

四国がんセンター 殿

TrueBeamSTX #H193184

保守点検報告書

対象周期: Q1

点検日: 2025/2/27 ~ 2025/2/28

点検者: 岡崎 西岡

Fil. Hrs: 21029.4 Beam. Hrs: 1839.5

特記事項

定期点検(Q1)を実施しました。

【点検結果】

特に問題ありませんでした。

【特記事項】

- ・MLC動作テストを実施。問題ないことを確認いたしました。
- ・IsoCalの確認テストを実施。問題ないことを確認いたしました。
- ・二次冷却水を補充いたしました。

【定期交換部品】

- ・X線管球放電防止ガスケット交換及びキャンドルスティックの潤滑を実施いたしました。

株式会社バリアン メディカル システムズ

CHECKLIST SHEET REV: 05 PMP Active: SPA MODE ACCEPTANCE DATE: 11/02/2017
 SITE: NHO SHIKOKU CANCER CENTER CITY: EHIME 791-0280 COUNTRY: Japan
 PCSN: H193184 PRINT DATE: 3/02/2025
 REP NAME : Wataru Nishioka FILAMENT HOURS: 21029.4 BEAM HOURS: 1839.5
 Color Coding: Dark Green = Recently completed, Green = Within period, Yellow = Pending, Red = Overdue
 Abbreviaton: NA= Not Applicable, TR= Task Responsibility

Comments: Note, comments here are for information only. Use standard process for initiating and controlling follow up tasks

【特記事項】2/28/2025,Wataru Nishioka

- ・MLC動作テストを実施。問題ないことを確認いたしました。、3/02/2025,Wataru Nishioka
- ・X線管球放電防止ガスケット交換及びキャンドルスティックの潤滑を実施いたしました。、2/28/2025,Wataru Nishioka
- ・IsoCalの確認テストを実施。問題ないことを確認いたしました。、2/28/2025,Wataru Nishioka
- ・二次冷却水を補充いたしました。、11/26/2024,Wataru Nishioka

Checklist	Date Completed	Target Date	HaspUser	TR
6 PMP Pre-Site Preparation				
6.1 Review PMP Checklist	2/27/2025	6/27/2025	Wataru Nishioka	Varian
6.2 Customer Interview	2/27/2025	6/27/2025	Wataru Nishioka	Varian
6.3 Review ViDA / Event Logs	2/27/2025	6/27/2025	Wataru Nishioka	Varian
7 Initial Tasks				
7.1 Check Initial Beam Performance	3/02/2025	6/30/2025	Wataru Nishioka	Varian
7.2 Capture Data in the HET PMI Application	2/28/2025	6/28/2025	Wataru Nishioka	Varian
7.3 Analyze/Compare Data in the PMI Application	2/28/2025	6/28/2025	Wataru Nishioka	Varian
7.4 Review Initialization, Calibration, Fault Frequency	11/25/2024	7/23/2025	Wataru Nishioka	Varian
8 Emergency Stop (EMS) Operation				
8.1 Test Emergency Operations with Side Panel and Service Pendant	2/28/2025	6/28/2025	Wataru Nishioka	Varian
8.2 Test EMS Switches and Emergency Disconnect	11/26/2024	7/24/2025	Wataru Nishioka	Varian
9 Clean and Inspect				
9.1 Clean and Inspect Console Cabinets	2/28/2025	10/26/2025	Wataru Nishioka	Varian
9.2 Clean and Inspect Stand	2/27/2025	10/25/2025	Wataru Nishioka	Varian
9.3 Clean and Inspect Gantry	11/25/2024	7/23/2025	Wataru Nishioka	Varian
9.4 Clean and Inspect Modulator	2/28/2025	10/26/2025	Wataru Nishioka	Varian
10 Console				
10.1 Verify Cooling Fans/Power Supply Operation	2/28/2025	6/28/2025	Wataru Nishioka	Varian
10.2 Test UPS Operation	2/28/2025	2/28/2026	Wataru Nishioka	Varian
11 Stand				
11.1 Verify Stand Fans Operation	2/27/2025	10/25/2025	Wataru Nishioka	Varian
11.2 Inspect SVC Pulse Tank Desiccant	2/27/2025	10/25/2025	Wataru Nishioka	Varian
11.3 Inspect Stand Water Flow Meters	2/27/2025	10/25/2025	Wataru Nishioka	Varian
11.4 Test Gantry Brake Operation	2/28/2025	10/26/2025	Wataru Nishioka	Varian
11.5 Inspect Gantry Rotation Drive Motor Chain and Sprocket	2/27/2025	10/25/2025	Wataru Nishioka	Varian
11.6 Inspect Gantry Chain Master Link	2/27/2025	10/25/2025	Wataru Nishioka	Varian
11.7 Inspect Gantry Chain Tension	2/27/2025	2/27/2026	Wataru Nishioka	Varian
11.8 Replace Water System Filter Cartridge	8/09/2024	8/09/2025	Wataru Nishioka	Varian
11.9 Measure/Compare Klystron Parameters	2/27/2025	10/25/2025	Wataru Nishioka	Varian
12 Gantry				
12.1 Inspect Counterweight Mounting Bolts	5/16/2024	5/16/2025	Takuya Nomura	Varian
12.2 Verify Gantry Fan Operation	11/25/2024	7/23/2025	Wataru Nishioka	Varian
12.3 Inspect Gantry Flow Meters	11/25/2024	7/23/2025	Wataru Nishioka	Varian
12.4 Inspect Gantry Water Hoses	11/25/2024	7/23/2025	Wataru Nishioka	Varian
12.5 Inspect Gantry Windup	11/25/2024	7/23/2025	Wataru Nishioka	Varian
12.6 Measure/Compare Motor and Node Power Supply Voltage	11/25/2024	7/23/2025	Wataru Nishioka	Varian
12.7 Measure/Compare Vacion Pump Current and Voltage	11/25/2024	7/23/2025	Wataru Nishioka	Varian
12.8 Measure/Compare BMAG Coil Voltage	5/16/2024	5/16/2025	Takuya Nomura	Varian
12.9 Inspect Skull Cap Fasteners	11/26/2024	7/24/2025	Wataru Nishioka	Varian
12.10 Measure/Compare ASOL Coil Voltage	5/16/2024	5/16/2025	Takuya Nomura	Varian
12.11 Inspect Energy Switch Assembly	11/26/2024	7/24/2025	Wataru Nishioka	Varian
13 Gun Driver				
13.2 Verify HV Warning Lights and CroBar Operation	11/25/2024	7/23/2025	Wataru Nishioka	Varian

