Appendix - B Experimental and CAD results

B.1   Results from experimental and CAD model

Table B.1.1 Distribution of rays under each case at different angle of incidence to FPSRS

θ	Case A	Case B	Case C	Case D	Case E	Case F	Total
20º	0%	0%	0%	5.42%	30.23%	65.23%	100%
30º	0%	0%	0%	8.23%	0%	92.32%	100%
40º	0%	20.15%	20.47%	5.12%	25.23%	30.25%	100%
50º	3.23%	45.52%	20.23%	7.42%	10.12%	15.12%	100%
60º	3.12%	32.12%	35.41%	8.23%	10.23%	12.25%	100%
70º	16.56%	41.36%	25.41%	8.74%	2.52%	8.63%	100%
80º	39.42%	27.85%	21.23%	6.12%	3.23%	4.23%	100%
90º	53.12%	20.25%	13.41%	7.12%	3.23%	4.23%	100%

Table B.1.2 Top coordinates of ray considered for experiment and for CAD simulation

θ	N	Case A	Case B	Case C	Case D	Case E	Case F
30º	1	(0.5, 1.73, 0.5)	(0.3, 1.73, 0.3)	(0.4, 1.73, 0.4)	(0.3, 1.73, 0.4)	(0.2, 1.73, 0.2)	(0.4, 1.73, 0.4)
	2	(1.0, 1.73, 1.0)	(0.8, 1.73, 0.8)	(0.8, 1.73, 0.8)	(0.8, 1.73, 0.9)	(0.3, 1.73, 0.3)	(1.0, 1.73, 1.0)
	3	(1.3, 1.73, 1.3)	(1.3, 1.73, 1.3)	(1.5, 1.73, 1.5)	(0.88, 1.73, 0.5)	(0.6, 1.73, 0.6)	(1.5, 1.73, 1.5)

