

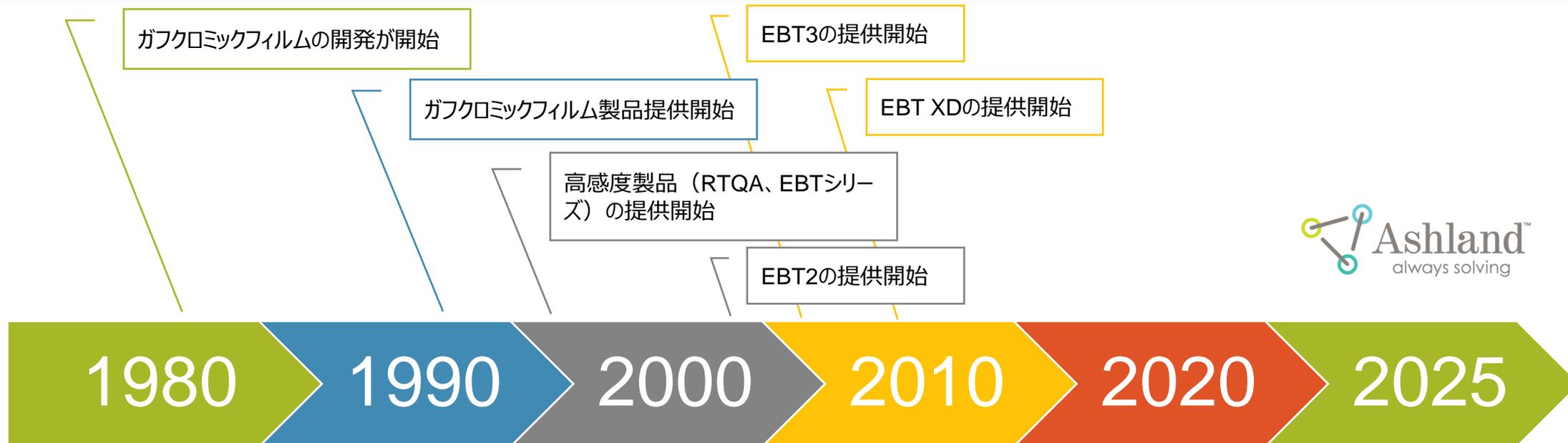


第14回 ガフクロミックフィルム研究会

@横浜

2023年11月30日

ベリタス、ガフクロミックフィルムと研究会の歴史



Dr. David Lewis

ISP社からAshland社へ



International Speciality Products



<ガフクロミックフィルム研究会>

2009年：ガフクロミックフィルムの開発者であるAshland社（当時のISP社）のDr. David Lewisを招待して第一回ガフクロミックフィルム研究会が第22回日本放射線腫瘍学会学術大会中に開催される。その後、2018年までにわたり、毎年開催され、最新のフィルムの情報や使用例などが議論・共有されてきた。



FilmQA Pro解析ソフトが 実現できること

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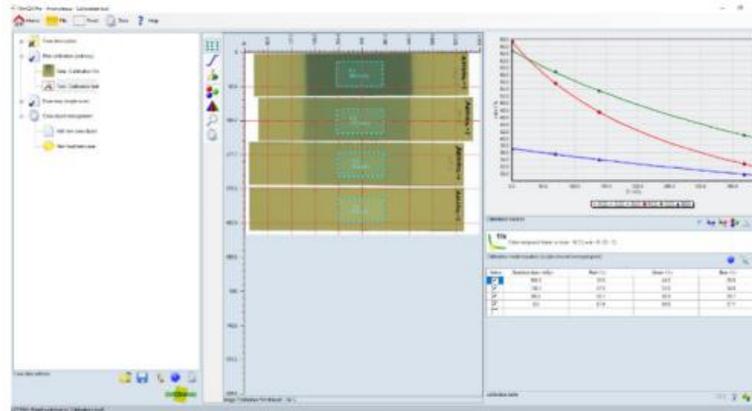
2023/11/30

