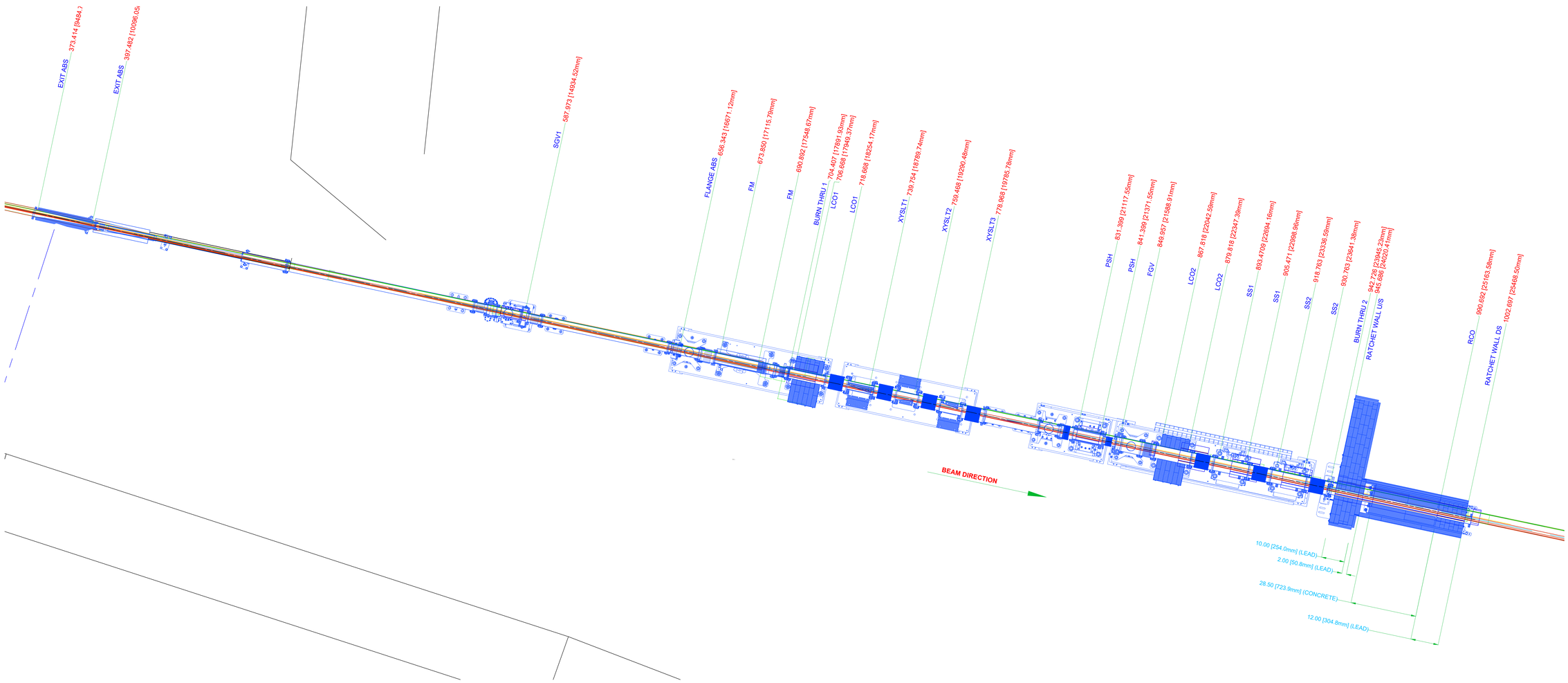
REVISION HISTORY					
REV	DESCRIPTION	DATE	DESIGNER	CHECKED BY	ENGINEER
x	x				



NOTE:

1. THE CENTER OF STRAIGHT IS THE ORIGIN FOR ALL DIMENSIONS UNLESS OTHERWISE NOTED.
2. BENDING MAGNET FAN NOT SHOWN, LAYOUT TO BE SUPPLIED BY VACUUM GROUP.
3. AN ID ENVELOPE AND TOLERANCE WAS USED TO ACCOMMODATE LONGITUDINAL ADJUSTMENT OF THE INSERTION DEVICES.
4. THE BURN-THRU DEVICE WAS REMOVED FROM THE RATCHET WALL COLLIMATOR

