occupied bandwidth
2 of 2



Conducted Emissions - AC Power Lines
FCC 15.207(a), IC RSS-Gen 7.2.4

Test summary
The requirements are: ■ - MET ☐ - NOT MET
Testing was performed in accordance with the test procedure of ANSI C63.4 2003, clause 7.2
Minimum margin of compliance is 8.9 dB at 450 kHz – quasi-peak
Minimum margin of compliance is 5.8 dB at 27.26 MHz – average

Test location
■ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)

Test equipment used:

TUV ID	Model	Manufacturer	Description	Serial	Cal Due
WRLE02416	3825/2	Electro-Mechanics (EMCO)	50 Ω LISN	8812-1437	Code B 06-Jan-11
OWLE02532	ESHS-10	Rohde & Schwarz	EMI Receiver	828178/006	06-Oct-11

Cal Code B = Calibration verification performed internally. Cal Code Y = Calibration not required when used with other calibrated equipment.

Test limits, dBμV

Frequncy (MHz)	Quasi Peak	Average
0.15 - 0.5	66 - 56*	56 - 46*
0.5 - 5	56	46
5 - 30	60	50

*Decreases with the logarithm of the frequency

Conducted emissions on the 50 Hz and/or 60 Hz power interface of the EUT are measured in the frequency range of 150 kHz to 30 MHz. The measurements are performed using a receiver, which has CISPR characteristic bandwidth (9 kHz resolution bandwidth) and quasi-peak/average detection, and a Line Impedance Stabilization Network (LISN), with 50 Ω/50 μH (CISPR 16) characteristics. Table top equipment is placed on a non-conducting table 80 centimeters above the floor and is positioned 40 centimeters from the vertical ground plane (wall) of the screen room. In some cases, a pre-scan using a spectrum analyzer is initially performed on the units comprising the system under test to locate the highest emissions.

Test data
See following pages

Measurement summary for limit1: FCC 15.207 .15-30MHz QP (Qp)					
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV)	EUT Lead	DELTA1 FCC 15.207 .15-30MHz QP
450.0 kHz	37.8 Qp	0.17 / 0.1 / 0.0 / 9.9	47.97	L1	-8.9
1.582 MHz	35.02 Qp	0.31 / 0.1 / 0.0 / 9.91	45.34	N	-10.66
27.26 MHz	36.74 Qp	1.26 / 0.35 / 0.0 / 10.0	48.34	L1	-11.66
150.0 kHz	42.32 Qp	0.12 / 0.2 / 0.0 / 10.0	52.64	N	-13.36
10.57 MHz	28.28 Qp	0.79 / 0.2 / 0.0 / 9.98	39.25	L1	-20.75
18.66 MHz	21.16 Qp	1.05 / 0.2 / 0.0 / 10.05	32.46	N	-27.54

Measurement summary for limit2: FCC 15.207 .15-30MHz Avg (Av)					
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV)	EUT Lead	DELTA2 FCC 15.207 .15-30MHz Avg
27.26 MHz	32.54 Av	1.26 / 0.35 / 0.0 / 10.0	44.14	L1	-5.86
1.582 MHz	25.93 Av	0.31 / 0.1 / 0.0 / 9.91	36.25	N	-9.75
450.0 kHz	26.8 Av	0.17 / 0.1 / 0.0 / 9.9	36.97	L1	-9.9
10.57 MHz	22.99 Av	0.79 / 0.2 / 0.0 / 9.98	33.96	L1	-16.04
18.66 MHz	16.71 Av	1.05 / 0.2 / 0.0 / 10.05	28.01	L1	-21.99
150.0 kHz	22.53 Av	0.12 / 0.2 / 0.0 / 10.0	32.85	N	-23.15

TEST SETUP FOR EMISSIONS TESTING

WILD RIVER LAB
Large Test Site

Notes:

1. Items shown in dotted lines are located on the floor below the test area. It is 5 meters vertically from the ground floor to the test area.

