RADIATION SAFETY DEVICE LIST (Compressed List)

				PSS Type 1	PSS Type 3	PSS Type 5
Interface Types:				PSS Type 2	PSS Type 4	
Names: By Machine	**Consequence Level**	**Device/System Location(s)**	**Device/System Partition Description**	**Device/ System Ownership**	**Associated Work Flow Procedures**	**Comments**
ACCELERATOR						
Linac/PAR:						
Linac Laser Gate Valve Shutter	High	Bldg 411 at the beginning of the APS linac, and adjacent to the linac tunnel. Both the Laser Room (A103A) and the Linac Injector Test Stand (ITS) (A103B) are considered laser controlled areas (LCA).	ACIS Interface Yes. RSS Boundary = Gate valve, position switches & equipment RSS path.	ASD/MEG ASD/VTG ASD/SIG		
LINAC Laser Enable Power Supply	High	Laser Room (A103A)	ACIS Interface Yes. RSS Boundary = Monitor and control power to the laser via relay contacts.	ASD		
RF Gun 1 & 2 Kicker Supply (RG1 & 2:KIK)	Med.*	L1 Section of the Klystron Gallery	ACIS Interface Yes. RSS Boundary = Control relays and wiring associated with ACIS.	ASD/PSG	The Check out of RG1:KIK after ACIS components have been repaired. [2]	Only for ACIS inside of equipment.[1] *Defined as medium level not high because it is part of redundant RSS pair.
ACIS/Modulator Interface	Med.*	L1,L2,L3,L4,L5, & L6**	ACIS Interface Yes. RSS Boundary = Consists of an interface chassis, junction box and wiring which perform the following functions: [1] routes ACIS permit contact closures to the L1,2,3,4,5,6 both upper and lower EMI HVPS's utilizing an external contact interlock input to the HVPS that involves relays K11 and K12, connectors P10 and P11 in the modulator's junction box, and external interlock inputs of the EMI supplies; [2] sends the ACIS status to EPICS through the junction box connector P12. The interface chassis provides +15 VDC through connector P24. If ACIS is not in the linac "Beam Permit" mode, opened contacts in the modulator's ACIS chassis interrupts external interlocks in both EMI HV power supplies and shuts them off.	ASD/RFG ASD/SIG	The Check out of RF 1 Amplifier. [2]	[1] *Defined as medium level not high because it is part of redundant RSS pair. ** L6 not interfaced to ACIS.

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2. Shtdwn validate if the equip. interlocks that interface to the ACIS have been serviced or @ machine startup.
3. Annual valid. or when serviced.
5. Clsed switches to ACIS fanned out to PSS

RADIATION SAFETY DEVICE LIST (Compressed List)

				PSS Type 1	PSS Type 3	PSS Type 5
Interface Types:				PSS Type 2	PSS Type 4	
Names: By Machine	**Consequence Level**	**Device/System Location(s)**	**Device/System Partition Description**	**Device/ System Ownership**	**Associated Work Flow Procedures**	**Comments**
PAR dipole Power Supply (P:BM)	Med.*	Bldg. 411-B105	ACIS Interface Yes. RSS Boundary = Main Power contactor and wiring and control relays associated with ACIS. This MAY include the ACIS box outside the equipment.	ASD/PSG	The Check out of P:BM after ACIS components have been repaired.[2]	Only for ACIS inside of equipment, & the ACIS box outside of equip.[1] *Defined as medium level not high because it is part of redundant RSS pair.
Injector Test Stand Wave Guide Switch Interface	High	Sw. #5 is located in the linac tunnel, gun end. Sw. #6 is located in the Injector Test Stand.	ACIS Interface Yes. RSS Boundary = Work on the S-band switches and associated cabling to and including the cable junction boxes.	ASD/RFG ASD/SIG	3	Wave-guide switches numbered 5 and 6 are installed in the linac wave-guide that connects to the RF Gun Test Room.
L1, L3 ACIS/BESOCM/ Modulator Interface	High	L1, L3 Section of the Klystron Gallery	ACIS Interface Yes. RSS Boundary = Consists of the Interface chassis (board AA, local/remote control board, connector P15 and wiring), the thyratron drive chassis (TTC), high-voltage coaxial cable between theTTC and the thyratron box, and a fiber optic cable between the BESOCM triggering chassis and the modulator interface chassis. The interface performs the following function: routes optical-analog-high-voltage triggering signal to the L1, L3 thyratron switch. If ACIS decides to stop the modulator from triggering, the BESOCM disables its output, no optical triggering signal is received by board AA of the modulator interface chassis, and the thyratron does not fire.	ASD/RFG		
LINAC Besocm Trigger Steering WaveGuide Switches	High	Bldg. 412, Rm B107	ACIS Interface Yes. RSS Boundary = Two WR 340 waveguide switches (WG Switches #3 and #9) that provide positive indication of which modulator is driving an rf gun. The position of the waveguide switches is monitored by the Linac ACIS system, utilizing dedicated position indicating switches installed inside each waveguide switch. These position indicating switches provide separate contact closures to the each of the three chains of the ACIS system. The BESOCM is always triggered by the modulator pulse that is driving an rf gun.	ASD/RF	2	

