

# ПРИЛОЖЕНИЕ И. Способ круговых приемов

Дата: 16.07.2021

## Способ круговых приемов (горизонтальные направления)

Цель	Отсчеты (КЛ/КП)	(КЛ+КП)/2	Среднее, приведенное к нулю	Среднее из приемов	d	v	v*v
1	2	3	4	5	6	7	8
Станция 2130							
Прием 1							
18062	0°00'00,0"	0°00'02,0"	0°00'00,0"	0°00'00,0"	0	0	0,053
	180°00'04,0"						
2131	293°59'50,0" 113°59'50,0"	293°59'50,0"	293°59'47,3"	293°59'46,8"	0	0	0,053
18062	0°00'02,0"	0°00'03,5"	0°00'00,0"	0°00'00,0"	0	0	0,053
	180°00'05,0"						
q = -(Σd)/n = 0							

1	2	3	4	5	6	7	8
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	300°40'10,0"						
q = -(Σd)/n = -2		Незам.КЛ = -1		Незам.КП = 0		Незам. среднее = -1	
Прием 6							
18062	150°49'59,0"	150°49'59,0"	0°00'00,0"	0°00'00,0"	0	2	4,969
	330°49'59,0"						
2131	84°49'50,0"	84°49'50,0"	293°59'51,3"	293°59'46,8"	-4	-2	4,969
	264°49'50,0"						
18062	150°49'58,0"	150°49'58,5"	0°00'00,0"	0°00'00,0"	0	2	4,969
	330°49'59,0"						
q = -(Σd)/n = 2		Незам.КЛ = -1		Незам.КП = 0		Незам. среднее = 0	
m (ошибка ед.веса) = 2						m (СКО уравнен. на станции направления) = 1	
Станция 18062							
Прием 1							
2122	0°00'00,0"	0°00'03,0"	0°00'00,0"	0°00'00,0"	0	-1	1,615
	180°00'06,0"						
2130	163°36'07,0"	163°36'07,0"	163°36'04,0"	163°36'06,5"	3	1	1,615
	343°36'07,0"						
2122	0°00'00,0"	0°00'03,0"	0°00'00,0"	0°00'00,0"	0	-1	1,615
	180°00'06,0"						
q = -(Σd)/n = -1		Незам.КЛ = 0		Незам.КП = 0		Незам. среднее = 0	
Прием 2							
2122	30°09'59,0"	30°09'58,5"	0°00'00,0"	0°00'00,0"	0	-1	0,271
	210°09'58,0"						
2130	193°46'02,0"	193°46'04,5"	163°36'05,5"	163°36'06,5"	1	1	0,271
	13°46'07,0"						
2122	30°09'59,0"	30°09'59,5"	0°00'00,0"	0°00'00,0"	0	-1	0,271
	210°10'00,0"						
q = -(Σd)/n = -1		Незам.КЛ = 0		Незам.КП = 2		Незам. среднее = 1	
Прием 3							
2122	60°19'59,0"	60°19'59,0"	0°00'00,0"	0°00'00,0"	0	1	0,959
	240°19'59,0"						
2130	223°56'07,0"	223°56'07,0"	163°36'08,5"	163°36'06,5"	-2	-1	0,959
	43°56'07,0"						
2122	60°19'58,0"	60°19'58,0"	0°00'00,0"	0°00'00,0"	0	1	0,959
	240°19'58,0"						
q = -(Σd)/n = 1		Незам.КЛ = -1		Незам.КП = -1		Незам. среднее = -1	
Прием 4							
2122	90°30'01,0"	90°30'03,0"	0°00'00,0"	0°00'00,0"	0	-1	1,313
	270°30'05,0"						
2130	254°06'07,0"	254°06'07,0"	163°36'04,3"	163°36'06,5"	2	1	1,313
	74°06'07,0"						
2122	90°30'00,0"	90°30'02,5"	0°00'00,0"	0°00'00,0"	0	-1	1,313
	270°30'05,0"						
q = -(Σd)/n = -1		Незам.КЛ = -1		Незам.КП = 0		Незам. среднее = -1	
Прием 5							
2122	120°39'57,0"	120°39'59,0"	0°00'00,0"	0°00'00,0"	0	1	0,365