13.3	Verify Cooling Fans Operation	11/25/2024	7/23/2025	Wataru Nishioka	Varian
13.4	Measure/Compare Gun Driver Parameters	11/25/2024	7/23/2025	Wataru Nishioka	Varian
13.5	Clean and Inspect Gun Driver	11/25/2024	7/23/2025	Wataru Nishioka	Varian
14 Carousel					
14.1	Clean and Inspect Carousel Assembly	11/26/2024	7/24/2025	Wataru Nishioka	Varian
14.2	Clean and Inspect Carousel Transverse Axis Resolver	11/26/2024	7/24/2025	Wataru Nishioka	Varian
14.3	Clean and Inspect Carousel Radial Axis Resolver	11/26/2024	7/24/2025	Wataru Nishioka	Varian
14.4	Clean and Lubricate Carousel Radial Axis Lead Screw	5/16/2024	5/16/2025	Takuya Nomura	Varian
14.5	Inspect Ion Chamber Assembly	11/26/2024	7/24/2025	Wataru Nishioka	Varian
14.6	Clean and Lubricate Ion Chamber Lead Screw	5/16/2024	5/16/2025	Takuya Nomura	Varian
14.7	Clean and Lubricate Carousel and Ion Chamber Bearing	11/26/2024	7/24/2025	Wataru Nishioka	Varian
14.8	Clean and Inspect Target Drive Assembly	11/26/2024	7/24/2025	Wataru Nishioka	Varian
14.9	Initialize Carousel Axes	11/26/2024	7/24/2025	Wataru Nishioka	Varian
14.10	Replace Field Lamps	5/16/2024	5/16/2025	Takuya Nomura	Varian
15 MLC					
15.1	Inspect and Lubricate MLC	11/25/2024	7/23/2025	Wataru Nishioka	Varian
15.2	Measure MLC Power Supply Voltages	11/25/2024	7/23/2025	Wataru Nishioka	Varian
15.3	initialize MLC	2/27/2025	6/27/2025	Wataru Nishioka	Varian
15.4	Verify Backlash v2.5	NA	Option is not installed/included	Yuuichi Fukuhara	
16 Automated Diagnostic Tests					
16.2	Perform v2.7 Automated Diagnostic Tests	2/27/2025	10/25/2025	Wataru Nishioka	Varian
16.3	Perform v2.5 Automated Diagnostic Tests	NA	Option is not installed/included	Takashi Inoue	
16.4	Perform v3.0 Auto Performance Test (ATP)	NA	Option is not installed/included	Takuya Nomura	
17 Collimator					
17.1	Inspect Collimator	11/26/2024	7/24/2025	Wataru Nishioka	Varian
17.2	Lubricate Lower Jaws	5/16/2024	5/16/2025	Takuya Nomura	Varian
17.3	Lubricate Upper Jaws	5/16/2024	5/16/2025	Takuya Nomura	Varian
17.4	Lubricate Collimator Rotation Bearing	5/16/2024	5/16/2025	Takuya Nomura	Varian
18 Accessories					
18.1	Inspect Accessory Mount	2/28/2025	10/26/2025	Wataru Nishioka	Varian
18.2	Inspect and Test Electron Applicators	2/28/2025	10/26/2025	Wataru Nishioka	Varian
18.3	Inspect Wedges	NA	Function/feature disabled by customer	Takashi Inoue	
18.4	Check LaserGuard Alignment	NA		Takashi Inoue	
19 Couch					
19.2	Inspect IGRT Couch Top	11/25/2024	7/23/2025	Wataru Nishioka	Varian
19.3	Clean and Inspect Lower Couch Area	11/25/2024	7/23/2025	Wataru Nishioka	Varian
19.4	Clean, Inspect and Lubricate Lift Drive	11/25/2024	7/23/2025	Wataru Nishioka	Varian
19.5	Clean, Inspect and Lubricate LNG/LAT Carriage Rails	11/25/2024	7/23/2025	Wataru Nishioka	Varian
19.6	Clean and Inspect Couch Longitudinal Encoder and Cables	11/25/2024	7/23/2025	Wataru Nishioka	Varian
19.7	Clean, Inspect and Lubricate Perfect Pitch Couch	11/25/2024	7/23/2025	Wataru Nishioka	Varian
19.8	Test Couch Pendants and Side Panels	11/25/2024	7/23/2025	Wataru Nishioka	Varian
19.9	Clean, Inspect and Lubricate Couch Turntable	5/17/2024	5/17/2025	Takuya Nomura	Varian
20 Modulator					
20.2	Verify Cooling Fans Operation	2/28/2025	10/26/2025	Wataru Nishioka	Varian
20.3	Test High Voltage Crowbar Operation	2/28/2025	10/26/2025	Wataru Nishioka	Varian
20.4	Measure/Compare Modulator Parameters	2/28/2025	10/26/2025	Wataru Nishioka	Varian
21 Imaging System					
21.1	Collect XI Diagnostic Data	2/27/2025	6/27/2025	Wataru Nishioka	Varian
21.2	Clean and Inspect KV Generator	2/27/2025	10/25/2025	Wataru Nishioka	Varian
21.3	Verify Cooling Fans Operation	2/27/2025	10/25/2025	Wataru Nishioka	Varian
21.4	Verify Imaging Arms Positioning	2/27/2025	10/25/2025	Wataru Nishioka	Varian
21.5	Clean and Inspect Imaging Arms	2/27/2025	10/25/2025	Wataru Nishioka	Varian
21.6	Clean and Inspect KVS Collimator and Filter Deck	2/27/2025	10/25/2025	Wataru Nishioka	Varian
21.7	Verify Imaging Arms Motion Control Safety	2/27/2025	10/25/2025	Wataru Nishioka	Varian
21.8	Inspect X-Ray Tube and Heat Exchanger	2/27/2025	10/25/2025	Wataru Nishioka	Varian
21.9	Clean, Inspect and Grease HT Cable Candlesticks at X-Ray Tube	2/27/2025	10/25/2025	Wataru Nishioka	Varian
21.10	Inspect HT Cable Candlesticks at EMD Generator	8/09/2024	8/09/2025	Wataru Nishioka	Varian
21.11	Record Norm Chamber Values	2/28/2025	10/26/2025	Wataru Nishioka	Varian
21.12	Verify IsoCal	2/28/2025	10/26/2025	Wataru Nishioka	Varian