SPECIFICATIONS		SPEC REFERENCE
Project	PBN	PS-C-XFD-RSI-SST-BMM
Source	IVU/EPU	PS-C-XFD-RSI-SST-BMM
Beam Line Name	SPECTROSCOPY SOFT & TENDER	PS-C-XFD-RSI-SST-BMM
Abbreviation	SST	PS-C-XFD-RSI-SST-BMM
Period of insertion device	14	PS-C-XFD-RSI-SST-BMM
Long / Short Straight / Cell	SHORT / 07-ID	PS-C-XFD-RSI-SST-BMM
Canting Angle	2.00 mrad (HORIZONTAL ONLY)	PS-C-XFD-RSI-SST-BMM
Length of Source	US 1.6 m / DS .89 m	PS-C-XFD-RSI-SST-BMM
Location of Center of Source 1	~ -1.25 m	PS-C-XFD-RSI-SST-BMM
Location of Center of Source 2	~ 1.25 m	PS-C-XFD-RSI-SST-BMM
Nominal Radiation Fan (Horizontal)	US ±1.34 mrad/DS ±2.14 mrad	PS-C-XFD-RSI-SST-BMM
Nominal Radiation Fan (Vertical)	±1.95 mrad	PS-C-XFD-RSI-SST-BMM
Fixed Aperture Mask, Outboard Downstream, Aperture (Horizontal)	0.5 ± 0.05 mrad	PS-C-XFD-RSI-SST-BMM
Fixed Aperture Mask, Outboard Downstream, Aperture (Vertical)	0.3± 0.05 mrad	PS-C-XFD-RSI-SST-BMM
Fixed Aperture Mask, Inboard Downstream, Aperture (Horizontal)	0.5± 0.05 mrad	PS-C-XFD-RSI-SST-BMM
Fixed Aperture Mask, Inboard Downstream, Aperture (Vertical)	0.3± 0.05 mrad	PS-C-XFD-RSI-SST-BMM

SPECIFICATIONS		SPEC REFERENCE
Active Interlock Envelope	±.50 mm / ±.25 mrad	Tech Note No. 193 (BNL-108464-2015-IR)
Ray Tracing Procedure		Ray Tracing Procedure Doc: PS-C-ASD-PRC-147 Ver 4
Manufacturing & Positional Tolerance	±1.5 mm	Ray Tracing Procedure Doc: PS-C-ASD-PRC-147 Ver 4
Bremsstrahlung Source Dimension (Vertical)	+/- 12.5 mm	PS-C-ESH-STD-003
Bremsstrahlung Source Dimension (Horizontal - Outboard)	+ 37.5 mm	PS-C-ESH-STD-003
Bremsstrahlung Source Dimension (Horizontal - Inboard)	See Spec Ref	Determined by FE Collimator Apertures
Bremsstrahlung Source Location (Short Straight)	+ 2500 mm	PS-C-ESH-STD-003

REFERENCES (NSLS II SHAREPOINT):

1. FRONT END SPECIFICATIONS: NSLS-II GROUP SITES > NSLS-II ACCELERATOR SYSTEMS > MECHANICAL DESIGN AND ENGINEERING > FRONT ENDS > FRONT END REQUIREMENTS
2. NSLS II DOCUMENT NO. PS-C-ESH-STD-003 BREMSSTRAHLUNG RAY TRACING GUIDELINES FOR NSLS II BEAMLINES AND FRONT ENDS.
3. NSLS II TECHNICAL NOTE NUMBER 014 PRELIMINARY SHIELDING ESTIMATES FOR NSLS II BEAMLINES AND FRONT ENDS.
4. NSLS II CONTROLLED DOCUMENT NO. PS-C-XFD-RSI-SST-BMM-001 (VERSION 1) RSI FOR THE INSERTION DEVICES AND FRONT-ENDS FOR THE NSLS-II 7-ID BEAMLINES.
5. ID STRAIGHT SECTION LAYOUT DRAWING: SR-DG-LAY-3007
6. FRONT END RAY TRACING PROCEDURE: DOC. NO. PS-C-ASD-PRC-147 (VERSION 4)

HATCH LEGEND	
	FE Component
	Glid-Cop
	Lead
	Poly
	Lead (SS)

HEX, COMPONENT LAYOUT

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
DIMENSIONS IN BRACKETS [xx.xx] (WHERE PRESENT) ARE MILLIMETERS AND ARE FOR REFERENCE ONLY
INTERPRET DRAWING AS PER ASD Y14.5M-1994 OR Y14.2-1973

DIMENSIONAL TOLERANCES: X ± 0.060, X ± 0.030, XX ± 0.015, .XXX ± 0.005
ANGULAR TOLERANCE: ± .5°
FINISH: 125 √
BREAK EDGES & SHARP CORNERS 0.005 MIN. TO 0.030 MAX.