	4	(2.0, 1.73, 2.0)	(2.0, 1.73, 2.0)	(2.2, 1.73, 2.2)	(0.95, 1.73, 0.5)	(0.8, 1.73, 0.8)	(2.0, 1.73, 2.0)
40º	1	(0.6, 1.73, 0.6)	(0.5, 1.73, 0.5)	(0.9, 1.73, 0.9)	(0.3, 1.73, 0.4)	(0.5, 1.73, 0.5)	(0.3, 1.73, 0.3)
	2	(1.2, 1.73, 1.2)	(0.7, 1.73, 0.7)	(1.5, 1.73, 1.5)	(0.8, 1.73, 0.9)	(0.8, 1.73, 0.9)	(0.7, 1.73, 0.7)
	3	(1.5, 1.73, 1.5)	(0.9, 1.73, 0.9)	(1.9, 1.73, 1.9)	(1.2, 1.73, 0.8)	(1.9, 1.73, 1.9)	(0.9, 1.73, 0.9)
	4	(2.2, 1.73, 2.2)	(1.2, 1.73, 1.2)	(2.4, 1.73, 2.4)	(1.2, 1.73, 0.5)	(2.2, 1.73, 2.2)	(1.2, 1.73, 1.2)
50º	1	(0.2, 1.73, 0.2)	(0.5, 1.73, 0.5)	(0.2, 1.73, 0.2)	(0.6, 1.73, 0.3)	(0.3, 1.73, 0.3)	(0.4, 1.73, 0.4)
	2	(0.5, 1.73, 0.5)	(0.7, 1.73, 0.7)	(0.5, 1.73, 0.5)	(0.7, 1.73, 0.5)	(0.5, 1.73, 0.5)	(0.8, 1.73, 0.8)
	3	(0.8, 1.73, 0.8)	(0.9, 1.73, 0.9)	(0.8, 1.73, 0.8)	(0.9, 1.73, 0.8)	(1.25, 1.73, 1.25)	(1.27, 1.73, 1.27)
	4	(1.0, 1.73, 1.0)	(1.2, 1.73, 1.2)	(1.0, 1.73, 1.0)	(1.2, 1.73, 0.9)	(1.86, 1.73,1.86)	(2.86, 1.73,2.86)
60º	1	(0.2, 1.73, 0.2)	(0.4, 1.73, 0.4)	(0.5, 1.73, 0.5)	(0.6, 1.73, 0.7)	(1.2, 1.73, 1.2)	(1.75, 1.73, 1.75)
	2	(0.8, 1.73, 0.8)	(1.0, 1.73, 1.0)	(1.3, 1.73, 1.3)	(0.8, 1.73, 0.9)	(1.5, 1.73, 1.5)	(1.89, 1.73, 1.89)
	3	(1.2, 1.73, 1.2)	(1.5, 1.73, 1.5)	(1.6, 1.73, 1.6)	(0.9, 1.73, 1.2)	(2.2, 1.73, 2.2)	(2.32, 1.73, 2.32)
	4	(2.2, 1.73, 2.2)	(2.3, 1.73, 2.3)	(2.3, 1.73, 2.3)	(1.3, 1.73, 1.6)	(2.43, 1.73, 2.43)	(2.50, 1.73, 2.50)
70º	1	(0.3, 1.73, 0.3)	(0.8, 1.73, 0.8)	(0.5, 1.73, 0.5)	(0.3, 1.73, 0.4)	(0.6, 1.73, 0.6)	(0.7, 1.73, 0.7)
	2	(0.5, 1.73, 0.5)	(1.4, 1.73, 1.4)	(1.3, 1.73, 1.3)	(0.8, 1.73, 0.9)	(0.9, 1.73, 0.9)	(0.9, 1.73, 0.9)
	3	(1.0, 1.73, 1.0)	(1.6, 1.73, 1.6)	(1.6, 1.73, 1.6)	(0.88, 1.73, 0.5)	(2.0, 1.73, 2.0)	(1.31, 1.73, 1.31)
	4	(2.2, 1.73, 2.2)	(2.0, 1.73, 2.0)	(2.3, 1.73, 2.3)	(0.95, 1.73, 0.5)	(2.4, 1.73, 2.4)	(2.86, 1.73,2.86)
80º	1	(0.8, 1.73, 0.8)	(0.4, 1.73, 0.4)	(0.9, 1.73, 0.9)	(0.3, 1.73, 0.4)	(1.2, 1.73, 1.2)	(0.4, 1.73, 0.4)
	2	(1.0, 1.73, 1.0)	(1.0, 1.73, 1.0)	(1.5, 1.73, 1.5)	(0.8, 1.73, 0.9)	(1.5, 1.73, 1.5)	(0.8, 1.73, 0.8)
	3	(1.2, 1.73, 1.2)	(1.5, 1.73, 1.5)	(1.9, 1.73, 1.9)	(1.2, 1.73, 0.8)	(2.2, 1.73, 2.2)	(1.27, 1.73,1.27)
	4	(1.5, 1.73, 1.5)	(2.3, 1.73, 2.3)	(2.4, 1.73, 2.4)	(1.2, 1.73, 0.5)	(2.43, 1.73, 2.43)	(2.86, 1.73,2.86)
90º	1	(1.0, 1.73, 1.0)	(0.3, 1.73, 0.3)	(0.2, 1.73, 0.2)	(0.2, 1.73, 0.5)	(0.2, 1.73, 0.2)	(0.2, 1.73, 0.2)
	2	(1.2, 1.73, 1.2)	(0.5, 1.73, 0.5)	(0.5, 1.73, 0.5)	(0.5, 1.73, 0.6)	(0.3, 1.73, 0.3)	(0.3, 1.73, 0.3)

	3	(1.5, 1.73, 1.5)	(2.3, 1.73, 2.3)	(2.4, 1.73, 2.4)	(2.4, 1.73, 2.5)	(2.5, 1.73, 2.5)	(2.6, 1.73, 2.6)
	4	(1.8, 1.73, 1.5)	(2.7, 1.73, 2.7)	(2.8, 1.73, 2.8)	(2.8, 1.73, 2.8)	(2.8, 1.73, 2.8)	(2.8, 1.73, 2.8)