21.13 Compare MVD, KVD and KVS Reference Positions	2/27/2025	10/25/2025	Wataru Nishioka	Varian
21.14 Acquire Motion Records from MVD, KVD and KVS	NA	Option is not installed/included	Takuya Nomura	
22 Tune Dose Rate and Compare Parameter Data				
22.1 Test MU Backup Counter	2/28/2025	6/28/2025	Wataru Nishioka	Varian
22.2 Tune Dose Rate and Capture Data	3/02/2025	10/28/2025	Wataru Nishioka	Varian
22.3 Test Unserved Output vs Rotation	11/25/2024	7/23/2025	(*)Wataru Nishioka	Varian
22.4 Inspect Waveforms	11/25/2024	7/23/2025	(*)Wataru Nishioka	Varian
23 Final PMP Items				
23.1 Finalize HET PMI Program	3/02/2025	6/30/2025	Wataru Nishioka	Varian
23.2 Replace Barcode Reader Batteries	NA	Option is not installed/included	Takashi Inoue	
23.3 Initialize Axes	3/02/2025	6/30/2025	Wataru Nishioka	Varian
23.4 Install and Inspect Covers	3/02/2025	6/30/2025	Wataru Nishioka	Varian
23.5 Clean Covers	3/02/2025	10/28/2025	Wataru Nishioka	Varian
23.6 Backup Nodes, System, Preference Settings	3/02/2025	10/28/2025	Wataru Nishioka	Varian
23.7 Manage Saved Parameter Data	11/25/2024	7/23/2025	(*)Wataru Nishioka	Varian
23.8 Distribute Official PMP Checklist	3/02/2025	6/30/2025	Wataru Nishioka	Varian
23.9 Test Clinical Operation	3/02/2025	6/30/2025	Wataru Nishioka	Varian
23.10 Review Low Frequency Tasks	3/02/2025	6/30/2025	Wataru Nishioka	Varian
23.11 Review Follow-up Actions	3/02/2025	6/30/2025	Wataru Nishioka	Varian
23.12 Clean Work Area	3/02/2025	6/30/2025	Wataru Nishioka	Varian
24 Calypso				
24.1 Complete 8 Month Tasks in Calypso PMI and Checklist	NA	Option is not installed/included	Yuuichi Fukuhara	
24.2 Complete 12 Month Tasks in Calypso PMI and Checklist	NA	Option is not installed/included	Yuuichi Fukuhara	
25 OSMS				
25.1 Complete 6 Month Tasks in OSMS PMI and Checklist	NA	Option is not installed/included	Yuuichi Fukuhara	
25.2 Complete 12 Month Tasks in OSMS PMI and Checklist	NA	Option is not installed/included	Yuuichi Fukuhara	
26 Low Frequency Tasks				
26.2 Replace Distilled Water and Clean Strainer (2 Years)	11/01/2023	10/31/2025	Takuya Nomura	Varian
26.3 Replace Emergency Operations Batteries (2 Years)	NA	Option is not installed/included	Yuuichi Fukuhara	
26.4 Lubricate Gantry Bearing (2 Years)	11/01/2023	10/31/2025	Takuya Nomura	Varian
26.5 Measure Generator Output (2 Years)	8/04/2023	8/03/2025	Takuya Nomura	Varian
26.6 Backup TrueBeam and Service Workstations (2 Years)	11/07/2023	11/06/2025	Takuya Nomura	Varian
26.7 Replace Rangefinder Lamp (4 Years)	11/19/2021	11/18/2025	Jun Okazaki	Varian
26.8 Replace VMS-200 X-Ray Generator Fans (5 Years)	NA	Option is not installed/included	Jun Okazaki	
26.9 Replace IGMA Workstation Batteries (5 Years)	11/11/2022	11/10/2027	Jun Okazaki	Varian
26.10 Replace VMS-200 X-Ray Generator CPU Battery (5 Years)	NA	Option is not installed/included	Jun Okazaki	
26.11 Replace Modulator T4-C1 Capacitor (5 years)	11/11/2022	11/10/2027	Jun Okazaki	Varian
26.12 Replace Interface Mount Guide Blocks (7 Years)	8/08/2024	8/07/2031	Wataru Nishioka	Varian
26.13 Replace Gantry and Stand Hoses (10 Years)	No_date_yet	10/31/2027		Varian