株式会社ベリタス

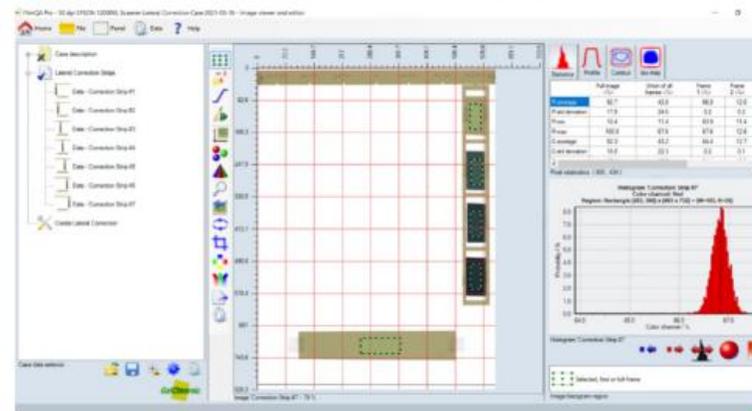
技術グループ 横沢 佑弥

- Gafchromic Film製造元であるAshlandが開発したソフトウェア

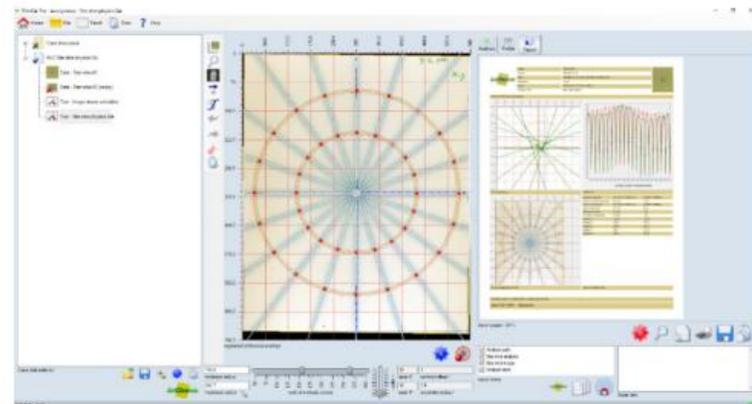
film calibration



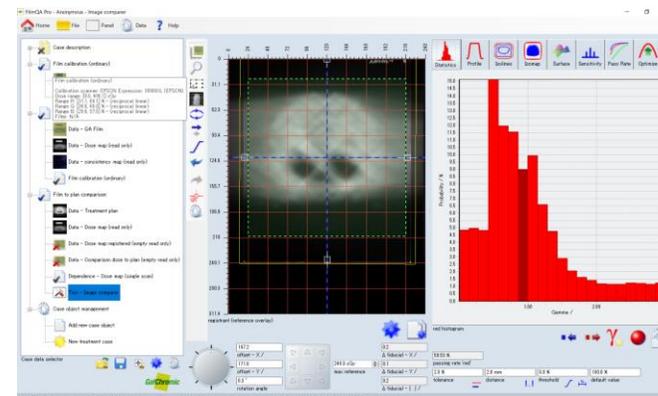
lateral scan correction



gantry star shot analysis



comparison to plan



Film calibration (Triple Channel Correction)

