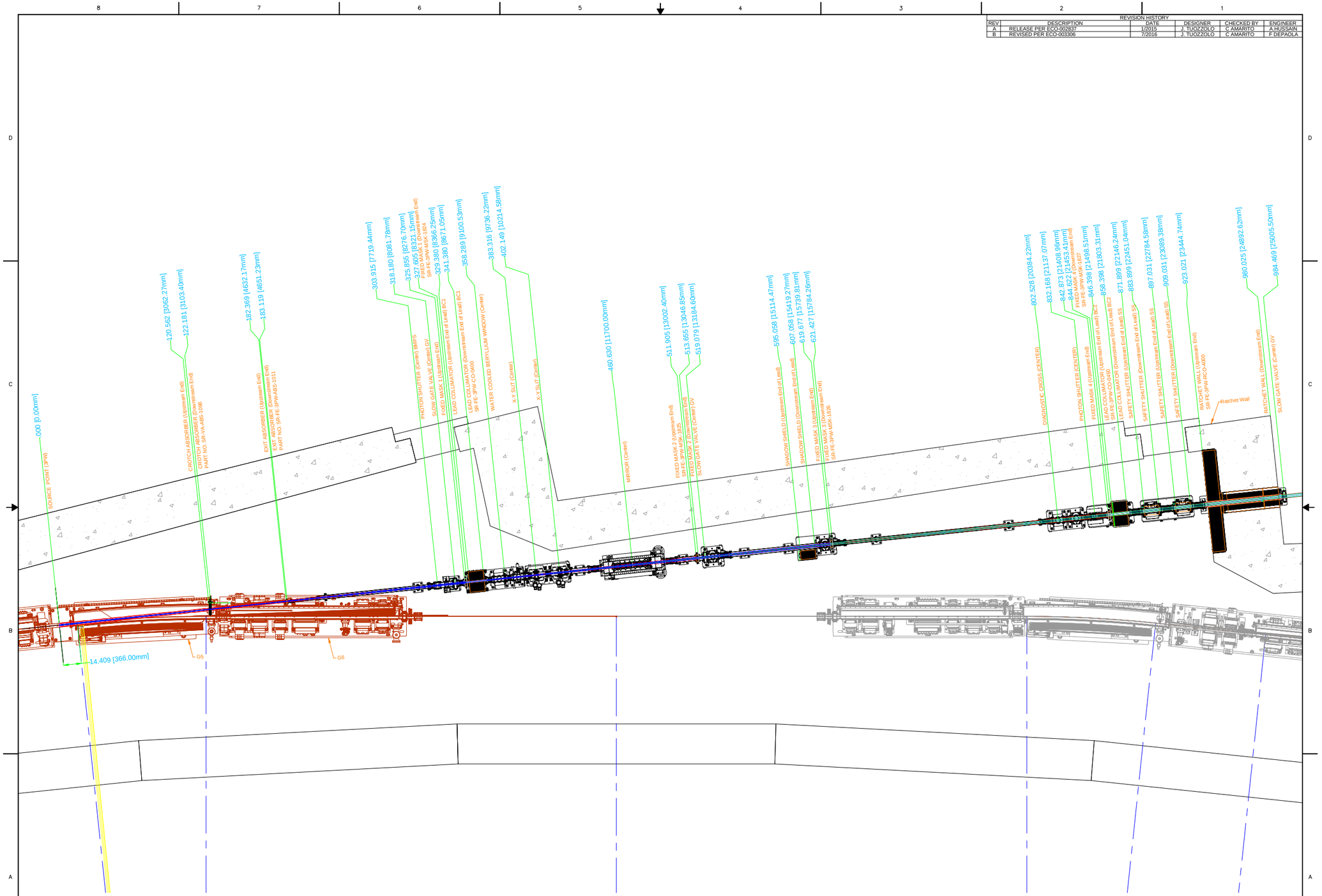
REVISION HISTORY					
REV	DESCRIPTION	DATE	DESIGNER	CHECKED BY	ENGINEER
A	RELEASE PER ECO-002837	1/2015	J. TUOZZOLO	C AMARITO	A.HUSSAIN
B	REVISED PER ECO-003306	7/2016	J. TUOZZOLO	C AMARITO	F DEPAOLA



QAS, CELL 7-BM, COMPONENT LAYOUT

HATCH LEGEND	
	Lead
	Concrete or Stainless Steel
	Lead (SS)

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
DIMENSIONS IN BRACKETS [ ] ARE METRIC EQUIVALENTS AND VALUES THEREIN ARE ARE FOR REFERENCE ONLY
SCHEMATIC DRAWING, DO NOT ADD TOLERANCE OR FIELD VERIFY