1	2	3	4	5	6	7	8
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	300°40'01,0"						
2130	284°16'07,0" 104°16'07,0"	284°16'07,0"	163°36'07,7"	163°36'06,5"	-1	-1	0,365
2122	120°39'57,0"	120°39'59,5"	0°00'00,0"	0°00'00,0"	0	1	0,365
	300°40'02,0"						

$q = -(\Sigma d)/n = 1$       Незам.КЛ = 0      Незам.КП = 1      Незам. среднее = 0

#### Прием 6

2122	150°49'57,0" 330°50'00,0"	150°49'58,5"	0°00'00,0"	0°00'00,0"	0	1	1,834
2130	314°26'07,0"	314°26'07,0"	163°36'09,3"	163°36'06,5"	-3	-1	1,834
	134°26'07,0"						
2122	150°49'56,0" 330°49'58,0"	150°49'57,0"	0°00'00,0"	0°00'00,0"	0	1	1,834

$q = -(\Sigma d)/n = 1$       Незам.КЛ = -1      Незам.КП = -2      Незам. среднее = -1

$m$  (ошибка ед.веса) = 2       $m$  (СКО уравнен. на станции направления) = 1

#### Станция 2122

#### Прием 1

2123	0°00'00,0"	0°00'01,0"	0°00'00,0"	0°00'00,0"	0	-1	0,293
	180°00'02,0"						
18062	282°49'40,0"	282°49'39,0"	282°49'37,5"	282°49'38,6"	1	1	0,293
	102°49'38,0"						
2123	0°00'02,0"	0°00'02,0"	0°00'00,0"	0°00'00,0"	0	-1	0,293
	180°00'02,0"						

$q = -(\Sigma d)/n = -1$       Незам.КЛ = 2      Незам.КП = 0      Незам. среднее = 1

#### Прием 2

2123	30°09'56,0" 210°09'57,0"	30°09'56,5"	0°00'00,0"	0°00'00,0"	0	2	3,361
18062	312°59'40,0"	312°59'39,0"	282°49'42,3"	282°49'38,6"	-4	-2	3,361
	132°59'38,0"						
2123	30°09'56,0" 210°09'58,0"	30°09'57,0"	0°00'00,0"	0°00'00,0"	0	2	3,361

$q = -(\Sigma d)/n = 2$       Незам.КЛ = 0      Незам.КП = 1      Незам. среднее = 0

#### Прием 3

2123	60°20'00,0"	60°19'58,5"	0°00'00,0"	0°00'00,0"	0	0	0,002
	240°19'57,0"						
18062	343°09'40,0" 163°09'38,0"	343°09'39,0"	282°49'38,5"	282°49'38,6"	0	0	0,002
2123	60°20'02,0"	60°20'02,5"	0°00'00,0"	0°00'00,0"	0	0	0,002
	240°20'03,0"						

$q = -(\Sigma d)/n = 0$       Незам.КЛ = 2      Незам.КП = 6      Незам. среднее = 4

#### Прием 4

2123	90°30'03,0"	90°30'04,0"	0°00'00,0"	0°00'00,0"	0	-1	0,840
	270°30'05,0"						
18062	13°19'40,0" 193°19'38,0"	13°19'39,0"	282°49'36,8"	282°49'38,6"	2	1	0,840
2123	90°30'00,0"	90°30'00,5"	0°00'00,0"	0°00'00,0"	0	-1	0,840
	270°30'01,0"						