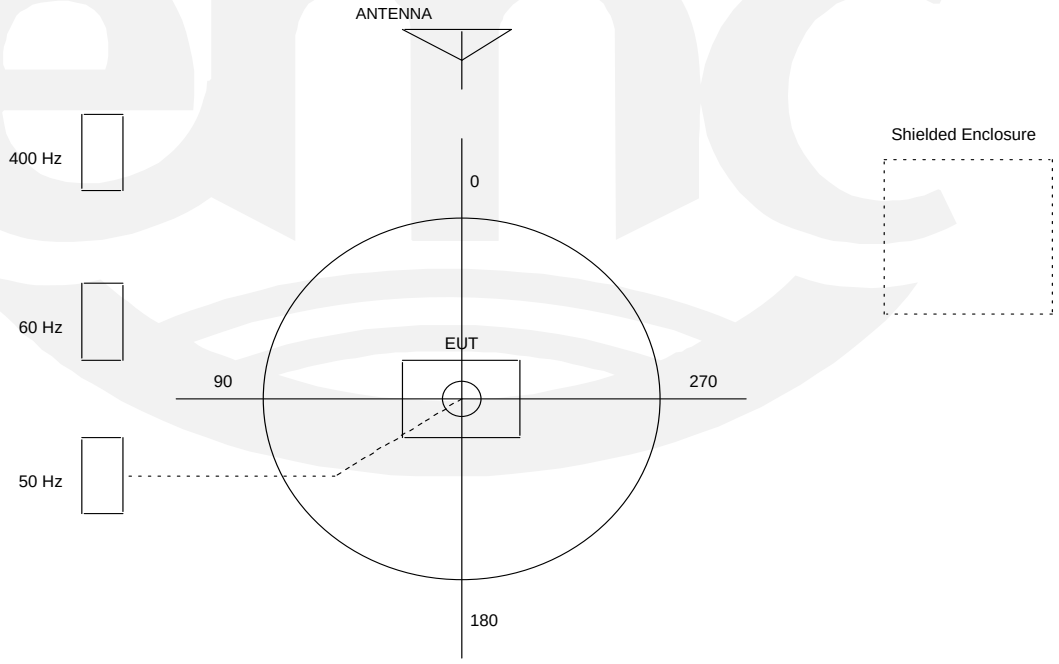
2. 50 Hz, 60 Hz, and 400 Hz are power panels for alternating current.

3. The antenna may be positioned horizontally 3, 10 or 30 meters from the center of the turntable.

4. The circle is a 6.7 meter diameter turntable.

5. A ground plane is in the plane of this sheet.

6. The test sample is shown in the azimuthal position representing zero degrees.



Test-setup photo(s):
General Field Strength Limits 0.009 – 30 MHz

Test-setup photo(s):
Radiated Emissions 30 - 8000 MHz

Test-setup photo(s):
Radiated Emissions 30 - 8000 MHz

Test-setup photo(s):
Conducted Emissions, AC lines, 150 kHz - 30 MHz

Equipment Under Test (EUT) Test Operation Mode:

The device under test was operated under the following conditions during immunity testing :

☐ - Standby

☐ - Test program (H - Pattern)

☐ - Test program (color bar)

☐ - Test program (customer specific)

☐ - Practice operation

■ - Normal operating mode

Configuration of the device under test:

■ - See Appendix A and test setup photos

☐ - See Product Information Form(s) in Appendix B

DEVIATIONS FROM STANDARD:
None.

GENERAL REMARKS:
None

Modifications required to pass:
■ None
☐ As indicated on the data sheet(s)

Test Specification Deviations: Additions to or Exclusions from:
■ None
☐ As indicated in the Test Plan

SUMMARY:
The requirements according to the technical regulations are
■ - met and the device under test does fulfill the general approval requirements.
☐ - **not** met and the device under test does **not** fulfill the general approval requirements..

EUT Received Date: 10 December 2010
Condition of EUT: Normal
Testing Start Date: 10 December 2010
Testing End Date: 13 December 2010

TÜV SÜD AMERICA INC

Tested by:
Greg S Jakubowski
Senior EMC Technician

Approved by:
Joel T Schneider
Senior EMC Engineer

Appendix A

Carestream Health Incorporated EMC Test Plan
Document Part Number #8J5343

EMC Test Plan

DRYVIEW 5700 Laser Imaging System &

DRYVIEW 5700C Laser Imaging System

Author/Approver:	**Robert Pettitt**	**EHS Manager**
Additional Approvers:	**Douglas Jensen**	**Design Engineering**
	Daniel Belka	**Quality Assurance**
Affected Departments:	**Design, Agency, Quality Assurance**	

All printed copies of this document are “Uncontrolled.”