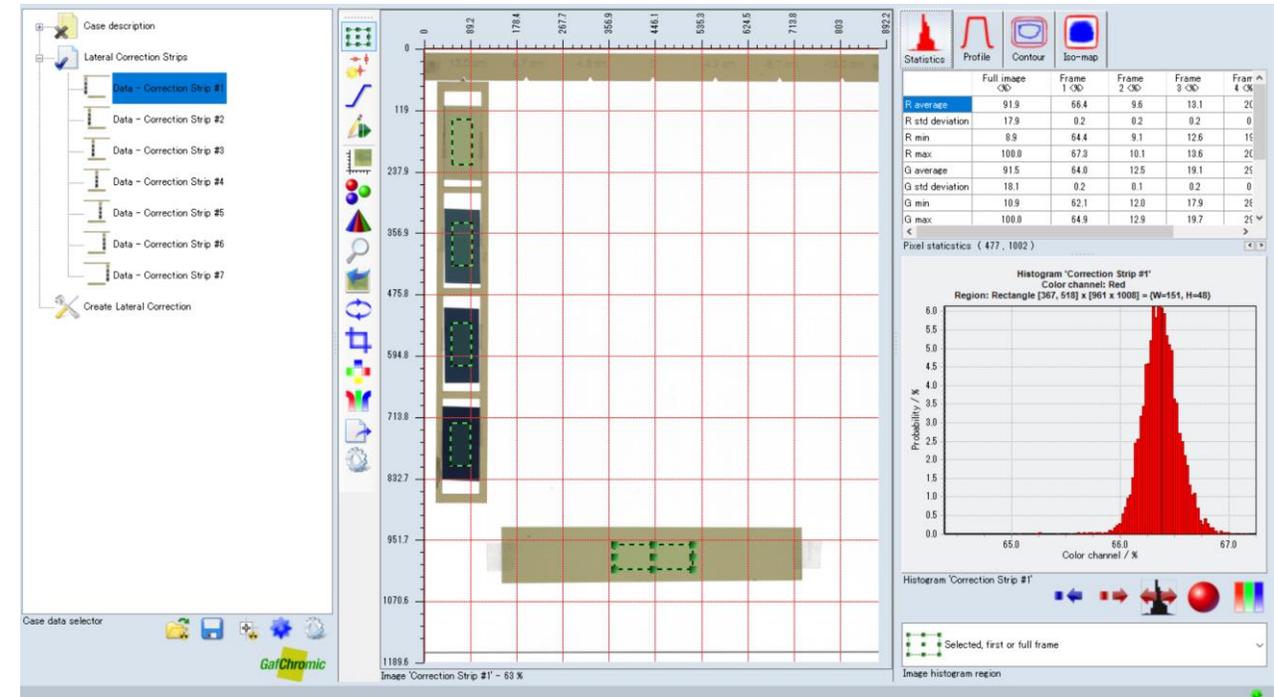
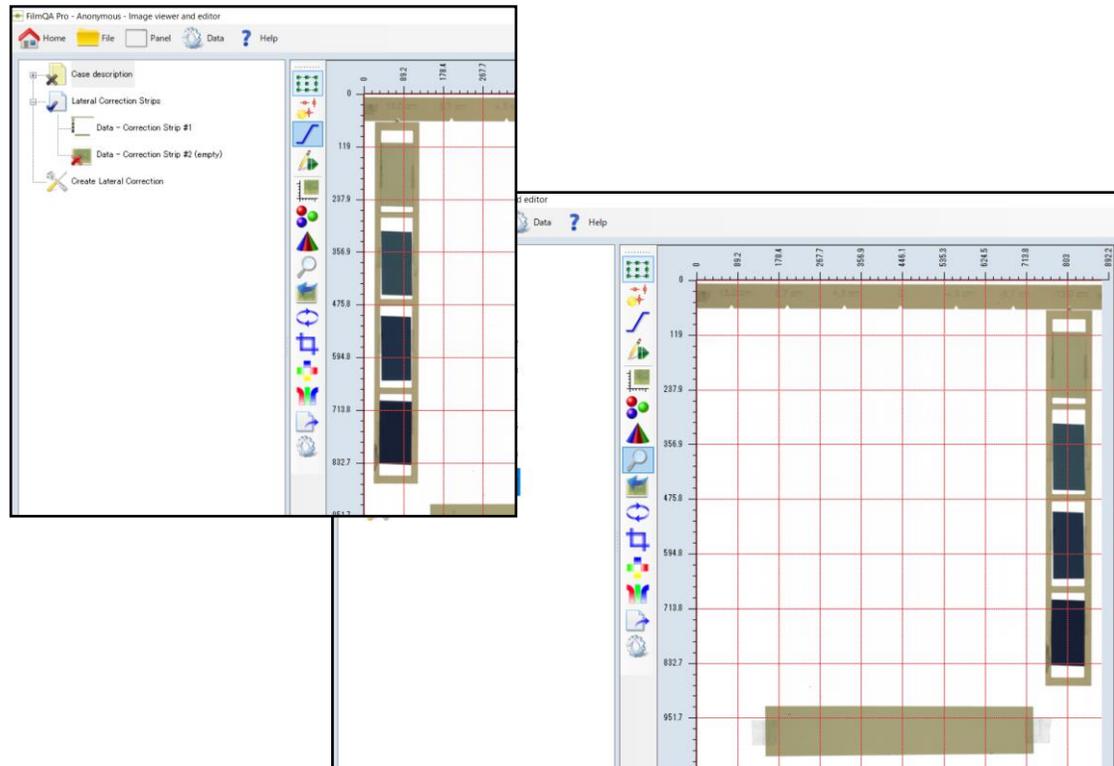
The screenshot displays the FilmQA Pro software interface. The main window shows a film calibration grid with a color calibration curve graph on the right. The graph plots color percentage (0.0 to 68.0) against a scale (0.0 to 400.0). Three curves are shown: a green curve (top), a red curve (middle), and a blue curve (bottom). The grid shows three film strips with calibration points marked. A context menu is open over the grid, listing various actions such as 'Export', 'Filter', 'Lateral Correction', and 'Save 'Film calibration (ordinary)' data as treatment object ...'. The 'Save' option is highlighted. Below the grid, a table displays calibration statistics:

Absorbed dose <cGy>	Consistency Ave RGB ave <cGy>	Consistency Rel Ave <%>
308.8	1.7	0.4
188.3	0.9	0.7
89.2	0.8	1.1
0.0	0.4	

A 'Save Treatment Object' dialog box is open in the foreground, showing the file name 'Film calibration (ordinary).2023-09-20' and the file type 'Case objects (*.CaseObj)'. The dialog also shows a search bar and a list of folders, with 'Windows (C)' selected.

Lateral Correction

- 7段階でフィルムを取り込み
- FilmQA Proが自動でY軸補正のデータを取得
- 一度取得すれば、各Dose Mapの解析の際に反映させることが可能

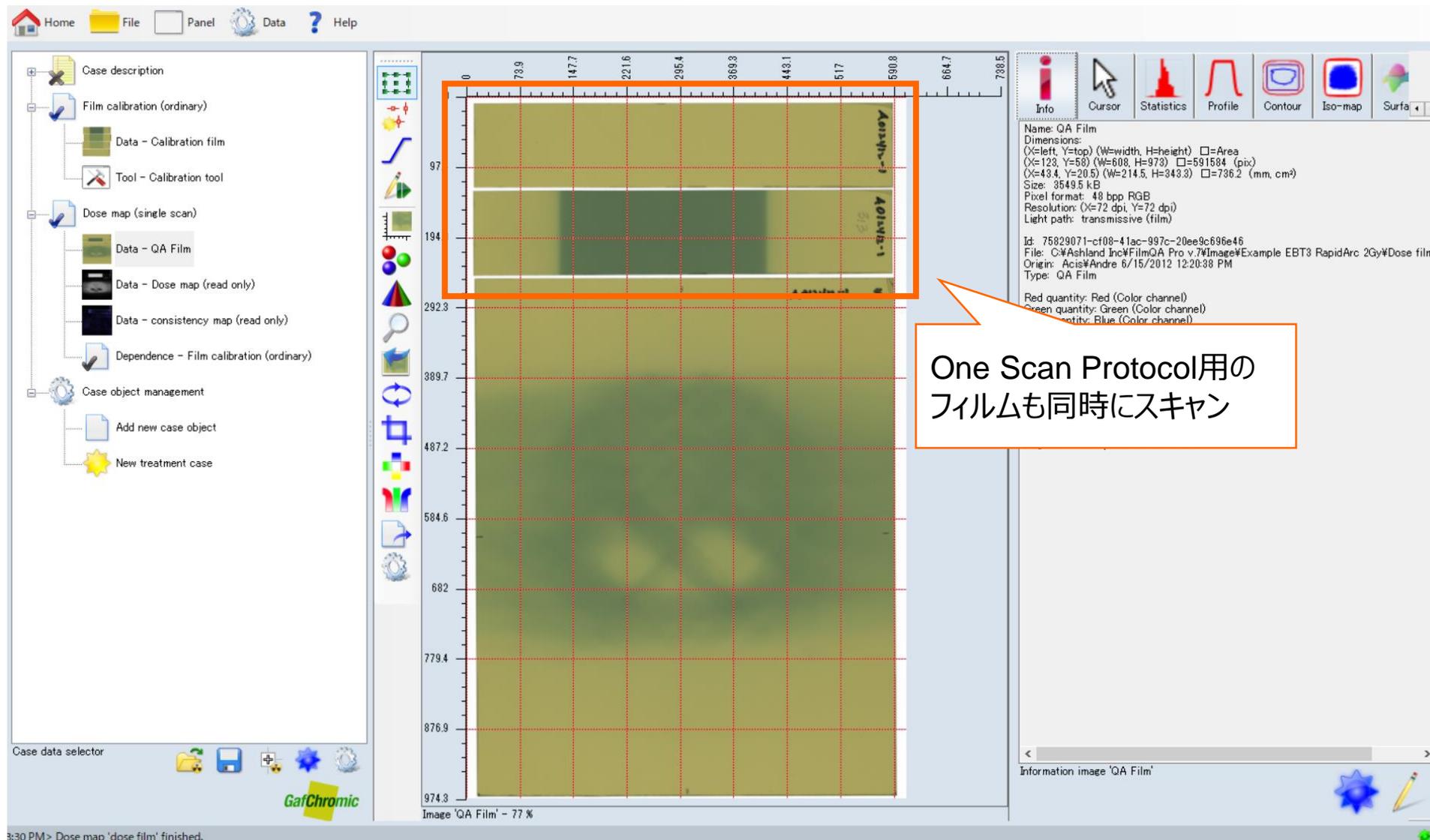


One Scan Protocol

- ガフクロミックフィルムは照射後に24時間程度は濃度が安定しないことが知られているが、One Scan Protocolによりその時間を短縮することが可能となります

	conventional	one scan
exposure for Patient QA	5 mins	5 mins
exposure for Reference Film	0 mins	5 mins
wait for film density development	24 hrs.	20 mins
scan for Dose map	5 mins	5 mins
total	24 hrs. +10 mins	35 mins

ソフトウェアによるフィルムの読み込み



The screenshot displays the GafChromic software interface. On the left is a tree view of case objects, including 'Case description', 'Film calibration (ordinary)', 'Dose map (single scan)', and 'Case object management'. The main window shows a film scan with a grid overlay. A red dashed box highlights a specific region of the film. To the right of the scan is a data panel with the following information:

- Name: QA Film
- Dimensions: (X=left, Y=top) (W=width, H=height) □=Area
- (X=123, Y=58) (W=608, H=973) □=591584 (pix)
- (X=43.4, Y=20.5) (W=214.5, H=343.3) □=736.2 (mm, cm²)
- Size: 3549.5 kB
- Pixel format: 48 bpp RGB
- Resolution: (X=72 dpi, Y=72 dpi)
- Light path: transmissive (film)
- Id: 75829071-cf08-41ac-997c-20ee9c696e46
- File: C:\Ashland Inc\Film\QA Pro v.7\Image\Example EBT3 RapidArc 2Gy\Dose film
- Origin: Acis\Andre 6/15/2012 12:20:38 PM
- Type: QA Film
- Red quantity: Red (Color channel)
- Green quantity: Green (Color channel)
- Blue quantity: Blue (Color channel)

A callout box with a white background and orange border points to the highlighted region, containing the text: "One Scan Protocol用のフィルムも同時にスキャン" (Scan the film for One Scan Protocol at the same time).