1	2	3	4	5	6	7	8
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q = -(Σd)/n = -1		Незам.КЛ = -3		Незам.КП = -4		Незам. среднее = -3	
Прием 5							
2123	120°40'04,0" 300°40'06,0"	120°40'05,0"	0°00'00,0"	0°00'00,0"	0	-1	0,627
18062	43°29'40,0"	43°29'39,0"	282°49'37,0"	282°49'38,6"	2	1	0,627
	223°29'38,0"						
2123	120°39'58,0" 300°40'00,0"	120°39'59,0"	0°00'00,0"	0°00'00,0"	0	-1	0,627
q = -(Σd)/n = -1		Незам.КЛ = -6		Незам.КП = -6		Незам. среднее = -6	
Прием 6							
2123	150°49'57,0"	150°50'00,0"	0°00'00,0"	0°00'00,0"	0	0	0,210
	330°50'03,0"						
18062	73°39'40,0"	73°39'39,0"	282°49'39,5"	282°49'38,6"	-1	0	0,210
	253°39'38,0"						
2123	150°49'58,0"	150°49'59,0"	0°00'00,0"	0°00'00,0"	0	0	0,210
	330°50'00,0"						
q = -(Σd)/n = 0		Незам.КЛ = 1		Незам.КП = -3		Незам. среднее = -1	
m <sub>и</sub> (ошибка ед.веса) = 1						m (СКО уравнен. на станции направления) = 1	
Станция 2123							
Прием 1							
2131	359°59'59,0" 179°59'59,0"	359°59'59,0"	0°00'00,0"	0°00'00,0"	0	0	0,016
2122	266°06'43,0"	266°06'43,0"	266°06'44,5"	266°06'44,2"	0	0	0,016
	86°06'43,0"						
2131	359°59'57,0"	359°59'58,0"	0°00'00,0"	0°00'00,0"	0	0	0,016
	179°59'59,0"						
2117	359°59'59,0"	0°00'01,5"	0°00'00,0"	0°00'00,0"	0	0	0,035
	180°00'04,0"						
2131	271°56'17,0"	271°56'20,5"	271°56'18,5"	271°56'18,1"	0	0	0,035
	91°56'24,0"						
2117	0°00'00,0"	0°00'02,5"	0°00'00,0"	0°00'00,0"	0	0	0,035
	180°00'05,0"						
q = -(Σd)/n = 0		Незам.КЛ = -1		Незам.КП = -1		Незам. среднее = -1	
Прием 2							
2131	302°06'16,0" 122°06'22,0"	302°06'19,0"	271°56'17,0"	271°56'18,1"	1	1	0,316
2117	30°10'01,0"	30°10'02,5"	0°00'00,0"	0°00'00,0"	0	-1	0,316
	210°10'04,0"						
2131	30°09'53,0" 210°09'53,0"	30°09'53,0"	0°00'00,0"	0°00'00,0"	0	3	6,891
2122	296°16'43,0"	296°16'43,0"	266°06'49,5"	266°06'44,2"	-5	-3	6,891
	116°16'43,0"						
2131	30°09'54,0" 210°09'54,0"	30°09'54,0"	0°00'00,0"	0°00'00,0"	0	3	6,891
2117	30°09'59,0"	30°10'01,5"	0°00'00,0"	0°00'00,0"	0	-1	0,316
	210°10'04,0"						
q = -(Σd)/n = -1		Незам.КЛ = -2		Незам.КП = 0		Незам. среднее = -1	