BROOKHAVEN NATIONAL LABORATORY
BROOKHAVEN SCIENCE ASSOCIATES
UPTON, NEW YORK 11973
Exploring Life's Mysteries, Protecting its Future

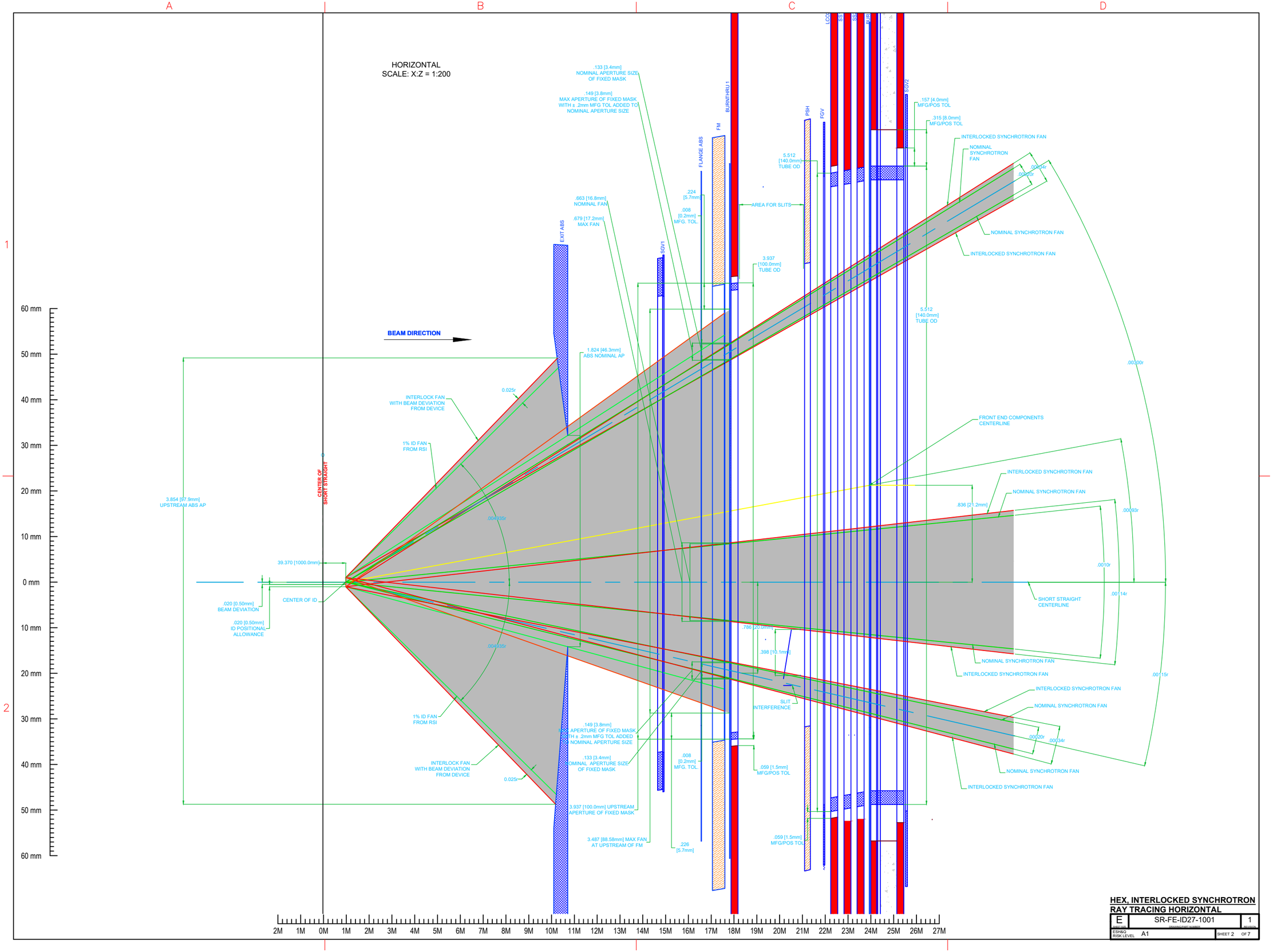
NSLS II NATIONAL SYNCHROTRON LIGHT SOURCE II

DRAWN BY		
CHECKED BY		
RADIATION ADVISOR APPROVAL		
ESH&Q APPROVAL	C.AMUNDSEN	
SUPERVISOR APPROVAL	S.SHARMA	
CDR ENGINEER		
CDR SAFETY		
ESH&Q APPROVAL		
QA APPROVAL		