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RADIATION SAFETY DEVICE LIST (Compressed List)

				PSS Type 1	PSS Type 3	PSS Type 5
Interface Types:				PSS Type 2	PSS Type 4	
Names: By Machine	**Consequence Level**	**Device/System Location(s)**	**Device/System Partition Description**	**Device/ System Ownership**	**Associated Work Flow Procedures**	**Comments**
LINAC BESCOM Trigger Chassis	High	Bldg. 412, Rm B107	ACIS Interface Type Yes. RSS Boundary = any work on the BESCOM Trigger Switch Chassis and the output fiber cables to the modulators and BESOCM devices.	ASD/Controls	3	The BESOCMs must be triggered by the particular linac rf system that is supplying rf to the guns
Linac/PAR Beam Shutoff Current Monitors	High	Bldg. 412, Rm B107	ACIS Interface Yes. RSS Boundary = Beam shutoff monitors and equipment in RSS device path.	Diagnostics	2	1
L1, 2, 3, 4, 5 Trigger and Interlock Module ACIS Shutdown Chassis	Med.	Bldg. 412, Rm B107	ACIS Interface Yes. RSS Boundary = Consists of a double width NIM module plus a supplementary boxed latch chassis with associated wiring which routes an ACIS permit contact closure to a dedicated relay in the L1,L2,L3,L4,L5 klystron (400 watt) rf driver amplifier that inhibits 120v ac power to the amplifier until it is energized. The NIM module also contains machine protection interlock relays that inhibit the gate to the L1,L2,L3,L4,L5 klystron (400 watt) rf driver amplifier. Receiving the rf drive gate fiber optically and distributing it coazially is another function of the NIM module.	ASD/RF	2	

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5. Clsed switches to ACIS fanned out to PSS

RADIATION SAFETY DEVICE LIST (Compressed List)

				PSS Type 1	PSS Type 3	PSS Type 5
Interface Types:				PSS Type 2	PSS Type 4	
Names: By Machine	**Consequence Level**	**Device/System Location(s)**	**Device/System Partition Description**	**Device/ System Ownership**	**Associated Work Flow Procedures**	**Comments**
PAR RF	Med.*	Bldg. 412, Rm B107	ACIS Interface Yes. RSS Boundary = PAR RF and equipment in RSS device path. Consists of an interface chassis located in building 411, room B107 and routes ACIS permit contact closures to the fundamental par tube amplifier #1 and #2 and the harmonic par tube amplifier #1 and #2. For harmonic tube amplifiers, ACIS contact closure involves relay K3 and terminal block TB3 both located inside the tube amplifier chassis and when ACIS permission is denied will put both harmonic tube #1 and #2 in stand-by mode (no high voltage).The back door of these harmonic tube amplifier chassis are also interlocked and if the door opens, the unit will go into stand-by. For fundamental tube amplifier, ACIS contact closure involves K13 and terminal block TB4 on the interlock relay chassis located inside the fundamental tube amplifier racks. When ACIS permission is denied both fundamental tube amplifier will loose high voltage. Both fundamental tube amplifiers back doors are also interlocked.	ASD/RFG	2	1 *Defined as medium level not high because it is part of redundant RSS pair.
ACIS - Linac to PAR Bending Magnet Interface LTP:B1	High	411	ACIS Interface Yes. RSS Boundary = Bending magnet interface and equipment in RSS path.	ASD/PSG	2,3	The Linac/PAR ACIS monitors the status of the Linac to PAR Bending Magnet. 1
Kylstron Lead Shielding	Medium	L1,L2,L3,L4,L5,L6	ACIS Interface No. RSS Boundary = Protection from klystron X-rays; consists of a number of lead plates, rings, etc.; is monitored by HP on a daily basis.	ASD/RFG AOD/HP		
LACIS: Laser Access Control	Medium	Laser Room (A103A)	ACIS Interface No. RSS Boundary =	ASD/APG	2,3	LASER Access Control Interlock System
Synchrotron/ BOOSTER						
PAR to Booster Triple Beam Stopper	High	PAR Tunnel, NW corner	ACIS Interface Yes. RSS Boundary = Double radiation stopper and equipment in RSS device path.	ASD/MEG ASD/VAC	2	ACIS monitors & controls two radiation stoppers. 3