Table B.1.3 Coordinator for point P1

θ	N	Case A (Ra)	Case B (Rb)	Case C (Rc)	Case D (Rd)	Case E (Re)	Case F (Rf)
30º	1	(2.37, 0.65,2.37)	(2.32, 0.56, 2.32)	(2.36, 0.58, 2.36)	(1.23, 0.91, 1.23)	(2.12, 0.41, 2.12)	(2.36, 0.58, 2.36)
	2	(2.62, 1.08, 2.62)	(2.45, 0.78, 2.45)	(2.51, 0.81, 2.51)	(1.84, 1.12, 1.84)	(2.22, 0.48, 2.22)	(2.62, 1.08, 2.62)
	3	(2.80, 1.38, 2.80)	(2.58, 0.85, 2.58)	(2.68, 1.0, 2.68)	(2.12, 1.18, 2.12)	(2.41, 0.54, 2.41)	(2.68, 1.0, 2.68)
	4	(2.87, 1.51, 2.87)	(2.71, 1.05, 2.58)	(2.78, 1.25, 2.78)	(2.51, 1.28, 2.51)	(2.56, 0.64, 2.56)	(2.71, 1.05, 2.58)
40º	1	(2.18, 0.32,2.18)	(2.01, 0.27, 2.01)	(2.24, 1.21, 2.24)	(1.35, 0.92, 1.35)	(2.01, 1.27, 2.01)	(1.35, 0.92, 1.35)
	2	(2.51, 0.88, 2.51)	(2.11, 0.61, 2.11)	(2.34, 1.32, 2.34)	(1.91, 1.15, 1.91)	(1.91, 1.15, 1.91)	(2.11, 0.61, 2.11)
	3	(2.74, 1.28, 2.74)	(2.19, 1.01, 2.19)	(2.51, 1.41, 2.51)	(2.18, 1.29, 2.18)	(2.51, 1.41, 2.51)	(2.19, 1.01, 2.19)
	4	(2.84, 1.45, 2.87)	(2.26, 1.12, 2.26)	(2.78, 1.61, 2.78)	(2.57, 1.41, 2.57)	(2.84, 1.45, 2.87)	(2.26, 1.12, 2.26)
50º	1	(1.95, 0,1.95)	(1.89, 0.25, 1.89)	(2.1, 1.23, 2.1)	(1.78, 1.61, 0.95)	(2.21, 1.12, 2.21)	(2.44, 1.25, 2.44)
	2	(2.39, 0.67, 2.39)	(2.01, 0.52, 2.01)	(2.3, 1.12, 2.3)	(1.98, 1.45, 1.25)	(2.42, 1.23, 2.42)	(2.58, 1.33, 2.58)
	3	(2.67, 1.17, 2.67)	(2.29, 0.75, 2.29)	(2.6, 1.01, 2.6)	(2.1, 1.12, 2.1)	(2.45, 1.35, 2.45)	(2.67, 1.53, 2.67)
	4	(2.80, 1.38, 2.80)	(2.41, 1.12, 2.41)	(2.72, 0.98, 2.72)	(2.23, 1.03,2.23)	(2.68, 1.56,2.68)	(2.86, 1.63,2.86)
60º	1	(1.50, 0.41,1.50)	(2.2, 0.85, 2.2)	(2.3, 1.1, 2.3)	(1.2, 1.23, 1.2)	(2.12, 1.12, 2.12)	(2.12, 1.23, 2.12)
	2	(2.25, 0.43, 2.25)	(2.35, 0.97, 2.35)	(2.39, 1.19, 2.39)	(1.35, 1.43, 1.35)	(2.23, 1.32, 1.23)	(2.36, 1.31, 2.36)
	3	(2.60, 1.04, 2.60)	(2.47, 1.15, 2.47)	(2.56, 1.25, 2.56)	(1.65, 1.45, 1.65)	(2.54, 1.41, 2.54)	(2.47, 1.45, 2.47)
	4	(2.75, 1.30, 2.75)	(2.64, 1.35, 2.64)	(2.76, 1.64, 2.76)	(1.78, 1.65, 1.78)	(2.74, 1.53, 2.74)	(2.59, 1.65, 2.59)
70º	1	(1.13, 0, 1.13)	(2.14, 1.02, 2.14)	(2.01, 0.89, 2.01)	(1.23, 0.91, 1.23)	(2.25, 1.15, 2.25)	(2.24, 1.25, 2.24)
	2	(2.08, 0.14, 2.08)	(2.21, 1.11, 2.21)	(2.12, 1.01, 2.12)	(1.84, 1.12, 1.84)	(2.47, 1.29, 2.47)	(2.48, 1.33, 2.48)