STORAGE RING
FRONT END, HEX BEAMLINE
RAY TRACING

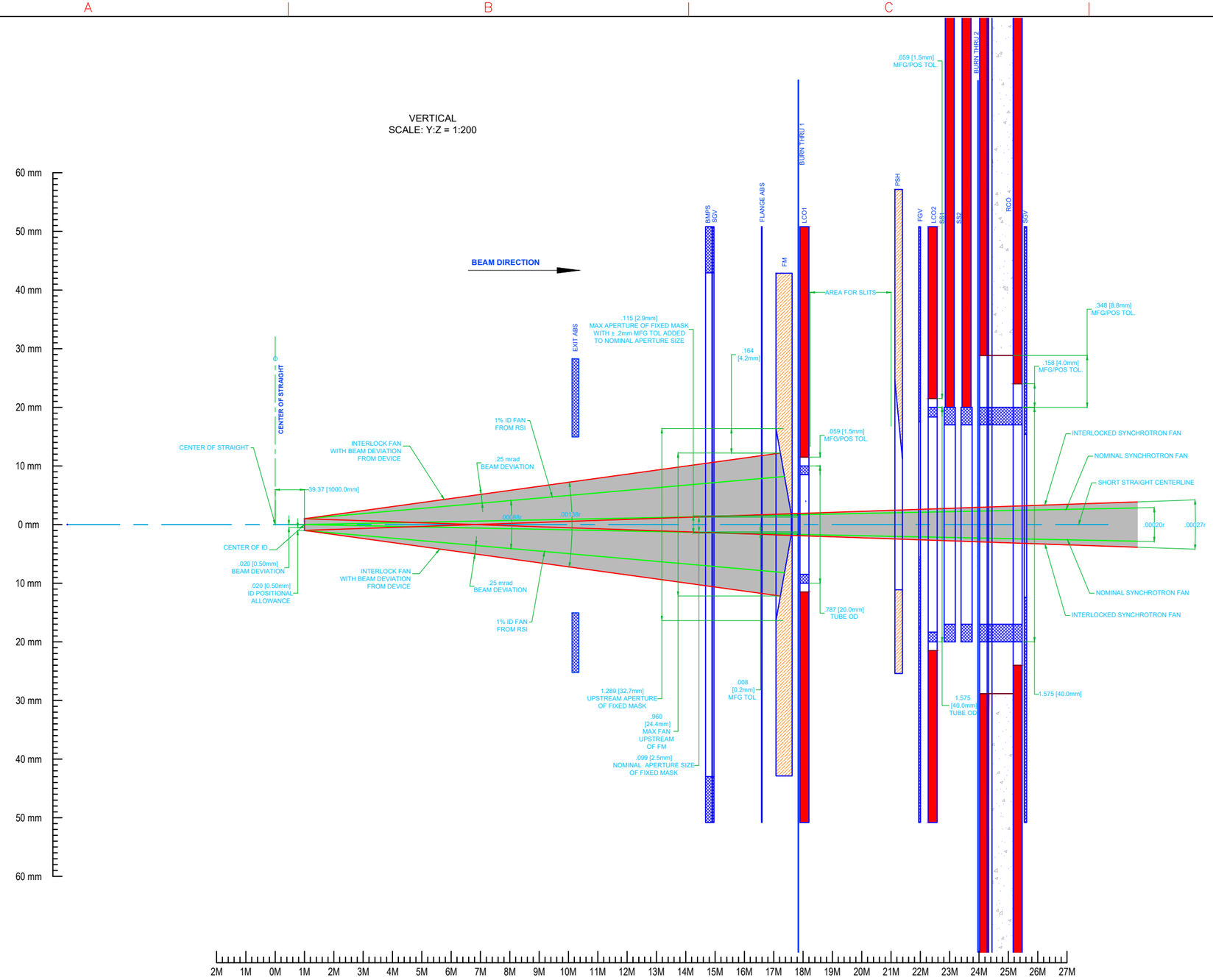
SHEET SIZE: E	DRAWING/PART NUMBER: SR-FE-ID27-1001	REVISION: 1
ESH&Q RISK LEVEL: A1		SHEET 1 OF 7