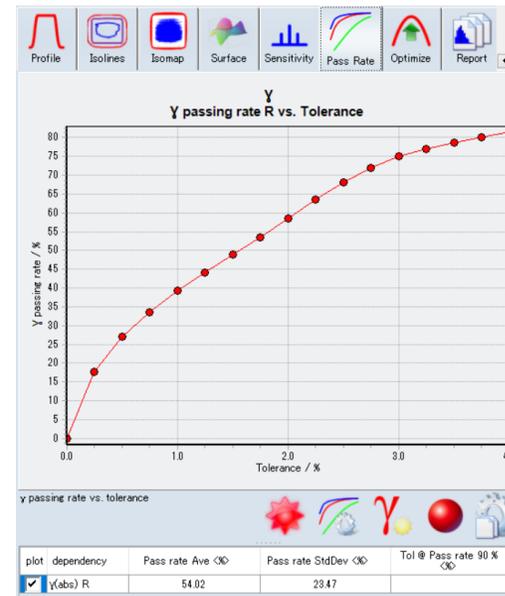
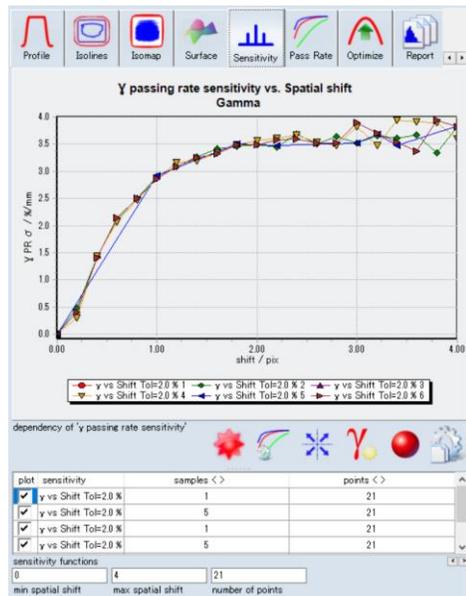
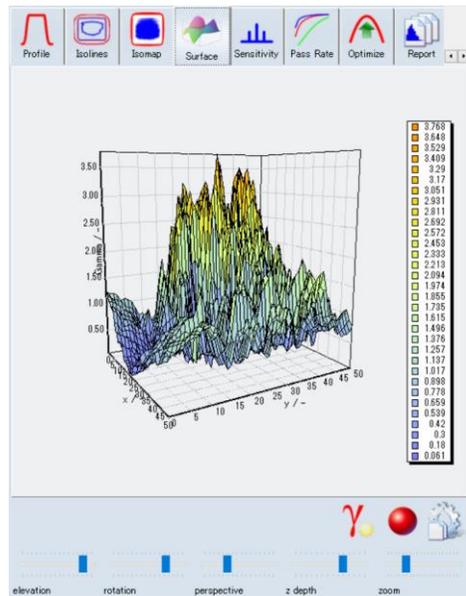
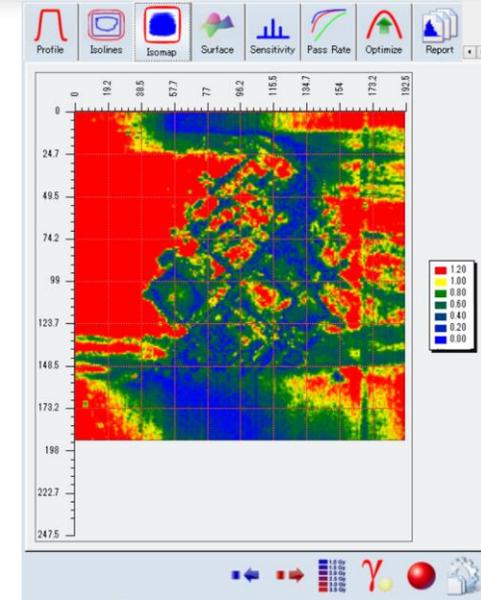