1	2	3	4	5	6	7	8
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Прием 3							
2131	60°19'56,0"	60°19'58,0"	0°00'00,0"	0°00'00,0"	0	0	0,000
	240°20'00,0"						
2122	326°26'43,0"	326°26'43,0"	266°06'44,2"	266°06'44,2"	0	0	0,000
	146°26'43,0"						
2117	60°20'02,0"	60°20'01,0"	0°00'00,0"	0°00'00,0"	0	0	0,004
	240°20'00,0"						
2131	332°16'22,0" 152°16'20,0"	332°16'21,0"	271°56'18,0"	271°56'18,1"	0	0	0,004
2117	60°20'04,0"	60°20'05,0"	0°00'00,0"	0°00'00,0"	0	0	0,004
	240°20'06,0"						
2131	60°19'59,0" 240°20'00,0"	60°19'59,5"	0°00'00,0"	0°00'00,0"	0	0	0,000
q = -(Σd)/n = 0                      Незам.КЛ = 3                      Незам.КП = 0                      Незам. среднее = 1							
Прием 4							
2117	90°30'02,0"	90°30'03,5"	0°00'00,0"	0°00'00,0"	0	0	0,035
	270°30'05,0"						
2122	356°36'43,0"	356°36'43,0"	266°06'41,3"	266°06'44,2"	3	1	2,250
	176°36'43,0"						
2131	90°29'59,0"	90°30'02,0"	0°00'00,0"	0°00'00,0"	0	-1	2,250
	270°30'05,0"						
2131	90°30'00,0"	90°30'01,5"	0°00'00,0"	0°00'00,0"	0	-1	2,250
	270°30'03,0"						
2117	90°30'00,0"	90°30'02,0"	0°00'00,0"	0°00'00,0"	0	0	0,035
	270°30'04,0"						
2131	2°26'20,0"	2°26'20,5"	271°56'17,8"	271°56'18,1"	0	0	0,035
	182°26'21,0"						
q = -(Σd)/n = 0                      Незам.КЛ = -2                      Незам.КП = -1                      Незам. среднее = -1							
Прием 5							
2131	120°39'58,0"	120°39'58,5"	0°00'00,0"	0°00'00,0"	0	0	0,062
	300°39'59,0"						
2117	120°40'03,0"	120°40'04,0"	0°00'00,0"	0°00'00,0"	0	0	0,035
	300°40'05,0"						
2122	26°46'43,0" 206°46'43,0"	26°46'43,0"	266°06'43,8"	266°06'44,2"	0	0	0,062
2131	120°39'56,0"	120°40'00,0"	0°00'00,0"	0°00'00,0"	0	0	0,062
	300°40'04,0"						
2131	32°36'19,0" 212°36'20,0"	32°36'19,5"	271°56'17,8"	271°56'18,1"	0	0	0,035
2117	120°39'59,0"	120°39'59,5"	0°00'00,0"	0°00'00,0"	0	0	0,035
	300°40'00,0"						
q = -(Σd)/n = 0                      Незам.КЛ = -4                      Незам.КП = -5                      Незам. среднее = -4							
Прием 6							
2131	150°50'01,0"	150°50'00,5"	0°00'00,0"	0°00'00,0"	0	-1	1,000
	330°50'00,0"						
2122	56°56'43,0" 236°56'43,0"	56°56'43,0"	266°06'42,3"	266°06'44,2"	2	1	1,000
2117	150°49'58,0"	150°50'00,5"	0°00'00,0"	0°00'00,0"	0	1	0,660

1	2	3	4	5	6	7	8
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	330°50'03,0"						
2131	62°46'22,0" 242°46'19,0"	62°46'20,5"	271°56'19,8"	271°56'18,1"	-2	-1	0,660
2131	150°49'58,0" 330°50'04,0"	150°50'01,0"	0°00'00,0"	0°00'00,0"	0	-1	1,000
2117	150°49'58,0" 330°50'04,0"	150°50'01,0"	0°00'00,0"	0°00'00,0"	0	1	0,660
q = $-(\Sigma d)/n = 1$ Незам.КЛ = 0      Незам.КП = 1      Незам. среднее = 1							
m (ошибка ед.веса) = 1      m (СКО уравнен. на станции направления) = 0							
<b>Станция 2131</b>							
<b>Прием 1</b>							
2119	0°00'00,0" 180°00'02,0"	0°00'01,0"	0°00'00,0"	0°00'00,0"	0	1	1,668
0320	271°16'06,0" 91°16'08,0"	271°16'07,0"	271°16'06,0"	271°16'03,4"	-3	-1	1,668
2119	0°00'00,0" 180°00'02,0"	0°00'01,0"	0°00'00,0"	0°00'00,0"	0	1	1,668
2130	0°00'03,0" 180°00'07,0"	0°00'05,0"	0°00'00,0"	0°00'00,0"	0	0	0,016
2123	0°00'04,0" 180°00'06,0"	0°00'05,0"	0°00'00,0"	0°00'00,0"	0	-2	2,507
2123	0°00'00,0" 180°00'06,0"	0°00'03,0"	0°00'00,0"	0°00'00,0"	0	-2	2,507
2119	266°39'40,0" 86°39'41,0"	266°39'40,5"	266°39'36,5"	266°39'39,7"	3	2	2,507
2130	0°00'02,0" 180°00'04,0"	0°00'03,0"	0°00'00,0"	0°00'00,0"	0	0	0,016
2123	253°27'38,0" 73°27'38,0"	253°27'38,0"	253°27'34,0"	253°27'33,8"	0	0	0,016
q = $-(\Sigma d)/n = 0$ Незам.КЛ = 1      Незам.КП = 3      Незам. среднее = 2							
<b>Прием 2</b>							
2119	296°49'40,0" 116°49'42,0"	296°49'41,0"	266°39'42,0"	266°39'39,7"	-2	-1	1,361
2119	30°09'58,0" 210°10'04,0"	30°10'01,0"	0°00'00,0"	0°00'00,0"	0	-1	0,340
0320	301°26'00,0" 121°26'08,0"	301°26'04,0"	271°16'02,3"	271°16'03,4"	1	1	0,340
2123	30°09'58,0" 210°10'00,0"	30°09'59,0"	0°00'00,0"	0°00'00,0"	0	1	1,361
2123	30°09'59,0" 210°09'59,0"	30°09'59,0"	0°00'00,0"	0°00'00,0"	0	1	1,361
2119	30°10'00,0" 210°10'05,0"	30°10'02,5"	0°00'00,0"	0°00'00,0"	0	-1	0,340
2130	30°10'00,0" 210°10'06,0"	30°10'03,0"	0°00'00,0"	0°00'00,0"	0	0	0,063
2123	283°37'38,0" 103°37'38,0"	283°37'38,0"	253°27'34,3"	253°27'33,8"	-1	0	0,063
2130	30°10'03,0"	30°10'04,5"	0°00'00,0"	0°00'00,0"	0	0	0,063