PARAMETER SHEET																	
MODULATOR																	
Parameters	Tolerance	Value	Parameters				Tolerance	Value									
3 Phase Input AB	±3 %	208.300	Main Thyatron Fil				±0.2 %	6.352									
3 Phase input AC	±3 %	211.200	Dqng Thyatron Fil				±0.2 %	6.323									
3 Phase input BC	±3 %	210.500	Keep-Alive				≤23 VDC	18.960									
Plate XFMR Tap	NA	8.000															
STAND and POWER SUPPLIES																	
Parameters	Tolerance	Value	Parameters				Tolerance	Value	Parameters				Tolerance	Value			
Klystron SN	NA	21217	KLY I (Lo-X) (I1 @ Pulse Tank)				NA	6.78	KLY V Backswing Percentage (Lo-X)				NA	20.00			
KFI1 V	NA	237.70	KLY V (Lo-X) (I2 @ Pulse Tank)				NA	4.32	PFN V Actual (Lo-X)				NA	6.58			
KSOL I	NA	38.972	KLY I (Hi-e) (I1 @ Pulse Tank)				NA	8.72	PFN V Actual (Hi-e)				NA	8.18			
KSOL V	NA	105.330	KLY V (Hi-e) (I2 @ Pulse Tank)				NA	5.24	KLY I Conman Cal Factor (Amps/Volt)				NA	3.54			
VACIOM POWER SUPPLY																	
Parameters	Tolerance	Meter uA	Tolerance	Meter KV	Probe KV												
ACC PUMP	±20 uA	0.000	NA	-5.257	-5.25												
GUN PUMP	±20 uA	0.000	NA	3.221	3.21												
KLY PUMP	±20 uA	0.254	NA	3.217	3.18												
WATER and SF6																	
Parameters	Tolerance	Value	Parameters				Tolerance	Value									
System Water Pressure	NA	50.00	SF6 Regulator				NA	33.05									
Facility Water Pressure	NA	38.00	SF6 Fault level				NA	27.96									
OverTemp Trip	NA	42.000	SF6 Warning level				NA	29.95									
WATER FLOW and TEMPERATURE																	
Parameters	BMAG Flow	LGuide Flow	SGuide Flow	PrIColl Flow	Target Flow	City Water Flow	Klystron Flow	Klys Sol Flow	Guide Flow	PumpOutlet T [°]	TankInput T [°]	City Water T [°]	Motor Valve	Pump Speed			
Standby	0.561			1.192	0.810	8.609	6.805	3.916	3.086	39.879	40.047	19.184	37.081	44.993			
ON	0.678			1.424	0.978	8.398	8.041	4.670	3.688	40.042	40.516	19.229	49.297	79.971			
POWER SUPPLIES [GPD,SPD, APD]																	
Parameters	GPD_24V	GPD_28V	SPD_5VP	SPD_24VP	SPD_28VP	SPD_48VP	SPD_33VP	SPD_EMO	SPD_24VBAT	CoreBiasI	CoreBiasV	APD_12VP	APD_24V	APD_28V			
Standby	23.424	27.503		23.877	28.014	47.977	3.294	25.953		0.225		12.019	23.660	0.000			
ON	23.424	27.503		23.877	28.014	47.977	3.294	26.002		0.222		12.005	23.633	0.000			
POWER SUPPLIES [BGM, DMD]																	
Parameters	BGM_5V	BGM_PSVP	BGM_NSVP	BGM_24VP	BGM_N12VP	BGM_33VP	DMD_15VP	DMD_33VP	DMD_5VP	DMD_NSVA	DMD_PSVA	DMD_15VP	DMD_24VP	DMD_EMO24			
Standby	4.986	4.968	5.060	23.997	12.235	3.284	1.474	3.296	5.003	-5.006	4.950	14.774	23.979	23.979			
ON	4.986	4.968	5.060	23.998	12.235	3.284	1.474	3.296	4.999	-5.006	4.950	14.775	23.981	23.979			
POWER SUPPLIES [Console PU Motors]																	
Parameters	CONTPWRA	CONTPWRB	Console 220	EMO PS	Live24V	24V Node	28V Motor	48V PU	96V PU								
Values	118.89	119.34	212.50	24.43	23.71	23.93	28.03	48.34	96.62								
RF DRIVER																	
Parameters	Tolerance	Value	Parameters				Tolerance	Value									
RF Driver SN	NA	4674	Sensitivity				NA										
Center Freq	NA	2857.200															
BOARD TEMPERATURE																	
Nodes	STN	BGM	COL	MOD	PWM	RFSPS	CCHU	CCHL	KVS	KVD	MVD	XI	EGN				