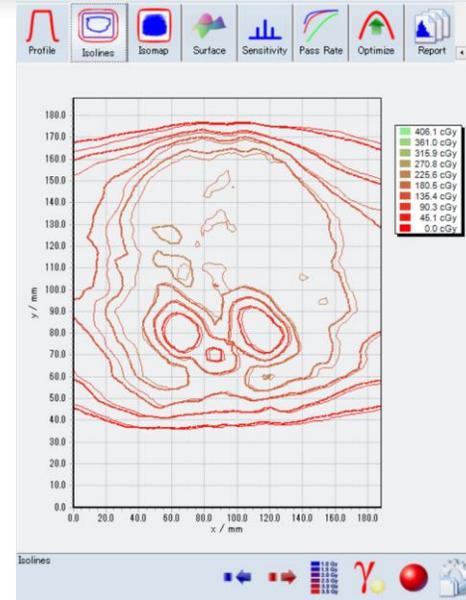
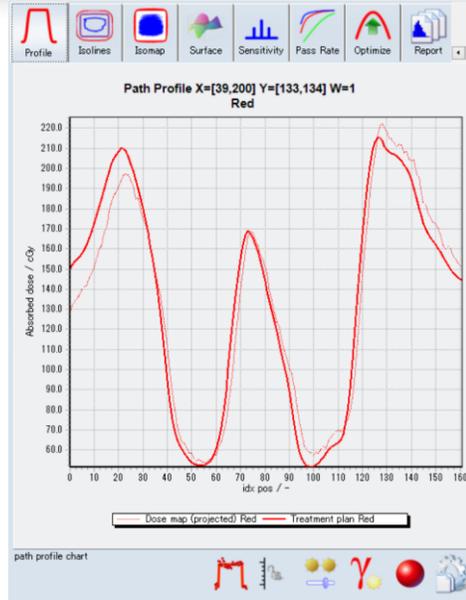
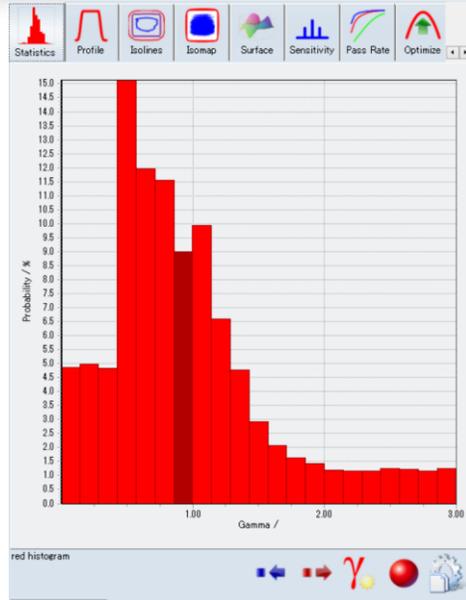
3:30 PM > Dose map 'dose film' finished.

