a – jj are raw measurements

The Hong Kong Polytechnic University
Department of Land Surveying & Geo-Informatics
Surveying Practical Exercise Field Sheet

Date: Class: Observer: Booker:

From	To	Face	HCR	VCR	Slope Distance	Mean HCR	Mean VCR	Mean Slope Dist.	Horizontal Dist.	Remarks
P	A	L	a - -	b - -	c	- -	- -			
P	B	L	d - -	e - -	f	- -	- -			
P	C	L	g - -	h - -	i	- -	- -			
P	C	R	j - -	k - -	l	- -	- -			
P	B	R	m - -	n - -	o	- -	- -			
P	A	R	p - -	q - -	r	- -	- -			
			- -	- -		- -	- -			
P	A	L	s - -	t - -	u	- -	- -			
P	B	L	v - -	w - -	x	- -	- -			
P	C	L	y - -	z - -	aa	- -	- -			
P	C	R	bb - -	cc - -	dd	- -	- -			
P	B	R	ee - -	ff - -	gg	- -	- -			
P	A	R	hh - -	ii - -	jj	- -	- -			
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FL HCR and FR HCR are opposite, so that the difference should be 180°. Error = (FL HCR – FR HCR) – 180°. Correction = - Error/2. Mean HCR = FL HCR + Correction
E.g. Error = (a – p)-180°. Mean HCR = a + Correction

=(FL SD + FR SD)/2
E.g.,= (c+r)/2

A vertical circle is 360°. FL VCR + FR VCR should be 360°. Error = (FL VCR + FR VCR) – 360°. Correction = - Error/2. Mean VCR = FL VCR + Correction
Error=(b+q)-360°. Mean VCR= b + Correction

If Mean VCR <90°,
=cos(90°-Mean VCR) x Mean Slope Dist.
If Mean VCR > 90°,
=cos(Mean VCR - 90°) x Mean Slope Dist.
Or, (since VCR in the totalstation is set to Zenth angle),
=sin(Mean VCR) x Mean Slope Dist.

Finally, take the mean/average of the HCRs in the two rounds for the resection calculation.