	3	(1.51, 0, 1.51)	(2.28, 1.17, 2.28)	(2.32, 1.21, 2.32)	(2.12, 1.18, 2.14)	(2.45, 1.35, 2.45)	(2.57, 1.53, 2.57)
	4	(2.69, 1.20, 2.69)	(2.41, 1.21, 2.41)	(2.41, 1.32, 2.41)	(2.57, 1.35, 2.57)	(2.68, 1.56, 2.68)	(2.76, 1.63, 2.76)
80º	1	(1.05, 0, 1.05)	(2.01, 0.81, 2.01)	(2.1, 1.23, 2.1)	(1.2, 1.23, 1.2)	(2.45, 1.35, 2.45)	(2.19, 1.01, 2.19)
	2	(1.15, 0, 1.15)	(2.15, 0.92, 2.15)	(2.3, 1.12, 2.3)	(1.35, 1.43, 1.35)	(2.68, 1.56, 2.68)	(2.26, 1.12, 2.26)
	3	(1.35, 0, 1.35)	(2.47, 1.15, 2.47)	(2.6, 1.01, 2.6)	(1.65, 1.45, 1.65)	(2.12, 1.12, 2.12)	(2.44, 1.25, 2.44)
	4	(1.89, 0, 1.89)	(2.64, 1.35, 2.64)	(2.72, 0.98, 2.72)	(1.78, 1.65, 1.78)	(2.23, 1.32, 1.23)	(2.58, 1.33, 2.58)
90º	1	(1.0, 0, 1.0)	(0.3, 0.86, 0.3)	(0.2, 1.12, 0.2)	(0.2, 1.34, 0.5)	(0.2, 1.45, 0.2)	(0.2, 1.23, 0.2)
	2	(1.2, 0, 1.2)	(0.5, 0.75, 0.5)	(0.5, 0.75, 0.5)	(0.5, 1.12, 0.5)	(0.3, 1.35, 0.3)	(0.3, 1.11, 0.3)
	3	(1.5, 0, 1.5)	(2.3, 0.71, 2.3)	(2.4, 0.89, 2.4)	(2.4, 1.18, 2.5)	(2.5, 1.37, 2.5)	(2.6, 1.34, 2.6)
	4	(1.8, 0, 1.5)	(2.7, 0.89, 2.7)	(2.8, 1.25, 2.8)	(2.8, 1.31, 2.8)	(2.8, 1.57, 2.8)	(2.8, 1.56, 2.8)