GafChromic

Image 'QA Film' - 77 %

Information image 'QA Film'

各確認項目



report pages - 19 %

Gamma

comparison map used for images

2.0 % 2.0 mm 0.0 X 100.0 %

nce ce i value

Pass rate dependency

footer text

FilmQA Proトライアルライセンス

- 30日間のトライアルライセンスをご用意しております。
- QRコードまたはアンケートにてご依頼ください



<https://veritastk.lmsg.jp/form/11640/vBH3EyBN>

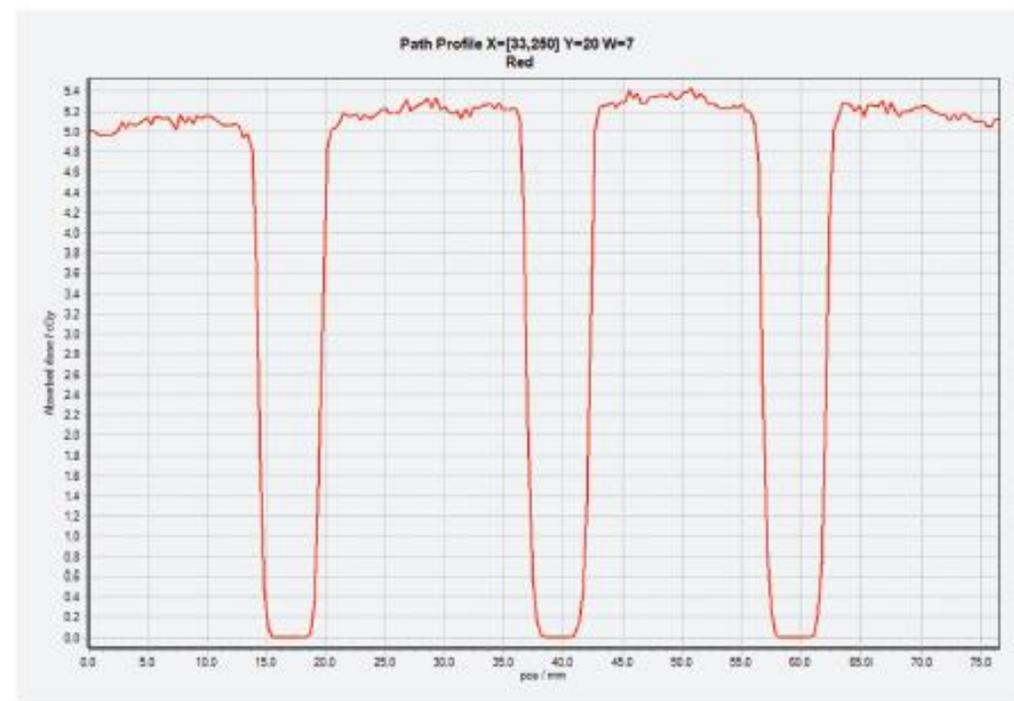
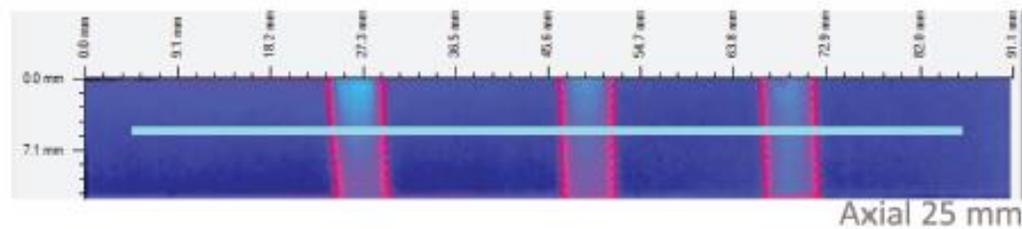
ガフクロミックフィルム