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5. Clsed switches to ACIS fanned out to PSS

RADIATION SAFETY DEVICE LIST (Compressed List)

				PSS Type 1	PSS Type 3	PSS Type 5
Interface Types:				PSS Type 2	PSS Type 4	
Names: By Machine	**Consequence Level**	**Device/System Location(s)**	**Device/System Partition Description**	**Device/ System Ownership**	**Associated Work Flow Procedures**	**Comments**
Linac to Booster Double Radiation Stopper	High	PAR Tunnel, NW	ACIS Interface Yes. RSS Boundary = Double radiation stopper and equipment in RSS device path.	ASD/MEG ASD/VAC	[2]	ACIS monitors & controls two radiation stoppers. [3]
Booster to Ring Double Radiation Stopper	High	Booster Tunnel	ACIS Interface Yes. RSS Boundary = Double radiation stopper and equipment in RSS device path.	ASD/MEG ASD/VAC	[2]	ACIS monitors & controls one radiation stopper. [3]
Booster to LEUTL Single Radiation Stopper	High	LEUTL Alcove in Injection side of the Booster Tunnel.	ACIS Interface Yes. RSS Boundary = Double radiation stopper and equipment in RSS device path.	ASD/MEG ASD/VAC	[2]	ACIS monitors & controls one radiation stopper. [3]
RF 5 HV modulator and RF 5 Amplifier)	Med.*	420	ACIS Interface Yes. RSS Boundary = Consists of an interface chassis and wiring which performs the following functions: [1] routes ACIS permit contact closures to the RF5 HVPS utilitzing an external contact interlock input to the HPVS, [2] switches 120v ac power to the RF5 klystron (Kalmus) rf driver amplifier, [3] routes a contact closure from the HVPS back to the ACIS system to indicate the off/on status of the HVPS, [4] provides a contact closure to the ACIS system that indicates the on/off status of the switched 120v ac power to the klystron (Kalmus) rf driver amplifier, [5] provides contact status outputs to the EPICS control system to indicate the interface box status, and [6] provides external reset capabilities of the ACIS/RF Interface Chassis from EPICS.	ASD/RFG		*Defined as medium level not high because it is part of redundant RSS pair.
BOOSTER Dipole Power Supply (B:BM)	Med.*	Bldg. 412 - West End.	ACIS Interface Yes. RSS Boundary = Main power contactor and wiring and control relays associated with ACIS. This MAY include the ACIS box outside the equipment.	ASD/PSG	The Check out of B:BM after ACIS components have been repaired. [2,3]	Only for ACIS inside of equip., & the ACIS box outside of equipment. [1] *Defined as medium level not high because it is part of redundant RSS pair.

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5. Clsed switches to ACIS fanned out to PSS

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Names: By Machine	**Consequence Level**	**Device/System Location(s)**	**Device/System Partition Description**	**Device/ System Ownership**	**Associated Work Flow Procedures**	**Comments**
BOOSTER Dipole Power Supply (BTS:BX)	High	420 - col# A7 (across form the truck dock).	ACIS Interface Yes. RSS Boundary = Shunt wiring and control relays associated with ACIS. This include the ACIS pannel in the realy rack.	ASD/PSG	The Check out of BTS:BX after ACIS components have been repaired. Check out PS comparison circuitry if serviced by the PS Group. Check response of gap switches in magnet if serviced.	Only for ACIS threshold detection, and the ACIS of equipment inside of the rack.
Synchrotron to Storage Ring High Energy Transport Line Steering	High		ACIS Interface Yes. RSS Boundary = BX and AB steering magnet status and equipment in RSS path.	ASD/PSG	Check out PS comparison circuitry if serviced by the PS Group. Check response of gap switches in magnet if serviced.	The RF Area ACIS monitors the status of the steering magnets (BX and AB magnets) that direct the beam from the Synchrotron to the beam dump or to the Storage Ring.