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1. Purpose

This document will detail the EMC Test requirements for the DRYVIEW 5700 Laser Imaging System and DryView 5700C Laser Imaging System [official product names] collectively called the DV5700 in the rest of this document. The products will be tested for Worldwide EMC compliance.

This document will define the following:

- Define who is responsible for what under this plan.
- List the configurations which are required to be tested.
- Summarize the tests that will be executed.
- List the support equipment required to execute the testing.
- List test programs and software needed to execute the tests.

2. Scope

This document is limited to providing the framework for testing the DV5700 to meet WW EMC Compliance. The DRYVIEW 5700 Laser Imaging System and DRYVIEW 5700C Laser Imaging System differ only in a portion of the software within a USB memory device which controls acceptance of individual film types. The DRYVIEW 5700 Laser Imaging System will be available in two voltages 120 V and 240 V, The DRYVIEW 5700C Laser Imaging System will only be available in 240V version, to be sold within the Greater China Cluster.

3. References

8J5707 Product Requirement Spec (PRS) – DV5700, Rev.2.0

PRS Sections 12.1.2.1 through 12.1.2.5 will be met by the Test Reports generated as a result of this testing.

4. Acronyms

EMC	Electro Magnetic Compatibility
Ethernet	A standard communications link defined in IEE 802
TUV-AM	Technischer Uberwachungs Verein - America or Technical Surveillance Organization – America

5. Responsibilities

EHS Oakdale is responsible for the EMC Testing.

The DV5700 - Hardware and Software Design Teams & QA are responsible to support the EMC testing.

The testing will be executed by a 3rd party test house, TUV Wild River Lab, which is qualified to certify the equipment as compliant. The order of testing will be which ever order is most advantageous to TUV with the following exception; ESD testing will be performed last.

6. Theory of Operation DryView™ Laser Imager 5700 RF Tag Subsystem

The RF Tag works at a frequency of 13.56 MHz. It comprises a reader, antenna and transponder (for example: smart label) and is used for wireless identification.

The system works according the “reader talks first” principle, which means that the transponder keeps quiet until reader sends a request to it. The reader can rapidly and simultaneously identify numerous transponders in the antenna’s field. It can write data to and read from the transponders: either in addressed mode by using the factory programmed read only number, or in general mode to all transponders in its field. The read/write capability of the transponder allows users to update the data stored in the transponders memory anywhere along its movement.

The RF Tag provides the receive/transmit functions required to communicate with variety of transponders that operate in the 13.56 MHz ISM band. A transmit encoder converts the transmitted data stream into the selected protocol; Protocol section is done in the header of the transmitted data string.

7. System Components

Catalog Number	Part Number
Local Panel	9G4862
Power Supply	9G0777
DICOM Raster Engine	9G4716
Stepper Motor 24VDC (Transport 1 ea.)	2G1630
Stepper Motor 24VDC (Processor & Drive Feed, 2 Total)	8F3170
Gast Vacuum Pump 24VDC (Pickup)	5F7220
Blower	9G2073
Stepper Motor 24 VDC (Sorter, 2 Total)	7F2403
Stepper Motor 5 phase High Resolution (Film Drive	8J1028
Scanner Motor with Polygon	9G2356
Slip Ring (Prosper)	2G8740

8. Accessories

The DV5700 can be configured with the following accessory.

Cable:

Catalog Number	Description	Usage
N/A	Cat 6 Ethernet Cable	Communication with the Ethernet system.

9. Test Space and Power Requirements

Space and Power for EUT

The DV5700 requires 6 square feet of area.
(2 feet X 3 feet).

Voltage and Frequency are found in Section

Circuit amperage capacity for 100 V /120 V must be >= 8 Amps.
Circuit amperage capacity for 230 V / 240V must be >= 4 Amps.

An additional 25 square feet are required for film.

Space and Power for Test Support Equipment

The test support equipment, used for operating the EUT, requires space and power dedicated outside the test chamber.

The test support equipment and operator requires a minimum of 8 square feet of area. (2 feet X 4 feet). This includes a platform, table or shelf, for the equipment and a chair for the operator.

The test support equipment requires a standard 120 Volt 15 Amp outlet. This must be within 6 feet of the test support equipment.

10. Test Set Up and Change-Over Times

Initial Equipment Set Up Time

The equipment can be set up for testing in approximately 1/2 hour. This time includes unpacking the equipment, setting up the EUT, setting up and connecting the support equipment.