1	2	3	4	5	6	7	8
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	210°10'06,0"						
q = -(Σd)/n = 0		Незам.КЛ = 3		Незам.КП = 0		Незам. среднее = 1	
Прием 3							
2123	313°47'38,0"	313°47'38,0"	253°27'32,3"	253°27'33,8"	1	1	0,562
	133°47'38,0"						
2130	60°20'08,0"	60°20'05,0"	0°00'00,0"	0°00'00,0"	0	-1	0,562
	240°20'02,0"						
2119	60°20'04,0"	60°20'03,5"	0°00'00,0"	0°00'00,0"	0	0	0,002
	240°20'03,0"						
0320	331°36'04,0"	331°36'05,5"	271°16'03,5"	271°16'03,4"	0	0	0,002
	151°36'07,0"						
2119	60°20'00,0"	60°20'00,5"	0°00'00,0"	0°00'00,0"	0	0	0,002
	240°20'01,0"						
2123	60°20'02,0"	60°20'01,0"	0°00'00,0"	0°00'00,0"	0	-1	1,460
	240°20'00,0"						
2119	326°59'40,0"	326°59'38,5"	266°39'37,3"	266°39'39,7"	2	1	1,460
	146°59'37,0"						
2123	60°20'04,0"	60°20'01,5"	0°00'00,0"	0°00'00,0"	0	-1	1,460
	240°19'59,0"						
2130	60°20'05,0"	60°20'06,5"	0°00'00,0"	0°00'00,0"	0	-1	0,562
	240°20'08,0"						
q = -(Σd)/n = -1		Незам.КЛ = 3		Незам.КП = -6		Незам. среднее = -1	
Прием 4							
2130	90°30'04,0" 270°30'04,0"	90°30'04,0"	0°00'00,0"	0°00'00,0"	0	0	0,063
2123	343°57'38,0"	343°57'38,0"	253°27'33,3"	253°27'33,8"	1	0	0,063
	163°57'38,0"						
2130	90°30'04,0" 270°30'07,0"	90°30'05,5"	0°00'00,0"	0°00'00,0"	0	0	0,063
2123	90°30'03,0"	90°30'03,0"	0°00'00,0"	0°00'00,0"	0	2	2,377
	270°30'03,0"						
2119	357°09'41,0"	357°09'45,0"	266°39'42,8"	266°39'39,7"	-3	-2	2,377
	177°09'49,0"						
2123	90°30'00,0"	90°30'01,5"	0°00'00,0"	0°00'00,0"	0	2	2,377
	270°30'03,0"						
2119	90°30'03,0"	90°30'01,5"	0°00'00,0"	0°00'00,0"	0	0	0,043
	270°30'00,0"						
0320	1°46'04,0"	1°46'05,5"	271°16'03,0"	271°16'03,4"	0	0	0,043
	181°46'07,0"						
2119	90°30'02,0"	90°30'03,5"	0°00'00,0"	0°00'00,0"	0	0	0,043
	270°30'05,0"						
q = -(Σd)/n = 0		Незам.КЛ = -1		Незам.КП = 5		Незам. среднее = 2	
Прием 5							
2119	27°19'37,0"	27°19'38,5"	266°39'37,5"	266°39'39,7"	2	1	1,174
	207°19'40,0"						
2123	120°40'00,0"	120°40'01,0"	0°00'00,0"	0°00'00,0"	0	-1	1,174
	300°40'02,0"						
2123	120°40'02,0"	120°40'01,0"	0°00'00,0"	0°00'00,0"	0	-1	1,174