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5. Clsed switches to ACIS fanned out to PSS

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Interface Types:				PSS Type 2	PSS Type 4	
Names: By Machine	**Consequence Level**	**Device/System Location(s)**	**Device/System Partition Description**	**Device/ System Ownership**	**Associated Work Flow Procedures**	**Comments**
Storage Ring:						
RF HV modulator and RF Amplifier)	Med.*	RF 1 HV, RF 2 HV, RF 3 HV, RF 4, HV & RF 1 Amplifier, RF2 Amplifier, RF3 Amplifier, RF4 Amplifier	ACIS Interface Yes. RSS Boundary = Consists of an interface chassis and wiring which performs the following functions: [1] routes ACIS permit contact closures to the RF1, 2, 3, 4 UVC HVPS system utilizing the "external 3" contact interlock input which involves relay #3 on relay card #11 in the UVC control system, [2] switches 120v ac power to the RF1,2,3,4 klystron (Kalmus) rf driver amplifier, [3] routes a contact closure generated by the "HVPS ACIS Status Relay" in the UVC SCR Control Cabinet back to the ACIS system to indicate the off/on status of the HVPS, [4] provides a contact closure to the ACIS system that indicates the on/off status of the switched 120v ac power to the klystron (Kalmus) rf driver amplifier, [5] provides contact status outputs to the EPICS control system to indicate the interface box status, and [6] provides external reset capabilities of the ACIS/RF Interface Chassis from EPICS. When RF1,2,3,4 is used to supply rf power to the 350MHz RF Test Stand, separate ACIS system for the 350MHz RF Test Stand utilizes this interface chassis to control RF1,2,3,4.	ASD/RFG ASD/SIG	The Check out of RF 1 HV modulator. [2,3]	*Defined as medium level not high because it is part of redundant RSS pair.
Storage Ring Dipole Power Supply (S:BM)	Med.*	Bldg 420-A004	ACIS Interface Yes. RSS Boundary = Main Power Supply contactor and wiring and control relays associated with ACIS.	ASD/PSG	Dipole shutdown validation after work. [2,3]	Connected to ACIS equipment. *Defined as medium level not high because it is part of redundant RSS pair.
Storage Ring 6 GEV Interlock system.	High	Bldg 420-A004	ACIS Interface Yes. RSS Boundary = Wiring to S.R. Dipole measuring current and voltage connected to ACIS.	ASD/PSG	6 GEV top-up interlock validation after work.	Connected to ACIS equipment. PS current and voltage > 6 Gev. [1]
ACIS - Storage Ring Current Monitors	High	Sector 33: 36 current monitors	ACIS Interface Yes. RSS Boundary = SR current monitors and equipment in RSS device path.	ASD/Diagnostics	[2,3]	Two Storage Ring beam current monitors interface to the RF Area ACIS. [1]
Storage Ring Gate Interfaces	High		ACIS Interface Yes. RSS Boundary = Each of the Storage Ring gates contains monitoring switches.	ASD/MEG ASD/SIG	[2,3]	