Temperatures	35.289	31.285	33.511	37.022	30.384	35.341	34.587	32.870	31.916	31.160	30.153	56.250	50.147				
GANTRY																	
Parameters	Tolerance	Value	Parameters				Tolerance	Value									
ASOL Short Coil (Hi-X)	±3 %	18.93	Gun Fil V				NA	5.250									
ASOL Long Coil (Hi-X)	±3 %	69.43	Gun Fil I				NA	3.534									
ASOL PS Current (Hi-X)	±3 %	35.80	Gun 5V				NA	NA									
ASOL PS Voltage (Hi-X)	NA	91.00	Gun 15V				NA	NA									
BMAG E1-E2 (Hi-X)	±0.2 %	1.77	Gun -15V				NA	NA									
BMAG E3-E4 (Hi-X)	±0.2 %	1.78															
BGM																	
DOSIMETRY																	
Parameters	2.5x	4x	6x	6xFFF	10x	10xFFF	6e	6eHDTSE	9e	12e	15e	NA	NA	NA	NA	NA	NA
Buncher R	0.220	0.080	0.420	0.420	-0.340	-0.340	0.240	0.240	0.630	-0.200	-0.060						
Buncher T	0.030	-0.165	0.065	0.065	-0.365	-0.365	0.150	0.200	0.200	-0.180	0.000						
Angle R	-0.027	-0.077	-0.029	-0.019	-0.074	-0.072	-0.013	-0.017	-0.140	-0.344	-0.468						
Angle T	0.087	-0.147	-0.052	0.059	-0.368	-0.260	0.223	0.208	0.108	0.206	-0.225						
Position R	-0.126	-0.069	0.349	0.381	0.604	0.557	0.000	0.000	0.000	0.000	0.000						
Position T	-0.295	0.192	-0.762	-0.803	0.802	0.626	0.000	0.000	0.000	0.000	0.000						
Trim	-0.092	-0.099	-0.068	-0.068	-0.143	-0.143	0.000	0.000	0.000	0.000	0.000						
Bal ANG R	0.996	0.982	0.989	0.986	0.985	0.982	0.953	0.952	0.900	0.874	0.868						
Bal ANG T	0.996	0.985	0.983	0.995	0.981	0.995	1.018	1.017	1.061	1.085	0.993						
Bal POS R	0.878	0.872	0.916	0.910	0.917	0.928	1.000	1.000	1.000	1.000	1.000						
Bal POS T	0.955	0.967	0.950	0.942	0.939	0.940	1.000	1.000	1.000	1.000	1.000						
Symmetry R	0.002	-0.004	0.000	0.001	0.000	0.002	0.000	0.000	0.000	0.000	-0.001						
Symmetry T	-0.002	0.000	-0.003	-0.002	0.000	-0.002	0.000	0.000	0.000	0.000	0.001						
Nominal IonA	0.109	0.405	1.092	1.233	1.164	1.476	3.972	5.363	2.427	1.826	1.776						
Nominal IonB	0.110	0.413	1.104	1.251	1.183	1.502	4.170	5.634	2.695	2.088	2.047						
Nominal IonC	0.104	0.389	1.030	1.232	1.077	1.462	4.158	5.620	2.804	2.198	2.023						
Nominal IonD	0.105	0.395	1.048	1.238	1.098	1.470	4.083	5.524	2.642	2.026	2.036						
Nominal IonE	0.010	0.047	0.140	0.147	0.162	0.190	0.253	0.344	0.094	0.050	0.060						
Nominal IonF	0.011	0.054	0.153	0.161	0.177	0.205	0.339	0.458	0.122	0.066	0.075						
Nominal IonG	0.014	0.060	0.168	0.180	0.186	0.220	0.300	0.407	0.107	0.075	0.084						
Nominal IonH	0.014	0.062	0.176	0.191	0.198	0.234	0.313	0.425	0.118	0.061	0.088						
Nominal IonI	0.029	0.099	0.272	0.367	0.299	0.468	1.749	2.349	1.995	2.086	1.841						
Nominal IonJ	0.026	0.088	0.241	0.347	0.260	0.438	1.352	1.822	1.604	1.699	1.492						
Nominal Target	266.620	226.490	363.130	336.670	168.320	166.370	0.000	0.000	0.000	0.000	0.000						
Nominal FPWR	0.886	1.068	1.314	1.285	1.418	1.430	1.386	1.344	1.478	1.538	2.123						
Target I	271.050	235.880	354.130	333.980	172.860	168.780	-0.195	-0.185	-0.160	-0.220	-0.206						
Cal MU1	0.011	0.012	0.012	0.024	0.011	0.033	0.009	0.009	0.013	0.016	0.017						
Cal MU2	0.011	0.012	0.012	0.023	0.012	0.033	0.009	0.009	0.013	0.016	0.017						
DoseRate	73.019	277.740	571.670	1345.200	594.870	1351.800	558.900	2513.100	577.830	523.770	548.590						