Table B.1.4 Coordinator for point P2

θ	N	Case A (Ra)	Case B (Rb)	Case C (Rc)	Case D (Rd)	Case E (Re)	Case F (Rf)
30º	1	-- *	-- *	-- *	(2.25, 0.90, 2.21)	-- *	-- *
	2	-- *	-- *	-- *	(2.23, 1.43, 2.26)	-- *	-- *
	3	-- *	-- *	-- *	(2.52, 0.70, 2.41)	-- *	-- *
	4	-- *	-- *	-- *	(2.61, 0.65, 2.63)	-- *	-- *
40º	1	-- *	-- *	(0.96, 0.24, 0.96)	(2.01, 0.81, 2.01)	(0.78, 1.12, 0.78)	-- *
	2	-- *	-- *	(1.02, 0.29, 1.02)	(2.12, 1.25, 2.12)	(0.89, 1.15, 0.89)	-- *
	3	-- *	-- *	(1.85, 0, 1.85)	(2.31, 1.41, 2.31)	(0.94, 1.23, 0.94)	-- *
	4	-- *	-- *	(1.45, 0, 1.45)	(2.68, 1.57, 2.68)	(0.98, 1.01, 0.98)	-- *
50º	1	-- *	-- *	(0.75, 0.95, 0.75)	(2.21, 0.91, 2.21)	(0.85, 1.22, 0.85)	-- *
	2	-- *	-- *	(0.84, 1.05, 0.84)	(2.26, 1.45, 2.26)	(0.76, 1.35, 0.76)	-- *

θ	N	Case A (Ra)	Case B (Rb)	Case C (Rc)	Case D (Rd)	Case E (Re)	Case F (Rf)
	3	-- *	-- *	(0.98, 1.14, 0.98)	(2.41, 0.71, 2.41)	(0.66, 1.45, 0.66)	-- *
	4	-- *	-- *	(1.21, 1.29, 1.21)	(2.63, 0.61,2.63)	(0.54, 1.66, 0.54)	-- *
60°	1	-- *	-- *	(0.76, 0.89, 0.76)	(2.32, 0.68, 2.32)	(0.85, 1.45, 0.85)	-- *
	2	-- *	-- *	(0.65, 0.78, 0.65)	(2.15, 0.62, 2.15)	(0.75, 1.55, 0.75)	-- *
	3	-- *	-- *	(0.54, 0.61, 0.54)	(2.01, 0.52, 2.01)	(0.62, 1.62, 0.62)	-- *
	4	-- *	-- *	(0.42, 0.52, 0.42)	(1.85, 0.41, 1.85)	(0.42, 1.63, 0.42)	-- *
70°	1	-- *	-- *	(0.89, 0.75, 0.89)	(2.23, 0.95, 2.23)	(0.87, 1.27, 0.87)	-- *
	2	-- *	-- *	(0.91, 0.79, 0.91)	(2.30, 1.45, 2.30)	(0.71, 1.35, 0.71)	-- *
	3	-- *	-- *	(0.93, 0.65, 0.93)	(2.45, 0.74, 2.45)	(0.56, 1.45, 0.56)	-- *
	4	-- *	-- *	(0.98, 0.64, 0.98)	(2.63, 0.61,2.63)	(0.54, 1.66, 0.54)	-- *
80°	1	-- *	-- *	(0.96, 0.24, 0.96)	(2.31, 1.41, 2.31)	(1.85, 0.41, 1.85)	-- *
	2	-- *	-- *	(1.02, 0.29, 1.02)	(2.68, 1.57, 2.68)	(0.62, 1.62, 0.62)	-- *
	3	-- *	-- *	(0.54, 0.61, 0.54)	(2.21, 0.91, 2.21)	(2.30, 1.45, 2.30)	-- *
	4	-- *	-- *	(0.42, 0.52, 0.42)	(2.26, 1.45, 2.26)	(0.87, 1.27, 0.87)	-- *
90°	1	-- *	-- *	(2.2, 0.65, 2.2)	(2.2, 0.85, 2.2)	(2.2, 0.89, 2.2)	-- *
	2	-- *	-- *	(2.4, 0.45, 2.4)	(2.5, 0.71, 2.5)	(2.43, 0.96, 2.43)	-- *
	3	-- *	-- *	(0.8, 0.61, 0.8)	(2.12, 0.75, 2.12)	(0.78, 0.91, 0.78)	-- *
	4	-- *	-- *	(0.61, 1.25, 0.61)	(2.19, 0.51, 2.19)	(0.89, 0.74, 0.89)	-- *

Note: * The cases shown with the dashed lines represent the rays not participated in this particular case.