NEXT ASSY:	N/A		
PROJECT:	THIRD ANGLE PROJECTION	SCALE: SEE DWG VIEW	WBS# 1.03.04.07.03



HEX, INTERLOCKED SYNCHROTRON RAY TRACING HORIZONTAL

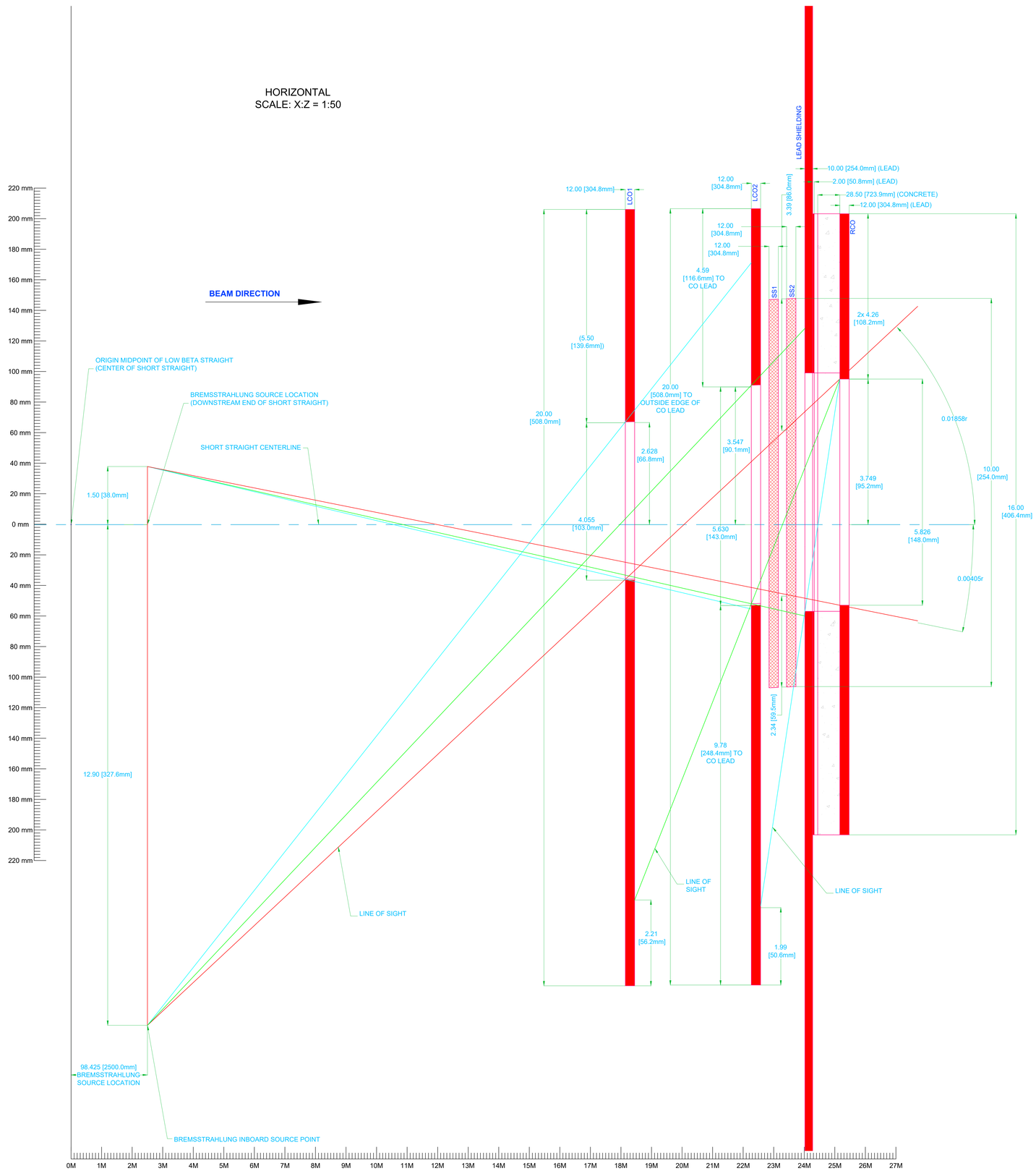
E	SR-FE-ID27-1001	1
SIZE	DRAWING/PART NUMBER	REVISION
ES&H/Q RISK LEVEL A1	SHEET 2 OF 7	



BENDING MAGNET FANS AND CROTCH ABSORBER NOT SHOWN.