BGM AXES																	
Parameters	2.5x	4x	6x	6xFFF	10x	10xFFF	6e	6eHDTSE	9e	12e	15e	NA	NA	NA	NA	NA	NA
Pos Y-Axis	5.000	4.899	5.024	5.000	4.992	5.000	150.540	150.540	150.290	150.180	150.080						
Pos Rotation	327.530	147.780	207.800	327.530	87.760	327.530	267.700	267.700	246.660	108.770	101.630						
Pos Ion Chamber	203.200	203.200	203.200	203.200	203.200	203.200	203.200	203.200	203.200	203.200	203.200						
Pos Target	70.000	27.000	27.000	27.000	46.000	58.000	3.500	3.500	3.500	3.500	3.500						
Pos ENSW	11.955	10.606	10.250	10.250	8.758	8.758	27.000	27.000	27.000	27.000	27.000						
Port	Port 1	Port 4	Port 3	Port 1	Port 5	Port 1	Foil 8	Foil 8	Foil 9	Foil 1	Foil 2						
BGM RF/COILS																	
Parameters	2.5x	4x	6x	6xFFF	10x	10xFFF	6e	6eHDTSE	9e	12e	15e	NA	NA	NA	NA	NA	NA
PFN V Set	6.566	6.566	6.566	6.566	6.566	6.566	6.566	6.566	6.566	6.567	8.184						
PFN V	6.566	6.566	6.566	6.566	6.566	6.566	6.566	6.566	6.566	6.567	8.184						
PFN Current	2.183	2.210	1.715	1.759	1.718	1.165	1.262	2.003	1.260	1.262	1.502						
AFC V	-6.945	-0.874	0.179	0.179	3.621	3.517	5.478	6.132	5.857	5.669	5.877						
AFC Bal	0.051	0.043	0.026	0.022	0.045	0.045	0.016	0.015	0.014	0.014	0.015						
ASOL V	74.867	51.781	90.675	91.179	92.995	93.452	92.400	91.766	98.724	66.292	34.859						
ASOL I	28.600	20.000	35.000	35.000	35.800	35.800	35.010	35.100	37.947	25.193	13.286						
BMAG V	0.945	1.743	2.282	2.287	3.894	3.915	2.636	2.654	3.689	4.905	6.066						
BMAG I	6.700	12.350	16.150	16.150	27.500	27.600	18.700	18.700	26.150	34.700	42.800						
RF Driver Freq	2858.6000	2857.4000	2857.2000	2857.2000	2856.5000	2856.5000	2856.1000	2856.0000	2856.0000	2856.1000	2856.0000						
RF Driver Watts	19.00	27.00	45.00	45.00	54.00	59.00	52.00	48.00	64.00	76.00	37.00						
RF Driver Console	1.737	2.231	3.087	2.999	3.435	3.455	3.379	3.288	3.717	4.082	3.037						
BGM GUN/TIMING																	
Parameters	2.5x	4x	6x	6xFFF	10x	10xFFF	6e	6eHDTSE	9e	12e	15e	NA	NA	NA	NA	NA	NA
Pulse Width	0.046	0.049	0.048	0.050	0.042	0.050	0.050	0.050	0.050	0.050	0.050						
Delay	0.006	0.007	0.007	0.007	0.012	0.012	0.008	0.008	0.008	0.008	0.008						
Gun Grid	103.030	117.250	122.870	113.400	56.255	57.440	31.682	34.050	9.773	2.173	13.918						
Gun HV Meter	-18110.000	-18110.000	-16112.000	-16112.000	-10135.000	-10140.000	-5661.000	-6150.000	-5168.000	-5168.000	-3164.000						
Gun HV Probe	-17.82	-17.82	-15.83	-15.83	-9.85	-9.85	-5.37	-5.87	-4.88	-4.88	-2.91						