1	2	3	4	5	6	7	8
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	300°40'00,0"						
2130	120°40'01,0" 300°40'06,0"	120°40'03,5"	0°00'00,0"	0°00'00,0"	0	0	0,016
2123	14°07'38,0" 194°07'38,0"	14°07'38,0"	253°27'33,5"	253°27'33,8"	0	0	0,016
2130	120°40'03,0" 300°40'08,0"	120°40'05,5"	0°00'00,0"	0°00'00,0"	0	0	0,016
2119	120°40'01,0" 300°40'06,0"	120°40'03,5"	0°00'00,0"	0°00'00,0"	0	0	0,043
0320	31°56'05,0" 211°56'08,0"	31°56'06,5"	271°16'03,0"	271°16'03,4"	0	0	0,043
2119	120°40'03,0" 300°40'04,0"	120°40'03,5"	0°00'00,0"	0°00'00,0"	0	0	0,043

$$q = -(\sum d)/n = 0$$

$$\text{Незам.КЛ} = 2$$

$$\text{Незам.КП} = -2$$

$$\text{Незам. среднее} = 0$$

### Прием 6

2130	150°50'03,0" 330°50'03,0"	150°50'03,0"	0°00'00,0"	0°00'00,0"	0	1	0,563
2123	44°17'38,0" 224°17'38,0"	44°17'38,0"	253°27'35,3"	253°27'33,8"	-2	-1	0,563
2130	150°50'03,0" 330°50'02,0"	150°50'02,5"	0°00'00,0"	0°00'00,0"	0	1	0,563
2119	150°50'03,0" 330°50'02,0"	150°50'02,5"	0°00'00,0"	0°00'00,0"	0	0	0,111
0320	62°06'07,0" 242°06'04,0"	62°06'05,5"	271°16'02,8"	271°16'03,4"	1	0	0,111
2123	150°50'02,0" 330°49'59,0"	150°50'00,5"	0°00'00,0"	0°00'00,0"	0	1	1,361
2119	57°29'40,0" 237°29'42,0"	57°29'41,0"	266°39'42,0"	266°39'39,7"	-2	-1	1,361
2123	150°49'57,0" 330°49'58,0"	150°49'57,5"	0°00'00,0"	0°00'00,0"	0	1	1,361
2119	150°50'03,0" 330°50'03,0"	150°50'03,0"	0°00'00,0"	0°00'00,0"	0	0	0,111

$$q = -(\sum d)/n = 0$$

$$\text{Незам.КЛ} = 0$$

$$\text{Незам.КП} = 1$$

$$\text{Незам. среднее} = 1$$

$$m_i (\text{ошибка ед.веса}) = 1$$

$$m (\text{СКО уравнен. на станции направления}) = 0$$

### Станция 2119

### Прием 1

2131	0°00'02,0" 180°00'00,0"	0°00'01,0"	0°00'00,0"	0°00'00,0"	0	0	0,035
2117	288°16'40,0" 108°16'40,0"	288°16'40,0"	288°16'38,7"	288°16'39,1"	0	0	0,035
2131	0°00'00,0" 180°00'03,0"	0°00'01,5"	0°00'00,0"	0°00'00,0"	0	0	0,035
2131	267°11'06,0" 87°11'00,0"	267°11'03,0"	267°11'03,5"	267°11'08,1"	5	2	5,348
18058	0°00'00,0" 179°59'59,0"	359°59'59,5"	0°00'00,0"	0°00'00,0"	0	-2	5,348
18058	0°00'01,0"	359°59'59,5"	0°00'00,0"	0°00'00,0"	0	-2	5,348



