

## Technical Specifications | CARESTREAM Focus 35C Detector

<b>DETECTOR - Imaging</b>	
Receptor Type	Amorphous Silicon
Conversion Screen	Deposited CsI
Pixel Size ( $\mu\text{m}$ )	150 x 150
Resolution Limit (cyc/mm)	3.3
Usable Pixel Area (cm)	34.6 x 42.0
(pixels)	2304 x 2800
MTF (%)	RQA-5 Beam
0.0 cyc/mm, Typical	100
0.5 cyc/mm, Typical	86
1.0 cyc/mm, Typical	67
1.5 cyc/mm, Typical	50
2.0 cyc/mm, Typical	37
2.5 cyc/mm, Typical	27
3.0 cyc/mm, Typical	20
DQE (%) $(\%) \pm 2\sigma < 10\%$	RQA-5 Beam
IEC 62220-1-1, Edition 1.0, 2015	0.3mR
0.0 cyc/mm, Typical	68
0.5 cyc/mm, Typical	60
1.0 cyc/mm, Typical	56
1.5 cyc/mm, Typical	50
2.0 cyc/mm, Typical	44
2.5 cyc/mm, Typical	36
3.0 cyc/mm, Typical	27
Energy Range (kVp)	40 – 150
A/D Conversion (bits)	16

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### Supported Data Interfaces

Wireless	802.11 A -or- N -or- G
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### Environmental

Shock	High Shock Tolerance
Temperature Range (°C)	Operating (+5 to +35) Ambient-Storage (-20 to +55) Shipping (-20 to +55)
Relative Humidity (%), Non-Condensing	Operating 10 – 90 Storage 5 – 95
Ingress Protection	IPX1

### Mechanical

Size (cm)	35 x 43 Cassette (ISO 4090) 38.40 x 46.00 x 1.50 cm
Weight	3.43 kg (7.56 lb)
Housing Material	Aluminum
Sensor Protection Material	Carbon Fiber and Aluminum Plate
Load Limit	Applied to a single 4.0 cm (1.6 in.) point: 100 kg Distributed evenly over the detector area: 150 kg

### DETECTOR BATTERY

Technology	Lithium-polymer Technology “Smart” battery technology prevents overcharge
Size	21 x 11.5 x 0.75 cm
Weight	0.28 kg (0.62 lb)
Voltage / Energy	10.8 V (dc), 4.18 Ah capacity
Charge Capability	585 maximum images per charge

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Expected Life	500 charge / discharge cycles results in ~80 % full charge
Medical Safety	IEC 62133 —Safety requirements for secondary cells and batteries containing alkaline or other non-acid electrolytes
Electromagnetic Compatibility	IEC 60601–1–2 Ed. 2.1, —Medical Electrical Equipment Electromagnetic Compatibility Requirements and tests, including CISPR 11:1999 + A2:02 emissions Group 1, Class A)

<b>WIRELESS SYSTEM</b>	
<b>Technical Specifications</b>	
Network Protocol	TCP/IP, IPv4/IPv6
Network Type	Isolated Private Wireless LAN (WLAN) Enterprise Wireless
Wireless Protocol	802.11 A -or- N -or- G
Antenna	
Frequency Band	5 and 2.4 GHz
Available Channels (fixed at installation according to the country codes, No DFS channels used)	1, 5, 9, 13, 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 149, 153, 157, 161, 165
Maximum Power of Detector	50 mW
Number of Antennas on Detector	2
IP Addressing	Static Private IP addresses for detectors and AP
Agency approvals	FCC Part 15
Typical Data Size	One 15 MB file per image
Dual Homed PC (two NIC cards)	Hospital network connection, Private network connection

<b>Security</b>	
WPA2-PSK AES	Factory-loaded and user-loaded keys

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SSID	Broadcast
Private Patient Identification	No patient ID data exchanged with detector
Username and Password	Non-default username and password

### CARESTREAM Focus 35C Detectors Statements Related to Systems Integration

#### CARESTREAM Focus 35C Detector Safety

The CARESTREAM Focus 35C Detector has been approved to IEC 60601-1 by TUV Rheinland and has a cTUVus and CE safety certification as a Medical Electrical Equipment device.

#### Line Noise Correction

The Image Correction Preference is used for the following purposes:

- **Normal** – reduces correlated line noise due to readout ICs. This is a very subtle correction, limited to near zero signal levels.

#### Grid

Pixel array images containing grids produce familiar Morie aliasing patterns. Carestream Image Processing software works better at reducing alias visibility with some grid configurations than others.

Low Resolution Stationary Grids, 44 Lines/cm (~112 Lines/inch), Grid ratio - 10:1 – Low resolution stationary grids produce aliasing that is effectively removed from full resolution images by Carestream Image Processing software. 44 Lines/cm grids are highly recommended.

#### Durability

The CARESTREAM Focus 35C Detector has been designed to be a robust device and function properly in normal handling. The instrument may be damaged if it receives a strong jolt from a drop or strike. The warranty does not cover damage as a result of accident or abuse, including broken detector glass and other obvious damage. A drop rider can be purchased to protect the investment. The detector has been equipped with internal accelerometers that will register when

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the detector has incurred a significant shock. The drop height that results in a registered event depends on the orientation of the detector during the drop, and the stiffness of the surface it strikes.

### Detector Life

- The detector system is specified to last 7 years under normal usage.

### Detector Quality Assurance

The detector must undergo gain calibration every 180 days. A reminder is built into the software. *Express Calibration* restores Gain Calibration and Defect Calibration and does a defect quality check. *Full Calibration* is same as *Express Calibration* and adds quality checks for Signal Uniformity, Noise Uniformity, and Dark Noise.

Permanent pixel defects are identified in the factory based on outlier performance in dark noise, X-ray uniformity response, and time lag response. Additional pixel defects are identified during Express Calibration and Full Calibration.

### Time to Image Availability

Timed in normal exposure mode (median time across several systems)

#### Wireless detector connection

Time from Expose to Preview < 2 sec

Time from Preview to Full Res Image < 8.5 sec