Table B.1.5 Coordinates of BRS observed for ray from CAD software for angle 30-90∘ and for (A-F) cases

θ	N	Case A (Ra)	Case B (Rb)	Case C (Rc)	Case D (Rd)	Case E (Re)	Case F (Rf)
30°	1	-- *	-- *	-- *	(1.25, 0,1.25)	-- *	-- *

	2	-- *	-- *	-- *	(1.31, 0, 1.35)	-- *	-- *
	3	-- *	-- *	-- *	(1.39, 0, 1.41)	-- *	-- *
	4	-- *	-- *	-- *	(1.43, 0, 1.44)	-- *	-- *
40º	1	-- *	(1.85, 0, 1.85)	(1.23, 0, 1.23)	(1.78, 0,1.52)	-- *	-- *
	2	-- *	(1.45, 0, 1.45)	(1.49, 0, 1.49)	(1.61, 0, 1.41)	-- *	-- *
	3	-- *	(1.15, 0, 1.15)	(1.54, 0, 1.54)	(1.45, 0, 1.29)	-- *	-- *
	4	-- *	(1.04, 0, 1.04)	(1.71, 0, 1.71)	(1.32, 0, 1.18)	-- *	-- *
50º	1	(1.74, 0,1.74)	(1.85, 0, 1.85)	(1.21, 0, 1.21)	(1.21, 0, 1.21)	-- *	-- *
	2	(1.95, 0,1.95)	(1.65, 0, 1.65)	(1..32, 0, 1.32)	(1.36, 0, 1.36)	-- *	-- *
	3	-- *	(1.41, 0, 1.41)	(1.45, 0, 1.45)	(1.52, 0, 1.52)	-- *	-- *
	4	-- *	(1.12, 0, 1.12)	(1.68, 0, 1.68)	(1.75, 0,1.75)	-- *	-- *
60º	1	(1.50, 0,1.50)	(1.85, 0, 1.85)	(1.2, 0, 1.2)	(1.86, 0, 1.86)	-- *	-- *
	2	-- *	(1.71, 0, 1.71)	(1.32, 0, 1.32)	(1.65, 0, 1.65)	-- *	-- *
	3	-- *	(1.62, 0, 1.62)	(1.45, 0, 1.45)	(1.52, 0, 1.52)	-- *	-- *
	4	-- *	(1.78, 0, 1.78)	(1.65, 0, 1.65)	(1.32, 0, 1.32)	-- *	-- *
70º	1	(1.13, 0, 1.13)	(1.85, 0, 1.85)	(1.1, 0, 1.1)	(1.23, 0, 1.23)	-- *	-- *
	2	(1.23, 0, 1.23)	(1.74, 0, 1.74)	(1.42, 0, 1.42)	(1.40, 0, 1.40)	-- *	-- *
	3	(1.51, 0, 1.51)	(1.64, 0, 1.64)	(1.39, 0, 1.39)	(1.58, 0, 1.58)	-- *	-- *
	4	(1.69, 0, 1.69)	(1.52, 0, 1.52)	(1.61, 0, 1.61)	(1.79, 0,1.79)	-- *	-- *
80º	1	(1.05, 0, 1.05)	(1.86, 0, 1.86)	(1.2, 0, 1.2)	(1.15, 0, 1.15)	-- *	-- *
	2	(1.15, 0, 1.15)	(1.63, 0, 1.63)	(1.32, 0, 1.32)	(1.04, 0, 1.04)	-- *	-- *
	3	(1.35, 0, 1.35)	(1.42, 0, 1.42)	(1.45, 0, 1.45)	(1.85, 0, 1.85)	-- *	-- *
	4	(1.89, 0, 1.89)	(1.78, 0, 1.78)	(1.65, 0, 1.65)	(1.65, 0, 1.65)	-- *	-- *