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

BROOKHAVEN NATIONAL LABORATORY
BROOKHAVEN SCIENCE ASSOCIATES
UPTON, NEW YORK 11973
A partnership in discovery
Pioneering the Future

DRAWN BY	J TUOZZOLO	1/2015
CHECKED BY	C AMARITO	1/2015
ENGINEER	A ACKERMAN	1/2015
ENGINEER	A HUSSAIN	1/2015
APPROVAL	S.SHARMA	1/2015
ES&H RISK LEVEL	A-1	1/2015
ES&H RISK LEVEL	S.Chandler	1/2015
ES&H RISK LEVEL	J.Lederer	1/2015
ES&H RISK LEVEL	F.DePaola	1/2015

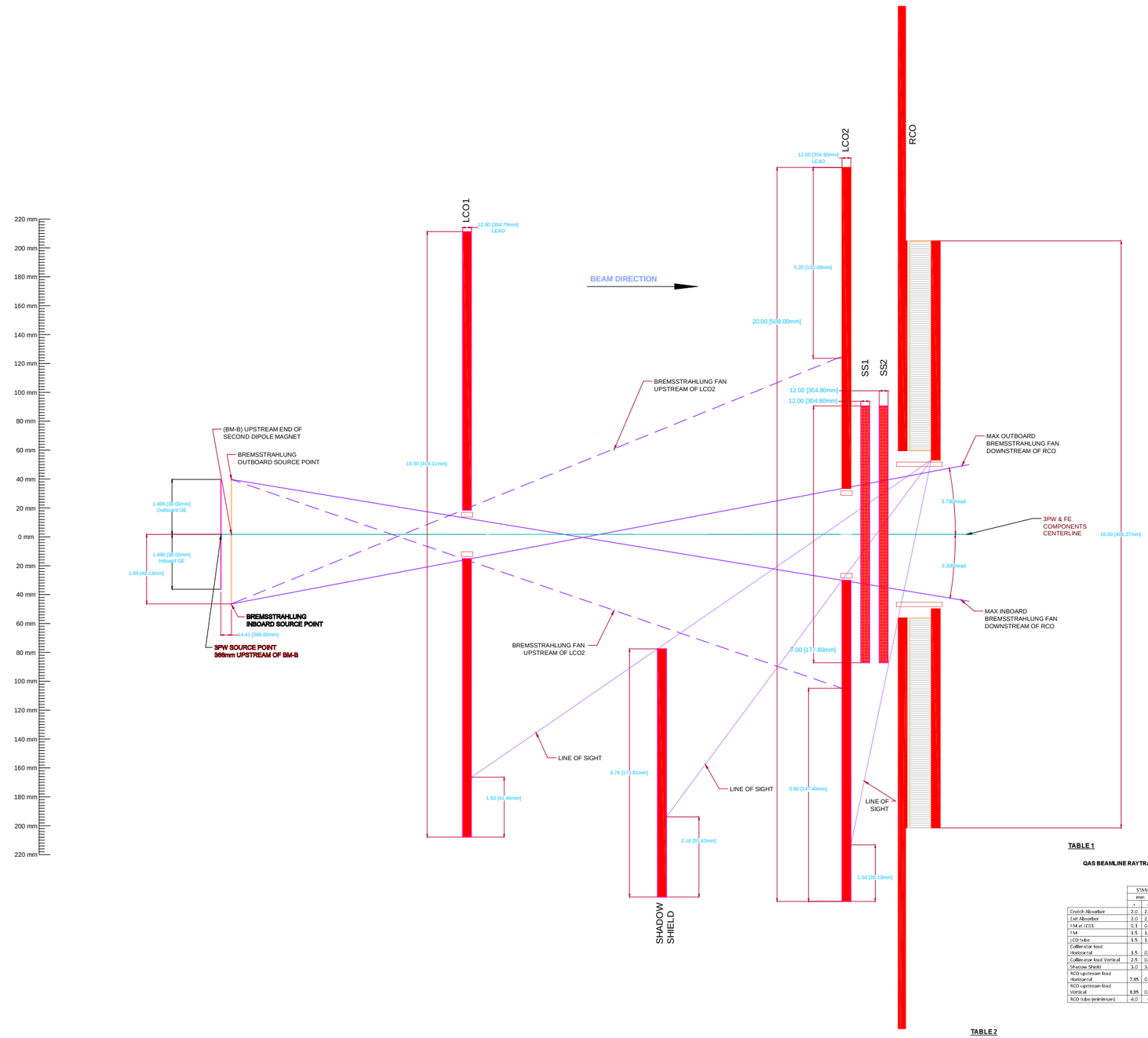
NSLS II NATIONAL SYNCHROTRON LIGHT SOURCE II

STORAGE RING
QAS, CELL 7-BM, FRONT END
RAY TRACING

E	SR-FE-3PW-4001	B
SHEET SIZE	DRAWING/PART NUMBER	REVISION
ES&H RISK LEVEL A-1	SHEET 1 OF 7	

NEXT ASSY: N/A
PROJECT: NSLS-II
THIRD ANGLE PROJECTION
SCALE: SEE DWG VIEW
WBS# 6.08.05.01

RELEASED – EFFECTIVE



HORIZONTAL
SCALE: X:Z = 1:50

TABLE 1

QAS BEAMLINE RAYTRACE TOLERANCE

	STANDARD TOLERANCE				
	mm		inches		Comments
	+	-	+	-	
Crotch Absorber	2.0	2.0	0.079	0.079	Manufacturing & Position