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Names: By Machine	**Consequence Level**	**Device/System Location(s)**	**Device/System Partition Description**	**Device/ System Ownership**	**Associated Work Flow Procedures**	**Comments**
Rachet and Super Door Interfaces	High		ACIS Interface Yes. RSS Boundary = Each ratchet door contains monitoring switches	ASD/MEG ASD/SIG	2,3	
Global On/Off Line Key switch (asserted ON when "On Line")	High	ASIE	ACIS Interface Yes. RSS Boundary = ACIS	ASD/SIG	3	
Sector 39 View screen	High	F Tunnel	ACIS Interface Yes. RSS Boundary = Work in the SR tunnel on any S39 Flag component or cable	ASD/Diagnostics	2,3	The closed position of the Sector 39 view screen is monitored by the ACIS
ACIS - Radiation Monitor Interfaces	High	APS Facility	ACIS Interface Yes. RSS Boundary = Radiation monitor and equipment in RSS device path up to ACIS connector.	AOD/UES ASD/SIG	2,3	All five ACISs interface to numerous radiation monitors in the APS facility. 1
ACIS - Building 420 Wave Guide Shutters	High	420	ACIS Interface Yes. RSS Boundary = Wave Guide shutters and equipment in RSS device path.	ASD/RFG	2,3	Two shutters are installed in the rf wave-guide that connects to the RF Test Stand. [1]
ACIS - Maze Door Interfaces	High	APS Facility	ACIS Interface Type Yes. RSS Boundary = Doors - Mechs or facility, switches/lock	ASD/SIG	2,3	Each maze door contains monitoring switches & lock
ACIS - Chain A and B, PLC software and hardware and chain C hardware	High *	APS Facility	ACIS Interface Yes. RSS Boundary = ACIS	ASD/SIG	2,3	* Functional changes to the PLC software are considered High consequences. However, remedial changes to the PLC software may be considered meduim.
ACIS - Safety related devices	Medium	APS Facility	ACIS Interface Yes. RSS Boundary = ACIS access keys, Door Locks, Search and Secure stations, and tamper monitoring	ASD/SIG	2,3	Access keys, **Door Locks**, Search & Secure stations, and tamper monitoring
Shielding Components in APS Accelerator (LINAC, BOOSTER, SR)	High		ACIS Interface No. RSS Boundary = Critical Components (red tags) and Components Under Configuration Control (yellow tags) that are not interfaced to either the ACIS or PSS.	AOD/UES		

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5. Clsed switches to ACIS fanned out to PSS

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Interface Types:				PSS Type 2	PSS Type 4	
Names: By Machine	**Consequence Level**	**Device/System Location(s)**	**Device/System Partition Description**	**Device/ System Ownership**	**Associated Work Flow Procedures**	**Comments**
ACIS - Front End Equipment Protection System	Low	Facility	ACIS Interface Yes. RSS Boundary = Closed switches	ASD/SIG		
ACIS - Controlled Access CCTV System	Medium	Facility	ACIS Interface Yes. RSS Boundary = ACIS controlled access CCTV and equipment in RSS path.	ASD/Controls ASD/SIG	2,3	A CCTV/intercom system is used by MCR Operations to allow personnel access to the five machines at the maze doors while the ACIS is in Controlled Access Mode
ACIS to PSS: shutter permit	Medium		ACIS Interface Yes. RSS Boundary = ACIS to PSS ICD	ASD/SIG	2,3	Shutter Permit (asserted ON when shutters may be opened)
RF: waveguide leakage monitors	Medium		ACIS Interface Yes. RSS Boundary = Waveguide leakage monitors and equipment in RSS path.	ASD/RFG		waveguide leakage monitoring
RF1,2,3,4,5 Klystron garages personnel access control interlocks	High	420	ACIS Interface No. PSS Boundary = RF1,2,3,4,5 Klystron garage interlocks consists of Protection from klystron X-rays; consists of door switches and a Kirk-keyed lock/keyswitch. These contacts serve as two separate and isolated inputs to the RF1,2,3,4,5 Personnel Safety System Interface chassis, which shuts down the RF1,2,3,4,5 HVPS and klystron rf drive if the garage is opened.	ASD/RFG		

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RF3/5 Isolation Waveguide Shutters	High		ACIS Interface Yes. RSS Boundary = Two full-height WR2300 waveguide shutters that provide rf isolation in the waveguide run between waveguide switch #2 & waveguide switch #3. This configuration provides rf isolation between RF3 & RF5, which is equivalent to isolation between the Booster & SR rf distribution systems. The open/closed position of the waveguide shutters is monitored by the SR & Booster ACIS system, utilizing dedicated position indication switches installed inside each waveguide shutter. These position indication switches provide contact closures to the ACIS system through dedicated connectors & cabling from each shutter. The SR or Booster ACIS system monitors the psoition of both waveguide shutters and uses the shutter position to provide ACIS control of RF3 from the SR ACIS system or the Booster ACIS system, depending on which accelerator system RF3 is providing rf power to. Both of these waveguide shutters are equipped w/Kirk-interlock systems that allow the shutters to be locked in the closed position for LOTO purposes. The position of both waveguide shutters can be changed manually or by rem	ASD/RFG		
Waveguide Air Pressure Interlocks	Low		ACIS Interface Yes. RSS Boundary = Protection from rf radiation from opening in the rf waveguide system by detecting a drop in slight positive air pressure maintained inside the waveguide system by the rf cavity coupler air blowers. The system consists of 9 separate calibrated Photohelic air pressure guages installed at various positions in the waveguide system throughout Building 420. The alarm outputs of all Photohelic pressure guages (except for the Photohelic pressure gauge located at the 350MHz RF Test Stand, which is presently disabled) terminate at an interface chassis that routes shutdown commands to the RF Personnel Safety Interface Chassis all Storage Ring and Booster RF stations (RF1-TF5) in the event any single or comination of the Photohelic pressure guages rgisters an alarm. The RF Personnel Safety Interlock System at each rf station in turn disables the HVPS and klystron rf drive.	ASD/RFG		