OUTPUT VS ROTATION																	
Parameters	2.5x	4x	6x	6xFFF	10x	10xFFF	6e	6eHDTSE	9e	12e	15e	NA	NA	NA	NA	NA	NA
Max Dose	69.03		583.19		694.08		654.59				696.40						
Min Dose	66.58		554.68		677.59		638.56				677.98						
Deviation Percentage	3.61		5.01		2.40		2.48				2.70						
Lowest DR Angle	88.00		0.00		214.00		130.00				321.00						
Higest DR Angle	218.00		230.00		95.00		0.00				64.00						
COMMAN WAVEFORM MEASUREMENTS																	
Parameters	2.5x	4x	6x	6xFFF	10x	10xFFF	6e	6eHDTSE	9e	12e	15e	NA	NA	NA	NA	NA	NA
FWD PWR	0.43	0.51	0.64	0.62	0.68	0.69	0.66	0.66	0.71	0.75	1.01						
TARG I	0.93	0.82	1.30	1.22	0.60	0.58											
KLY I	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	2.45						
KLY V	2.26	2.26	2.30	2.26	2.26	2.26	2.26	2.26	2.26	2.26	2.76						
HVPS I (DeQing%)	46.33	48.99	54.30	59.80	54.33	63.15	60.31	48.63	60.00	60.00	54.71						
BGM AXES CALIB																	
Parameters	Y-Stage	Carousel Rot	ENSW	Ion Chamber	Target Drive												
Positive limit Distance	0.683	9.222	1.285	1.298	1.631												
Negative Limit Distance	154.680	345.880	28.977	205.930	71.184												
Resolver Angle	10417.000	12846.000	2910.000	8216.000	9653.000												
Secondary Resolver Angle	8128.000	1659.000	NA	12191.000	14795.000												
Travel Range	155.760	355.060	30.283	209.460	74.007												
Resolver Offset	-241.000	316.000	229.000	-45.000	-63.000												
AXES (Gant,COL,Couch)																	
Parameters	COL ROT	COL X1	COL X2	COL Y1	COL Y2	Parameters	Gantry	CCH VRT	CCH ROT	CCH LAT	CCH LNG	CCH PITCH	CCH ROLL				
DistHardStopB	354.980	9.606	9.610	10.290	10.294	PrimaryOffset	1.1148E005	71.571	7626.000	120.130	8.099	-0.140	0.100				
DistToLimitA	1.481	0.183	0.148	0.150	0.301	PrimaryCountPerUnit	-150.740	804.440	NA	1594.400	249.880	NA	NA				
DistToLimitB	353.470	9.457	9.431	10.067	10.057	SecondaryOffset	893.900	30.021	4597.000	114.980	9.747	-0.187	0.097				
ResolverOffsetCalib	-110.000	-827.000	-1533.000	10.000	69.000	SecondaryCountPerUnit	-7.5203E005	805.190	NA	1594.400	541.120	NA	NA				
PrimaryIsoGain	1.000	2.488	2.469	0.998	0.997	ResolverOffsetCalib	NA	NA	-159.000	67.000	-107.000	NA	NA				
PrimaryIsoOffset	0.000	0.322	0.302	0.448	0.469	TertiaryOffset	NA	NA	15625.000	NA	NA	NA	NA				
SecondaryIsoGain	1.000	2.488	2.469	0.998	0.999												
SecondaryIsoOffset	0.030	0.322	0.303	0.447	0.502												