Exit Absorber	2.0	2.0	0.079	0.079	Manufacturing & Position
FM at LCO1	0.1	0.0	0.004	0.000	Manufacturing
FM	1.5	1.5	0.059	0.059	Manufacturing & Position
LCO tube	1.5	1.5	0.059	0.059	Manufacturing & Position
Collimator lead Horizontal	1.5	0.0	0.059	0.000	Manufacturing & Assembly
Collimator lead Vertical	2.5	0.0	0.098	0.000	Manufacturing, Assembly, Heater tape & Heater Tape Clearance
Shadow Shield	3.0	3.0	0.118	0.118	Manufacturing & Position
RCO upstream lead Horizontal	7.85	0.0	.309	0.000	Clearance, Mfg & Position
RCO upstream lead Vertical	8.85	0.0	.348	0.000	Clearance, Mfg & Position
RCO tube (minimum)	4.0	-	0.157	-	Manufacturing & Position

TABLE 2

QAS BEAMLINE FE MIRROR SPECIFICATIONS

Mirror material	Silicon
Mirror altitude	Vertical up
Mirror size (L;x;W; m)	1.4 x 0.1
Mirror figure	Cylinder
Mirror incidence angle (mrad)	2.7
Mirror acceptance (mrad V)	0.3
Mirror acceptance (mrad H)	3.0
Mirror center position	11.7

***See NSLS-II Controlled Document: LT-C-ASD-RSI-002-3.**

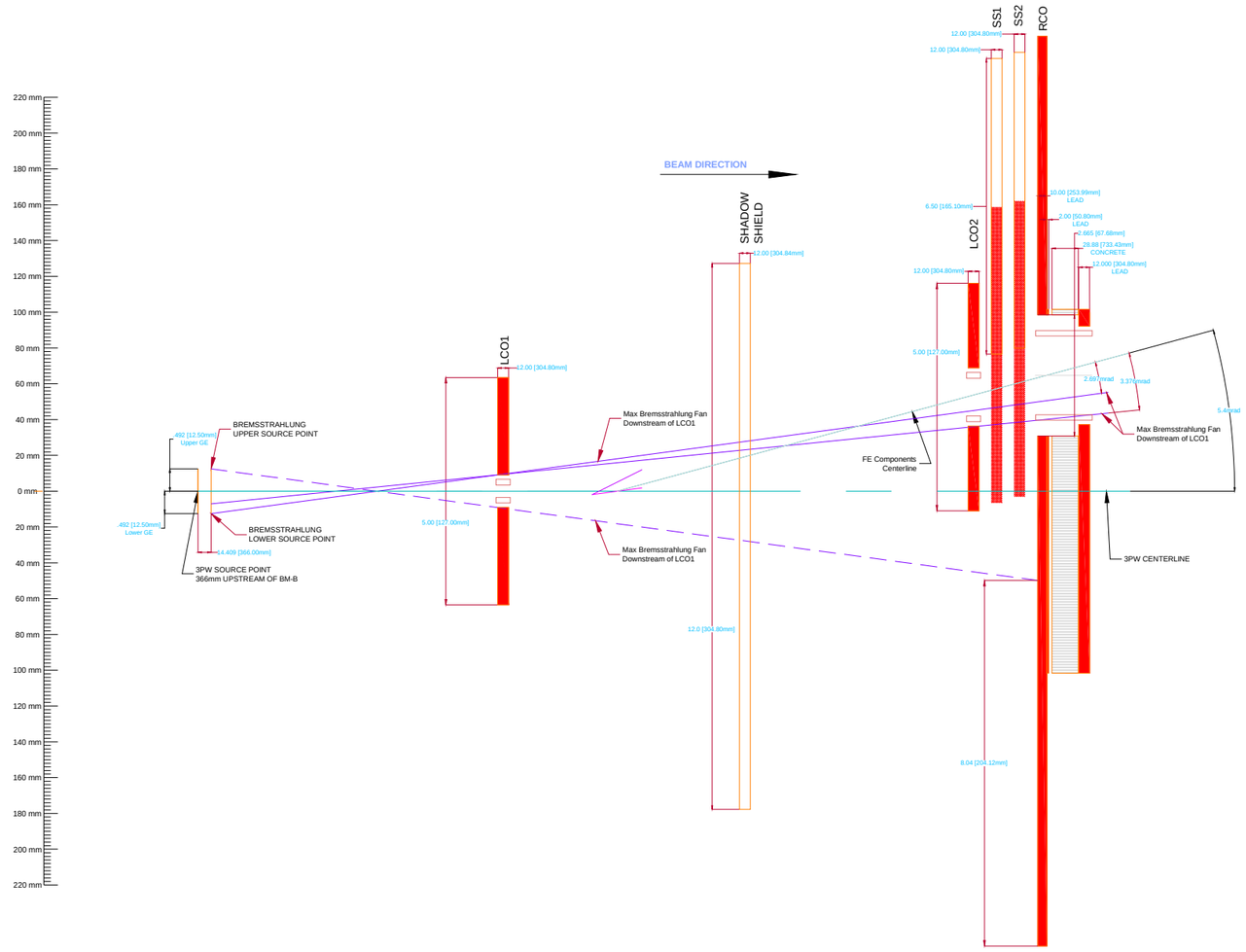
NOTE:

1. **BREMSSTRAHLUNG SOURCE POINT (ORIGIN) IS UPSTREAM END OF BM-B.**
2. **ALL APERTURES & TOLERANCES ARE ASSUMED TO BE SYMMETRIC ABOUT THE COMPONENT CENTERLINE UNLESS OTHERWISE SHOWN.**

QAS, CELL 7-BM, BREMSSTRAHLUNG RAY TRACING HORIZONTAL

E	SR-FE-3PW-4001	B
	DRAWING/SHEET NUMBER	REVISION
ESH&Q RISK LEVEL A-1	SHEET 6 OF 7	

RELEASED – EFFECTIVE



VERTICAL
SCALE: X:Z = 1:50

TABLE 1

QAS BEAMLINE RAYTRACE TOLERANCE

	STANDARD TOLERANCE				
	mm		inches		Comments
	+	-	+	-	
Crotch Absorber	2.0	2.0	0.079	0.079	Manufacturing & Position
Exit Absorber	2.0	2.0	0.079	0.079	Manufacturing & Position
FM at LCO1	0.1	0.0	0.004	0.000	Manufacturing
FM	1.5	1.5	0.059	0.059	Manufacturing & Position
LCO tube	1.5	1.5	0.059	0.059	Manufacturing & Position
Collimator lead Horizontal	1.5	0.0	0.059	0.000	Manufacturing & Assembly
Collimator lead Vertical	2.5	0.0	0.098	0.000	Manufacturing, Assembly, Heater tape & Heater Tape Clearance
Shadow Shield	3.0	3.0	0.118	0.118	Manufacturing & Position
RCO upstream lead Horizontal	7.85	0.0	.309	0.000	Clearance, Mfg & Position
RCO upstream lead Vertical	8.85	0.0	.348	0.000	Clearance, Mfg & Position
RCO tube (minimum)	4.0	-	0.157	-	Manufacturing & Position

TABLE 2

QAS **BEAMLINE FE MIRROR SPECIFICATIONS**

Mirror material	Silicon
Mirror altitude	Vertical up
Mirror size (LxW, m)	1.4 x 0.1
Mirror figure	Cylinder
Mirror incidence angle (mrad)	2.7
Mirror acceptance (mrad V)	0.3
Mirror acceptance (mrad H)	3.0
Mirror center position	11.7

***See NSLS-II Controlled Document: LT-C-ASD-RSI-002-3.**

NOTE:

1. **BREMSSTRAHLUNG SOURCE POINT (ORIGIN) IS UPSTREAM END OF BM-B.**
2. **ALL APERTURES & TOLERANCES ARE ASSUMED TO BE SYMMETRIC ABOUT THE COMPONENT CENTERLINE UNLESS OTHERWISE SHOWN.**

QAS, CELL 7-BM, BREMSSTRAHLUNG RAY TRACING VERTICAL

E	SR-FE-3PW-4001	B
SIZE	DRAWING/PART NUMBER	REVISION
ESH&Q RISK LEVEL A-1	SHEET 7 OF 7	

RELEASED – EFFECTIVE