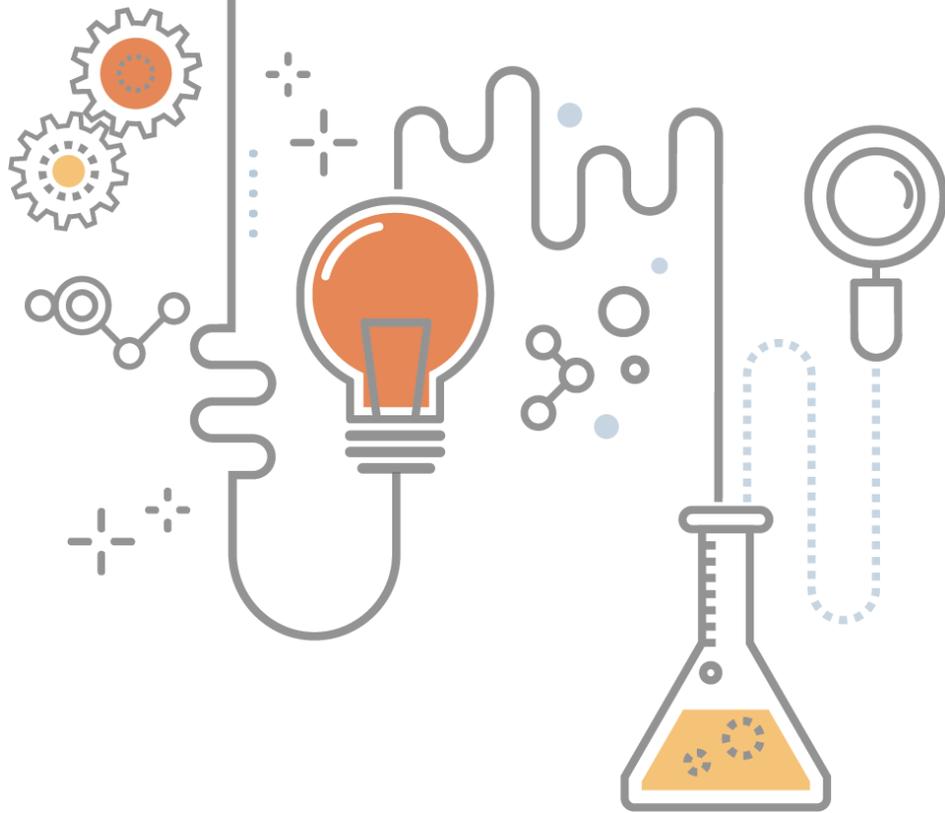
	製品群	感度 (recommended dose range)	エネルギー (recommended energy range)	サイズ
Radiotherapy	EBT4	0.2 Gy – 10 Gy	100 eV - MV	8 * 10 in (25 sheets) 12.8 * 17 in (10 sheets)
	EBT-XD	0.4 Gy – 40 Gy	100 eV – MV	8 * 10 in (25 sheets)
	RTQA2	0.2 Gy – 10 Gy	100 eV – MV	13.8 * 17 in (10 sheets) 10 * 10 in (25 sheets) 1.25 * 11 in (25 strips)
Radiology	HD-V2	10 Gy – 100 Gy	100 eV – MV	8 * 10 in (5 sheets)
	MD-V3	1 Gy – 100 Gy	100 eV - MV	5 * 5 in (5 sheets)
	LD-V1	2 cGy – 20 cGy	40 kVp – 160 kVp	8 * 10 in (10 sheets) 10 * 12 in (10 sheets)

LD-V1 ガフクロミックフィルム

- Machine QA

actual results showing a strip of the gafchromic™ LD-V1 film for a typical phantom exposure





ご清聴
ありがとうございました。