IMAGING											
Inventory				MV/KV Test Image Chain							
Component	Type	Serial Number	Install Date	Parameter		Value					
X-Ray Tube	GS-542	47031-1U	2022/01/17	KV Dark Field Image Mean		574.5945					
X-Ray Generator	EMD	17-F0112	2017/10/31	KV Noise Image SD		7.04					
KV Imaging Panel	4030CB	R7-411S03-0201	2017/1031	MV Dark Field Image Mean		638.1971					
MV Imaging Panel	DMI 0105	163101	2017/10/31	MV Noise Image SD		4.48					
				MV Drift Image Mean		424.0649					
				MV Drift Image SD		181.14					
X-Ray Generator											
Technique	DNC Counts	kVp	mA	mS	Miscellaneous Data		Value				
SF 60kVp 25mA 100ms	108.1	59.4	24.88	100.1	Tube Calibration Date YYYYMMDD		20220117				
SF 90kVp 50mA 100ms	1540.0	90.9	50.06	102.0	DNC Raw ADC Counts		14611				
SF 120kVp 80mA 20ms	1449.4	120.7	78.44	20.1							
LF 60kVp 25mA 100ms	106.4	59.4	24.71	100.1							
LF 90kVp 200mA 20ms	1143.6	91.3	183.7	19.7							
LF 90kVp 200mA 150ms	9112.1	91.0	199.3	149.7							
LF 120kVp 100mA 20ms	1705.1	121.1	92.99	19.9							
LF 120kVp 200mA 100ms	13765.7	121.0	198.4	99.8							
ARMS											
Parameters	KVD	KVS	MVD	Parameters	Blade X1	Blade X2	Blade Y1	Blade Y2	Foil	Shape	
System Calibration VRT	-0.240	0.006	-0.023	refPos	2.922	2.922	2.887	2.879	0.081	0.101	
System Calibration LONG	0.144	0.003	-0.053	distToHardstopA	-0.018	-0.018	-0.053	-0.061	NA	NA	
System Calibration LAT	0.043	0.000	0.008	distToHardstopB	-3.546	-3.563	-3.535	-3.524	14.992	19.291	
Teach Drive Elbow	89.293	119.950	84.840	TravelDist	-3.580	-3.580	-3.580	-3.580	NA	NA	
Teach Drive Wrist	230.030	184.950	227.900	axisCalibOffset	-0.105	0.054	-0.069	-0.005	0.000	0.127	
Axes Cal Shoulder primZeroPhy	249.070	313.180	222.730	distToFocal	10.942	10.915	9.384	9.355			
Axes Cal Elbow distToIndex	6.631	15.075	5.927								
Axes Cal Elbow TerZeroPhy	-107.470	141.090	50.062								
Axes Cal Wrist distToIndex	-14.157	10.143	-15.219								
Axes Cal Wrist TerZeroPhy	28.346	159.290	134.330								
Axes Cal Hand distHardStopB	-36.289	NA	-36.308								
Axes Cal Hand primZeroPhy	-17.872	NA	-16.621								
Axes Cal Hand terZeroPhy	-17.590	NA	-16.288								
Shoulder refPos	343.550	339.950	262.950								
Elbow refPos	18.941	31.086	18.927								
Wrist refPos	338.140	155.970	338.190								
Hand refPos	18.144	NA	18.155								