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Names: By Machine	**Consequence Level**	**Device/System Location(s)**	**Device/System Partition Description**	**Device/ System Ownership**	**Associated Work Flow Procedures**	**Comments**
350MHz RF Test Stand RF Radiation Monitor	Medium		ACIS Interface Yes. RSS Boundary = This rf radiation monitor provides an alarm contact closure to the 350MHz RF Test Stand ACIS system in the event the rf radiation level behind the test stand operator console exceeds approximately 0.10mW/sq-cm at 351.93MHz.	ASD/RFG		
350 MHz RF Test Stand Bunker Isolation Waveguide	Medium		ACIS Interface Yes. RSS Boundary = Two full-height WR2300 waveguide shutters that provide rf isolation in the waveguide system for downstream personnel protection when the test cavity or connecting waveguide is disassembled for analysis, repair, or modification. The open/closed position of the waveguide shutters is monitored by the 350MHz RF Test Stand ACIS system utilizing dedicated position indication switches installed inside each waveguide shutter. These position indication switches provide contact closures to the ACIS system through dedicated connectors and cabling from each shutter. The 350MHz RF Test Stand ACIS system monitors the position of both waveguide shutters and uses the shutter position to either permit or inhibit the operation of RF1. Both of these waveguide shutters are equipped with Kirk-interlock systems that allow the shutters to be locked in the closed position for LOTO purposes. The position of both of these waveguide shutters can be changed manually or by remote control from the 350MHz RF Test Stand PLC Control System.	ASD/RFG		

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5. Clsed switches to ACIS fanned out to PSS

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Names: By Machine	**Consequence Level**	**Device/System Location(s)**	**Device/System Partition Description**	**Device/ System Ownership**	**Associated Work Flow Procedures**	**Comments**
350MHz RF Test Stand 1MW RF Test Load Isolation Waveguide Shutters	Medium		ACIS Interface Yes. RSS Boundary = Two full-height WR2300 waveguide shutters that provide rf isolation in the waveguide system for downstream personnel protection in the connecting waveguide run between switch #4, the device test circulator, and the 1MW rf test load is disassembled for analysis, repair, or modification. Both of these waveguide shutters are equipped with Kirk-interlock systems that allow the shutters to be locked in the closed position for LOTO purposes. The position of both of these waveguide shutters is changed manually, or electrically by the use of local control boxes that are temporarily connected to the shutters.	ASD/RFG		
LEUTL:						
BBBM1 Power Supply	High		ACIS Interface Yes. RSS Boundary = Contactor and other equipment in RSS path.	ASD/PSG	2,3	1
BBBM2 Power Supply	High		ACIS Interface Yes. RSS Boundary = Contactor and other equipment in RSS path.	ASD/PSG	2,3	1
LEUTL: End station access control	Medium		ACIS Interface Yes. RSS Boundary = Personnel access control interlock system	ASD/SIG		
Display computers and EPICS for ACIS	Low		ACIS Interface Yes. RSS Boundary = Display computers and EPICS interface	ASD/SIG		