HEX, INTERLOCKED SYNCHROTRON RAY TRACING VERTICAL

E	SR-FE-ID27-1001	1
SIZE	DRAWING/PART NUMBER	REVISION
ES&H RISK LEVEL A1	SHEET 3 OF 7	



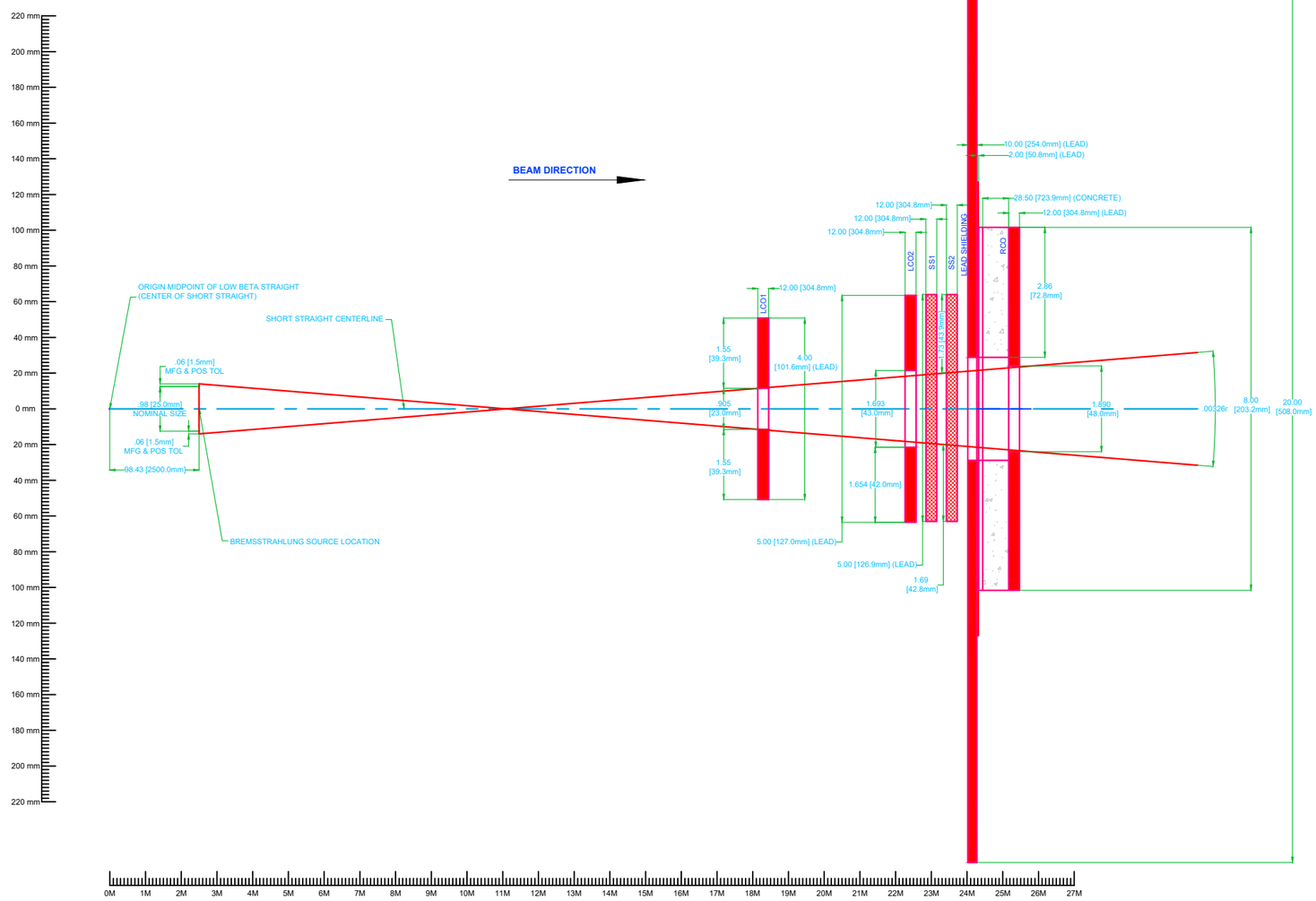
NOTE:

1. ALL LETTER DESIGNATIONS ARE DEFINED IN FRONT END RAY TRACING PROCEDURE: PS-C-ASD-PRC-147

HEX, BREMSSTRAHLUNG RAY TRACING, HORIZONTAL

E (SHEET SIZE)	SR-FE-ID27-1001 (DRAWING/PART NUMBER)	1 (REVISION)
ESH&Q RISK LEVEL A1	SHEET 4 OF 7	

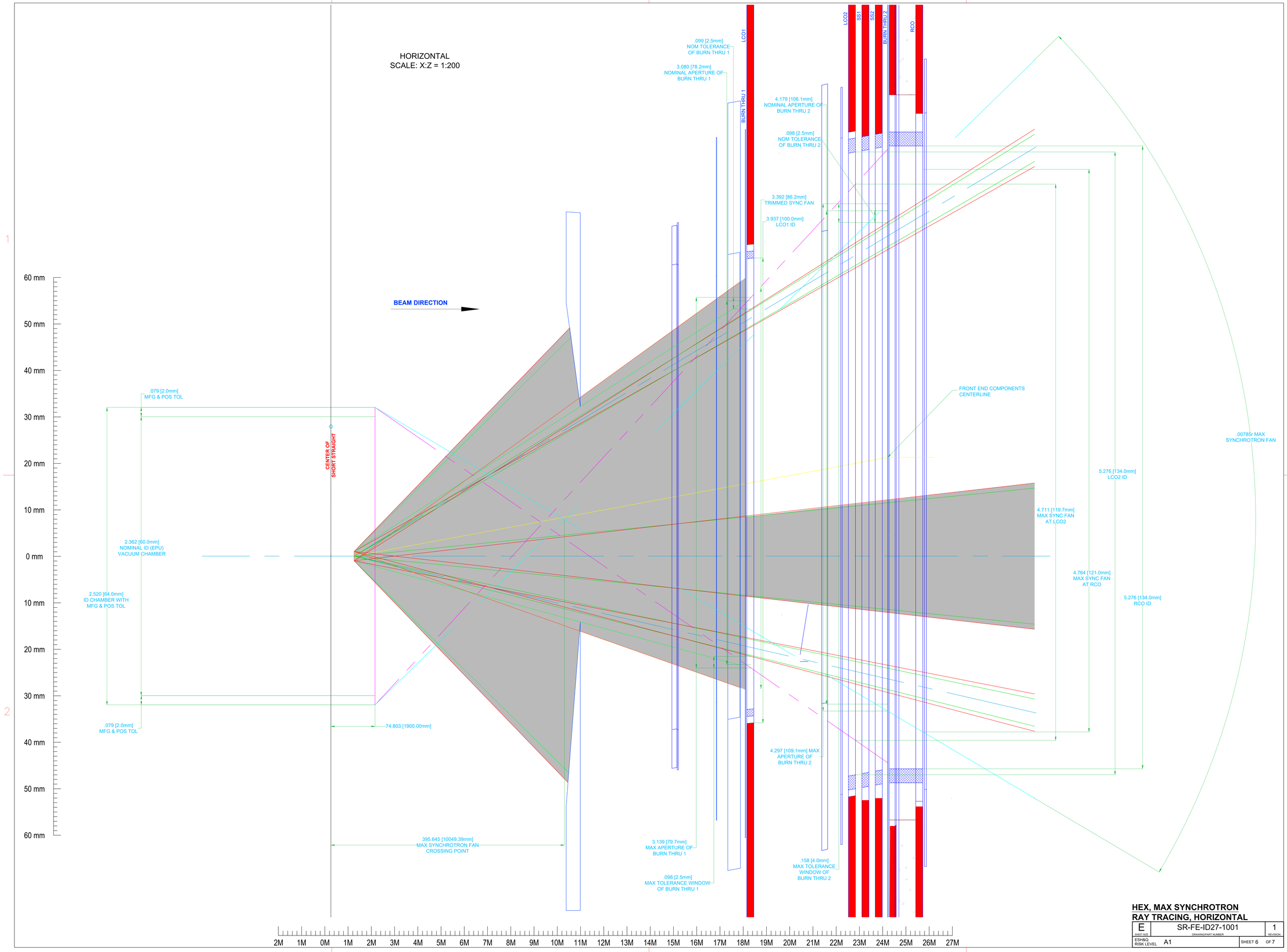
VERTICAL
SCALE: Y:Z = 1:50



NOTE:
1. ALL LETTER DESIGNATIONS ARE DEFINED IN FRONT END RAY TRACING PROCEDURE: PS-C-ASD-PRC-147

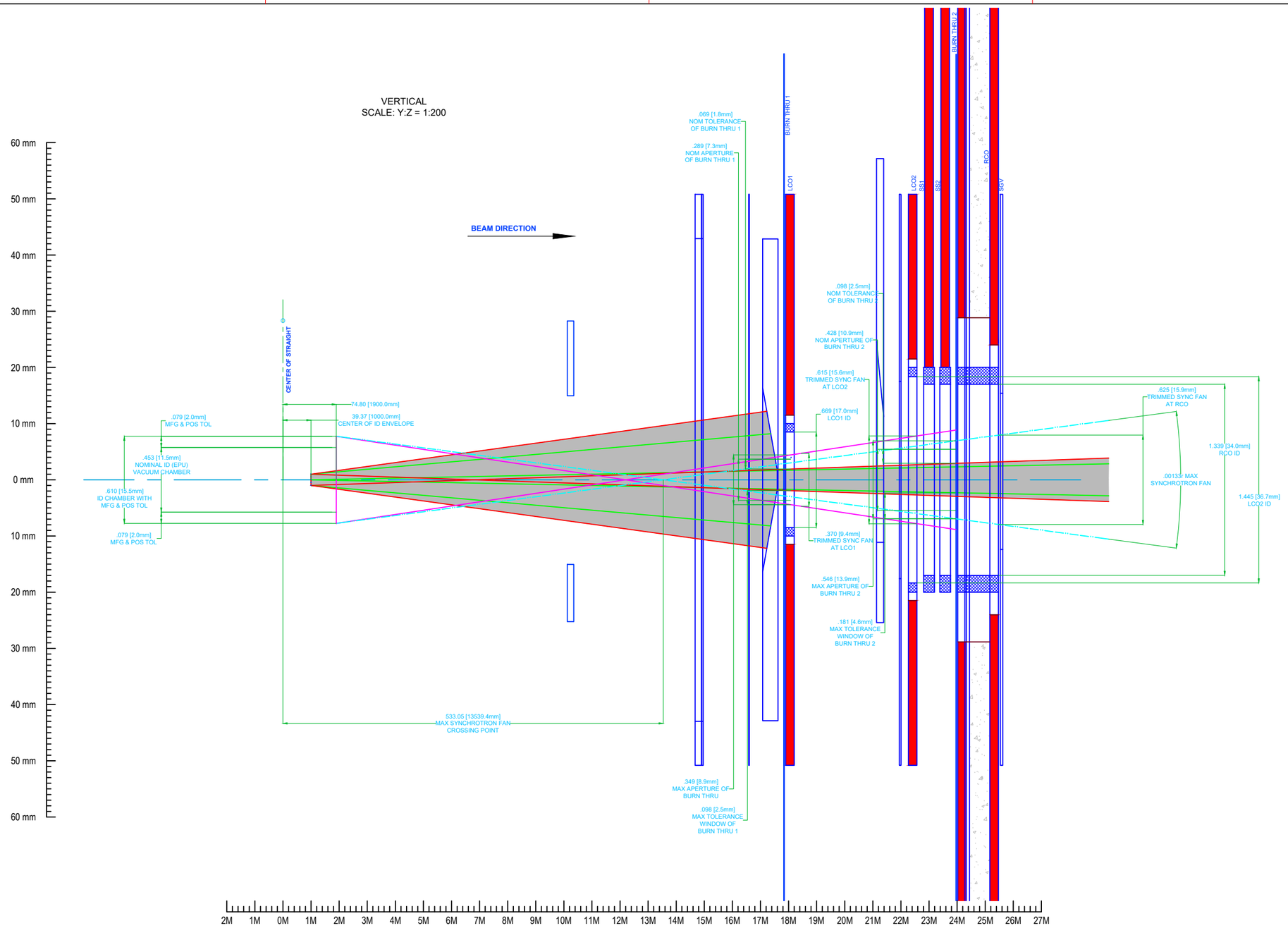
HEX, BREMSSTRAHLUNG RAY TRACING, VERTICAL

E SIZE	SR-FE-ID27-1001 DRAWING NUMBER	1 REVISION
ESH&Q RISK LEVEL: A1		SHEET 5 OF 7



HEX, MAX SYNCHROTRON RAY TRACING, HORIZONTAL

E (SHEET SIZE)	SR-FE-ID27-1001 (DRAWING/PART NUMBER)	1 (REVISION)
ESH&Q RISK LEVEL A1	SHEET 6 OF 7	



HEX, MAX SYNCHROTRON
RAY TRACING, VERTICAL

E	SR-FE-ID27-1001	1
SIZE	DRAWING/PART NUMBER	REVISION
ES&H Q RISK LEVEL A1	SHEET 7 OF 7	