Another 25 minutes should be allowed for testing the EUT for proper operation before any EMC testing commences.

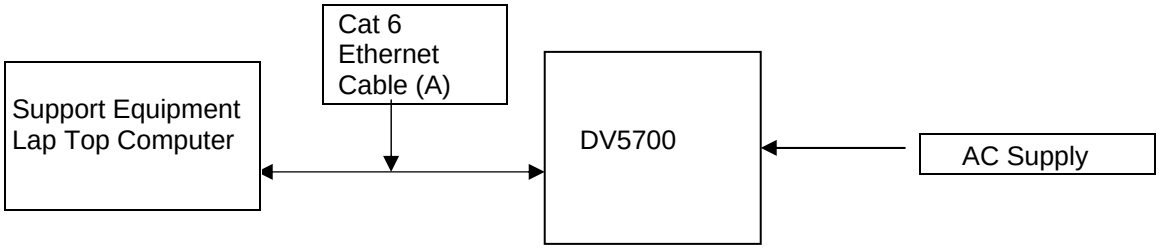
Configuration Change-Over Time

The amount of time for changing the configurations of the EUT and the support equipment should be approximately 20 minutes. The power module is 120-240V. The Heater Drums are voltage dependant one is 120V the other 240 V.

11. Test Support Equipment

Description	***Manufacturer***	***Model / Serial #***	***FCC ID #***
Lap Top Computer	Dell		
Cat 6 Ethernet Cable - 30 Ft			

12. Test Set-up Showing EUT, Test Support Equipment and Cabling



13. Clock, Oscillator and Data Rate frequencies

Description	Assembly	Part Number	Crystal or Oscillator	Frequency
MCS Board	9G0249	5F9993	Crystal	12.000 MHz
MCS Board	9G0249	9G2793	Oscillator	50.000 MHz
MCS Board	9G0249	5F4473	Crystal	13.560 MHz
RF Antenna Board	9G1211	None		
Local Panel Board	9G1217	None		
Densitometer Control Board	8H5904	None		
Densitometer Light Source Board	9G0346	None		
Laser Driver Board	9G3227	5F4594	Oscillator	60-600 MHz adjustable
DICOM Raster Engine	9G4716	The highest frequency referenced for FCC testing is 1.6 GHz .	Oscillator Oscillator Oscillator Oscillator Oscillator Oscillator Oscillator Oscillator Oscillator Oscillator Oscillator Oscillator Oscillator	14.31818 MHz – Super I/O 32.768 KHz - RTC 25 MHz – LAN (RTL8111C) 100 MHz – 945 GSE Chipset 96 MHz – 945 GSE Chipset 33 MHz – 945 GSE Chipset 48 MHz - USB I/F 1.6 GHz - CPU core 533 MHz – DDR2 Memory I/F 400 MHz – DDR2 Memory I/F 166 MHz – Core Render Clk 200 MHz – Core Display Clk 533 MHz - FSB

14. EMC Requirements Table

	USA	EU	Canada	AS/NZS	ROW
EMISSIONS		EN 60601-1-2: 2007 [Med. Dev. Dir.]	CAN/CSA – C22.2 NO. 60601-1-2-08		IEC 60601-1-2: 2007 (Modified)
Radiated Electric Field Emissions	47 CFR [FCC] Part 15 Subpart B Class A	EN 55011:2007 +A2:2007 Group 1 Class A [EMC Dir.]	ICES-003, Issue 4: 2004	AS/NZS CISPR 11:2003 +A1:2004, +A2:2006	CISPR 11:2003 / A2:2006
Harmonic Current	*	EN 61000-3-2:2006 [EMC Dir.]		AS/NZS 61000.3.2:2007 (Modified)	IEC 61000-3-2:2005
Voltage Flicker	*	EN 61000-3-3 :1995+A1:2001+ A2:2005 [EMC Dir.]			IEC 61000-3-3:1994/A2:2005
IMMUNITY		EN 60601-1-2: 2007 [Med. Dev, Dir.]			IEC 60601-1-2: 2007 (Modified)
Electro-Static Discharge Immunity	#	EN 61000-4-2:		#	IEC 61000-4-2
Radiated RF, RF Electromagnetic Field Imm.	#	EN 61000-4-3:		#	IEC 61000-4-3
Electrical Fast Transients Immunity	#	EN 61000-4-4:		#	IEC 61000-4-4
Surge Immunity	#	EN 61000-4-5:		#	IEC 61000-4-5
Conducted RF Immunity	#	EN 61000-4-6:		#	IEC 61000-4-6
Power Frequency Magnetic Field Imm.	#	EN 61000-4-8:		#	IEC 61000-4-8
Voltage Dips, Interrupts and Var. Immunity	#	EN 61000-4-11:		#	IEC 61000-4-11
Telecomm-unications Standard	FCC Part 15 Subpart C Sections 15.207 & 15.209	EN 300 330-2 V1.3.1(2006-04) [RTTE Dir.]	IC RSS-210 Issue 7 IC RSS-Gen Issue 2		