θ	N						
90°	1	(1.0, 0, 1.0)	(1.65, 0, 1.65)	(1.71, 0, 1.71)	(1.25, 0, 1.35)	-- *	-- *
	2	(1.2, 0, 1.2)	(1.78, 0, 1.78)	(1.85, 0, 1.85)	(1.47, 0, 1.65)	-- *	-- *
	3	(1.5, 0, 1.5)	(1.75, 0, 1.75)	(1.58, 0, 1.58)	(1.12, 0, 1.19)	-- *	-- *
	4	(1.6, 0, 1.6)	(1.23, 0, 1.23)	(1.23, 0, 1.23)	(1.39, 0, 1.45)	-- *	-- *

<u>Note:</u> * The cases shown with the dashed lines represent the rays not successful in reaching at the bottom.

Table B.1.6 Coordinates of BRS observed for ray from experimental model for angle 30-90° and for (A-F) cases

θ	N	Case A (Ra)	Case B (Rb)	Case C (Rc)	Case D (Rd)	Case E (Re)	Case F (Rf)
30°	1	-- *	-- *	-- *	(1.23, 0,1.23)	-- *	-- *
	2	-- *	-- *	-- *	(1.27, 0, 1.30)	-- *	-- *
	3	-- *	-- *	-- *	(1.31, 0, 1.35)	-- *	-- *
	4	-- *	-- *	-- *	(1.43, 0, 1.40)	-- *	-- *
40°	1	-- *	(1.84, 0, 1.84)	(1.23, 0, 1.23)	(1.70, 0, 1.52)	-- *	-- *
	2	-- *	(1.41, 0, 1.41)	(1.48, 0, 1.48)	(1.60, 0, 1.40)	-- *	-- *
	3	-- *	(1.15, 0, 1.15)	(1.53, 0, 1.53)	(1.44, 0, 1.28)	-- *	-- *
	4	-- *	(1.04, 0, 1.04)	(1.70, 0, 1.70)	(1.32, 0, 1.18)	-- *	-- *
50°	1	(1.74, 0,1.74)	(1.82, 0, 1.82)	(1.19, 0, 1.19)	(1.20, 0, 1.20)	-- *	-- *
	2	(1.94, 0,1.94)	(1.65, 0, 1.65)	(1..32, 0, 1.32)	(1.34, 0, 1.34)	-- *	-- *
	3	-- *	(1.40, 0, 1.40)	(1.44, 0, 1.44)	(1.51, 0, 1.51)	-- *	-- *
	4	-- *	(1.12, 0, 1.12)	(1.66, 0, 1.66)	(1.74, 0, 1.74)	-- *	-- *
60°	1	(1.50, 0,1.50)	(1.85, 0, 1.85)	(1.2, 0, 1.2)	(1.87, 0, 1.87)	-- *	-- *
	2	-- *	(1.70, 0, 1.70)	(1.30, 0, 1.30)	(1.64, 0, 1.64)	-- *	-- *
	3	-- *	(1.62, 0, 1.62)	(1.44, 0, 1.44)	(1.51, 0, 1.51)	-- *	-- *