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Interface Types:				PSS Type 2	PSS Type 4	
Names: By Machine	**Consequence Level**	**Device/System Location(s)**	**Device/System Partition Description**	**Device/ System Ownership**	**Associated Work Flow Procedures**	**Comments**
BEAMLINES						
Front Ends						
Photon Shutters 1 & 2 (PS1, PS2)	High	1BM, 1ID, 2BM, 2ID, 3ID, 4ID, 5BM, 5ID, 6BM, 6ID, 7ID, 8BM, 8ID, 9BM, 9ID, 10BM, 10ID, 11BM, 11ID, 12BM, 12ID, 13BM, 13ID, 14BM, 14ID, 15ID, 16BM, 16ID, 17BM, 17ID, 18ID, 19BM, 19ID, 20BM, 20ID, 22BM, 22ID, 23BM, 23ID, 24ID, 26ID, 30ID, 31ID, 32ID, 33BM, 33ID, 34ID, 35BM, 35ID	PSS Interface Type - 1 & 2. RSS Boundary = position switches, cylinders, pneumatics, DIW cooling up to the PSS wiring and alignment.	ASD/VTG ASD/MEG ASD/SIG XFD/XFE*	2,3	Open and Closed switches. [5] * New Front Ends being commissioned.
Safety Shutter 1 & 2 (SS1, SS2)	High	1BM, 1ID, 2BM, 2ID, 3ID, 4ID, 5BM, 5ID, 6BM, 6ID, 7ID, 8BM, 8ID, 9BM, 9ID, 10BM, 10ID, 11BM, 11ID, 12BM, 12ID, 13BM, 13ID, 14BM, 14ID, 15ID, 16BM, 16ID, 17BM, 17ID, 18ID, 19BM, 19ID, 20BM, 20ID, 22BM, 22ID, 23BM, 23ID, 24ID, 26ID, 30ID, 31ID, 32ID, 33BM, 33ID, 34ID, 35BM, 35ID	PSS Interface Type - 1 & 2. RSS Boundary = position switches, cylinders, pneumatics, DIW cooling up to the PSS wiring and alignment.	ASD/VTG ASD/MEG ASD/SIG XFD/XFE*	2,3	Open and Closed switches. [5] * New Front Ends being commissioned.

1. Only for equips interlocks that interface to the ACIS.
2. Shtdwn validate if the equip. interlocks that interface to the ACIS have been serviced or @ machine startup.
3. Annual valid. or when serviced.
5. Clsed switches to ACIS fanned out to PSS

RADIATION SAFETY DEVICE LIST (Compressed List)

				PSS Type 1	PSS Type 3	PSS Type 5
Interface Types:				PSS Type 2	PSS Type 4	
Names: By Machine	**Consequence Level**	**Device/System Location(s)**	**Device/System Partition Description**	**Device/ System Ownership**	**Associated Work Flow Procedures**	**Comments**
Fixed Mask 1,2,3	High	1BM, 1ID, 2BM, 2ID, 3ID, 4ID, 5BM, 5ID, 6BM, 6ID, 7ID, 8BM, 8ID, 9BM, 9ID, 10BM, 10ID, 11BM, 11ID, 12BM, 12ID, 13BM, 13ID, 14BM, 14ID, 15ID, 16BM, 16ID, 17BM, 17ID, 18ID, 19BM, 19ID, 20BM, 20ID, 22BM, 22ID, 23BM, 24BM, 33BM, 33ID, 34ID	PSS Interface No. RSS Boundary = cooling, alignment	ASD/VTG ASD/MEG XFD/XFE*		Open and Closed switches. [5] * New Front Ends being commissioned.
Fixed Mask 1,2	High	11ID	PSS Interface No. RSS Boundary = cooling, alignment	ASD/VTG ASD/MEG		
Fixed Mask 1,2,3 & 4	High	16ID, 22ID, 31ID, 32ID	PSS Interface No. RSS Boundary = cooling, alignment	ASD/VTG ASD/MEG		
Shielding Components	High		PSS Interface No. RSS Boundary = The general type of beamline shielding components include: Lead bricks, ratchet wall collimators.	ASD/VTG XFD/XFE*		* New Front Ends being commissioned.

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RADIATION SAFETY DEVICE LIST (Compressed List)