- The United States currently does not have any Immunity requirements; there are discussions relating to Harmonization underway and acceptance of (i.e. they may be required to use) IEC 50081-1, IEC 50082-1 and the Basic EMC Standards that support them.

Immunity testing is not required but may be needed to support a product's Risk Analysis.

15. Summary Test Table with Power - Voltages and Frequencies

Test Type	Requirement	Mains Voltage
Radiated Emissions	47 CFR [FCC] Part 15 Subpart B Class A ICES-003 Issue 4 EN/IEC 60601-1-2 [CAN/CSA –C22.2 NO. 60601-1-2-08] EN 55011 Class A	230 V 50 Hz Possible 100 V 50 Hz
Conducted Emissions	47 CFR Part 15 Subpart B ICES-0003 Issue 4 EN/IEC 60601-1-2 [CAN/CSA –C22.2 NO. 60601-1-2-08] EN 55011 Class A	120 V 60 Hz 230 V 50 Hz 100 V 50 Hz (Japan)
RFTag Emissions	EN 300 330 47 CFR Part 15 Subpart C IC-RSS-210 Issue 7 IC-RSS-Gen Issue 2	230 V 50 Hz 120 V 60 Hz
Harmonic Current	EN/IEC 61000-3-2	230 V, 50 Hz
Voltage Flicker	EN/IEC 61000-3-3	230 V, 50 Hz
Immunity	EN/IEC 60601-1-2	**See Tests Below**
Electro Static Discharge	EN/IEC 61000-4-2	230 V, 50 Hz
Radiated RF Immunity	EN/IEC 61000-4-3	230 V, 50 Hz
Electrical Fast Transients	EN/IEC 61000-4-4	100V, 50 Hz 240 V, 50Hz
Surge	EN/IEC 61000-4-5	100 V, 50 Hz 240 V, 50Hz
Conducted Immunity Tests	EN/IEC 61000-4-6	230 V, 50 Hz
Power Frequency Magnetic Tests	EN/IEC 61000-4-8	230 V at BOTH 50Hz & 60 Hz
Voltage Dip Tests	IEC 61000-4-11	100 V, 50 Hz 240 V, 50Hz

16. Pass/Fail Criteria

- The DV5700 shall pass the Radiated Emissions tests if all emissions are below the standard's limit line. Attempts will be made to achieve 4 dB **below** the limit line [–4dB guard band].

- The DV5700 shall pass the ESD immunity test:

  1.) If the DV5700 reprints, without artifact, an image which had previously been printed with an artifact, due to a parity error or pixel transfer count error, which may have been induced by the ESD discharge.

  2.) If the DV5700 returns to normal operation, within 3 minutes from any temporary condition, caused by the ESD discharge."

- The DV5700 shall pass the radiated and conducted immunity tests provided the images produced during these tests are diagnostically acceptable. This judgment will be made by Carestream Health employees who are familiar with potential imaging artifacts caused by a variety of other sources, not only those potentially induced by the impinging radiated field.

- During radiated and conducted immunity tests if the system becomes inoperable, that will be considered a failure.

17. Supplies

DryView Imaging Film

18. Addendum

Reports	One complete set of EMC Reports will be produced for the DryView 5700C Laser Imaging System at 230/240 V **only**.
	One complete set of EMC Reports will be produced for the DryView 5700 Laser Imaging System at both 120 V and 240 V.
Registration	Only the DryView 5700 Laser Imaging System will be FCC and IC registered as an Intentional Radiator.
	These registrations are not required for the DryView 5700C Laser Imaging System.