	4	-- *	(1.78, 0, 1.78)	(1.64, 0, 1.64)	(1.32, 0, 1.32)	-- *	-- *
70°	1	(1.12, 0, 1.12)	(1.85, 0, 1.85)	(1.0, 0, 1.0)	(1.20, 0, 1.20)	-- *	-- *
	2	(1.22, 0, 1.22)	(1.74, 0, 1.74)	(1.41, 0, 1.41)	(1.40, 0, 1.40)	-- *	-- *
	3	(1.51, 0, 1.51)	(1.62, 0, 1.62)	(1.37, 0, 1.37)	(1.57, 0, 1.57)	-- *	-- *
	4	(1.69, 0, 1.69)	(1.51, 0, 1.51)	(1.61, 0, 1.61)	(1.79, 0,1.79)	-- *	-- *
80°	1	(1.04, 0, 1.04)	(1.86, 0, 1.86)	(1.1, 0, 1.1)	(1.13, 0, 1.13)	-- *	-- *
	2	(1.14, 0, 1.14)	(1.63, 0, 1.63)	(1.31, 0, 1.31)	(1.04, 0, 1.04)	-- *	-- *
	3	(1.35, 0, 1.35)	(1.42, 0, 1.42)	(1.44, 0, 1.44)	(1.82, 0, 1.82)	-- *	-- *
	4	(1.89, 0, 1.89)	(1.78, 0, 1.78)	(1.65, 0, 1.65)	(1.65, 0, 1.65)	-- *	-- *
90°	1	(1.0, 0, 1.0)	(1.65, 0, 1.65)	(1.70, 0, 1.70)	(1.32, 0, 1.32)	-- *	-- *
	2	(1.2, 0, 1.2)	(1.78, 0, 1.78)	(1.84, 0, 1.84)	(1.47, 0, 1.65)	-- *	-- *
	3	(1.5, 0, 1.5)	(1.75, 0, 1.75)	(1.57, 0, 1.57)	(1.12, 0, 1.19)	-- *	-- *
	4	(1.5, 0, 1.5)	(1.23, 0, 1.23)	(1.23, 0, 1.23)	(1.39, 0, 1.45)	-- *	-- *

Note:* The cases shown with the dashed lines represent the rays not successful in reaching at the bottom.

Table B.1.7 Distance travelled by ray which is reach to BRS

θ	N	Case A (Ra)	Case B (Rb)	Case C (Rc)	Case D (Rd)	Case E (Re)	Case F (Rf)
30°	1	-- *	-- *	-- *	0.61 m	-- *	-- *
	2	-- *	-- *	-- *	0.56 m	-- *	-- *
	3	-- *	-- *	-- *	0.64 m	-- *	-- *
	4	-- *	-- *	-- *	0.61 m	-- *	-- *
40°	1	-- *	0.71 m	0.87 m	0.67 m	-- *	-- *
	2	-- *	0.70 m	0.86 m	0.64 m	-- *	-- *

	3	-- *	0.96 m	0.82 m	0.61 m	-- *	-- *
	4	-- *	0.67 m	0.77 m	0.56 m	-- *	-- *
50°	1	0.56 m	0.69 m	0.84 m	0.64 m	-- *	-- *
	2	0.56 m	0.68 m	0.83 m	0.61 m	-- *	-- *
	3	-- *	0.67 m	0.80 m	0.59 m	-- *	-- *
	4	-- *	0.65 m	0.76 m	0.55 m	-- *	-- *
60°	1	1.76 m	0.68 m	0.80 m	0.60 m	-- *	-- *
	2	-- *	0.67 m	0.77 m	0.58 m	-- *	-- *
	3	-- *	0.65 m	0.75 m	0.57 m	-- *	-- *
	4	-- *	0.63 m	0.73 m	0.53 m	-- *	-- *
70°	1	0.52 m	0.67 m	0.78 m	0.58 m	-- *	-- *
	2	0.52 m	0.66 m	0.76 m	0.56 m	-- *	-- *
	3	0.52 m	0.65 m	0.74 m	0.54 m	-- *	-- *
	4	0.52 m	0.64 m	0.71 m	0.52 m	-- *	-- *
80°	1	0.51 m	0.66 m	0.76 m	0.53 m	-- *	-- *
	2	0.51 m	0.64 m	0.74 m	0.52 m	-- *	-- *
	3	0.51 m	0.62 m	0.72 m	0.49 m	-- *	-- *
	4	0.51 m	0.60 m	0.70 m	0.46 m	-- *	-- *
90°	1	0.52 m	0.56 m	0.75 m	0.52 m	-- *	-- *
	2	0.52 m	0.55 m	0.73 m	0.49 m	-- *	-- *
	3	0.52 m	0.54 m	0.70 m	0.46 m	-- *	-- *
	4	0.52 m	0.53 m	0.67 m	0.42 m	-- *	-- *

Note:* The cases shown with the dashed lines represent the rays not successful in reaching at the bottom.