				PSS Type 1	PSS Type 3	PSS Type 5
Interface Types:				PSS Type 2	PSS Type 4	
Names: By Machine	**Consequence Level**	**Device/System Location(s)**	**Device/System Partition Description**	**Device/ System Ownership**	**Associated Work Flow Procedures**	**Comments**
Experimental Floor						
Collimator	High	1BM,1ID,2BM,2ID,3ID,4ID,5BM,5ID,6ID,7ID,8BM,8ID,10BM,10ID,12BM,12ID,13BM,13ID,14BM,14ID,15ID,16BM,16ID,17BM,17ID,18ID,19BM,19ID,20BM,20ID,22BM,22ID,23ID,24ID,31ID,33BM,33ID,34ID,35ID	PSS Interface No. RSS Boundary = collimator, cooling & alignment. Typical types are K5-20…	AOD		
Beamline Shutters	High	1BM,1ID,2BM,2ID,3ID,4ID,5BM,5ID,6ID,7ID,8BM,8ID,9BM,10ID,11BM,11ID,12BM,12ID,13BM,14BM,14ID,15ID,16BM,16ID,17BM,17ID,18ID,19BM,19ID,20BM,20ID,22BM,22ID,23ID,24ID,30ID,31ID,32ID,33BM,33ID,34ID,	PSS Type 3 & 4. RSS Boundary = Position switches, cylinders, pneumatics, DIW cooling up to the PSS wiring. Typical types are P6,P7,P8,P4,P5,P9,S2,SH1-C,SH2-D,S3,	ASD/SIG ASD/VTG ASD/MEG AOD		Open and Closed switches
Lead Bricks	High	1BM,5BM,13ID,15ID,16ID,27ID,	PSS Interface No. RSS Boundary = Lead bricks that have red configuration tags.	AOD		
Beam Stop	High	2BM,2ID,4ID,5BM,5ID,8ID,9ID,10BM,11ID,13BM,13ID,14BM,14ID,15ID,16BM,16ID,18ID,19ID,20BM,22ID,23ID,24ID,26ID,30ID,31ID,32ID,33ID,34ID,35ID,35BM	PSS Interface in some cases. RSS Boundary = Either Synchrotron or Bremsstrahlung Stops	AOD		
Mask	High	2ID,4ID,8ID,10BM,11ID.13ID,16BM,16ID,20BM,24ID,31ID,33BM,33ID,34ID,	PSS Interface No. RSS Boundary = Mask, cooling and alignment that have red configuration tags. Typical types are M9-30 mask.	AOD		
Bremsstrahlung Stop/Shielding	High	5ID,6BM,9BM,17BM27ID	PSS Interface No. RSS Boundary = Shielding for bremstrallung.	AOD		

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RADIATION SAFETY DEVICE LIST (Compressed List)

				PSS Type 1	PSS Type 3	PSS Type 5
Interface Types:				PSS Type 2	PSS Type 4	
Names: By Machine	**Consequence Level**	**Device/System Location(s)**	**Device/System Partition Description**	**Device/ System Ownership**	**Associated Work Flow Procedures**	**Comments**
Beamline Interlock	High	14ID	Type-4 Back to back copper canister at the downstream wall of 14-ID-B	AOD		
Photon Stop	High	16ID	Type-4 Photon Stop located downstream end of 16ID-C, directly upstream of S3-30 shutter	AOD		
White/Pink Beam Absorber	High	17BM	Type-3 White/Pink Beam Absorber (SCRRI Design) located downstream of Mono	AOD		
Monochromater	High	19BM	Type-3 Monochromater tank (only)	AOD		
Monochromater	High	22BM	Type-3 Downstream wall of Monochromater tank (only)	AOD		
Station Labyrinths	High		PSS Interface No. RSS Boundary = Engineered radiation shielding interface.	AOD		
BEAMLINES						
PSS - In General	High	All Beamlines	PSS Safety critical hardware and software	ASD/SIG		
PSS - Safety Related Devices	Medium		Search and Secure stations, warning alarms and beacons, door magnetic locks, PSS USER Key	ASD/SIG		
PSS - Beam Line Shutters = Mode Locks	Medium		Kirk locks when installed on mode shutters	ASD/SIG		
PSS - BLEPS Interface	Low		PSS Interface Type - 5. RSS Boundary = Isolated relay contact	ASD/SIG		
PSS - Remote Shutter Interface and Chassis	Low		PSS Interface Type - 5. RSS Boundary = Isolated relay contact	ASD/SIG		
PSS - Pneumatic Door Interface	Low		PSS Interface Type - 5. RSS Boundary = Terminal strip in box	ASD/SIG		
PSS - FEEPS Interface	Low		PSS Interface Type - 5. RSS Boundary = Isolated relay contact	ASD/SIG		
PSS - Generation-3 PSS Chain-C I/O	Low		PSS Interface Type - 5. RSS Boundary = Electrically isolated.	ASD/SIG		

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