1	2	3	4	5	6	7	8
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	179°59'58,0"						
q = -(Σd)/n = -2		Незам.КЛ = 1		Незам.КП = -1		Незам. среднее = 0	
Прием 2							
18058	30°09'55,0"	30°09'54,0"	0°00'00,0"	0°00'00,0"	0	0	0,035
	210°09'53,0"						
2117	318°26'39,0"	318°26'40,0"	288°16'37,3"	288°16'39,1"	2	1	0,879
	138°26'41,0"						
2131	30°10'06,0"	30°10'04,0"	0°00'00,0"	0°00'00,0"	0	-1	0,879
	210°10'02,0"						
2131	30°10'06,0"	30°10'01,5"	0°00'00,0"	0°00'00,0"	0	-1	0,879
	210°09'57,0"						
18058	30°09'56,0"	30°09'55,5"	0°00'00,0"	0°00'00,0"	0	0	0,035
	210°09'55,0"						
2131	297°21'01,0"	297°21'02,5"	267°11'07,8"	267°11'08,1"	0	0	0,035
	117°21'04,0"						
q = -(Σd)/n = 0		Незам.КЛ = 1		Незам.КП = 2		Незам. среднее = 2	
Прием 3							
18058	60°19'46,0"	60°19'48,0"	0°00'00,0"	0°00'00,0"	0	3	8,629
	240°19'50,0"						
2131	60°20'03,0"	60°19'59,5"	0°00'00,0"	0°00'00,0"	0	1	1,723
	240°19'56,0"						
2131	327°31'00,0"	327°31'01,5"	267°11'14,0"	267°11'08,1"	-6	-3	8,629
	147°31'03,0"						
2131	60°19'59,0"	60°19'58,0"	0°00'00,0"	0°00'00,0"	0	1	1,723
	240°19'57,0"						
2117	348°36'39,0"	348°36'40,5"	288°16'41,8"	288°16'39,1"	-3	-1	1,723
	168°36'42,0"						
18058	60°19'46,0"	60°19'47,0"	0°00'00,0"	0°00'00,0"	0	3	8,629
	240°19'48,0"						
q = -(Σd)/n = 3		Незам.КЛ = 0		Незам.КП = 2		Незам. среднее = 1	
Прием 4							
18058	90°29'49,0"	90°29'48,5"	0°00'00,0"	0°00'00,0"	0	-1	0,473
	270°29'48,0"						
18058	90°29'49,0"	90°29'49,0"	0°00'00,0"	0°00'00,0"	0	-1	0,473
	270°29'49,0"						
2131	357°40'52,0"	357°40'55,5"	267°11'06,8"	267°11'08,1"	1	1	0,473
	177°40'59,0"						
2131	90°29'56,0"	90°30'00,5"	0°00'00,0"	0°00'00,0"	0	1	1,723
	270°30'05,0"						
2117	18°46'43,0"	18°46'42,0"	288°16'41,8"	288°16'39,1"	-3	-1	1,723
	198°46'41,0"						
2131	90°29'57,0"	90°30'00,0"	0°00'00,0"	0°00'00,0"	0	1	1,723
	270°30'03,0"						
q = -(Σd)/n = 1		Незам.КЛ = -1		Незам.КП = 2		Незам. среднее = 0	
Прием 5							
18058	120°39'49,0"	120°39'49,5"	0°00'00,0"	0°00'00,0"	0	1	1,723
	300°39'50,0"						
2131	27°50'59,0"	27°51'00,0"	267°11'10,8"	267°11'08,1"	-3	-1	1,723

1	2	3	4	5	6	7	8
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	207°51'01,0"						
18058	120°39'49,0"	120°39'49,0"	0°00'00,0"	0°00'00,0"	0	1	1,723
	300°39'49,0"						
2131	120°40'03,0"	120°40'00,5"	0°00'00,0"	0°00'00,0"	0	-1	0,660
	300°39'58,0"						
2131	120°40'00,0"	120°39'59,5"	0°00'00,0"	0°00'00,0"	0	-1	0,660
	300°39'59,0"						
2117	48°56'35,0"	48°56'37,5"	288°16'37,5"	288°16'39,1"	2	1	0,660
	228°56'40,0"						

$q = -(\Sigma d)/n = -1$  Незам.КЛ = -3 Незам.КП = 1 Незам. среднее = -1

#### Прием 6

18058	150°49'57,0"	150°50'01,5"	0°00'00,0"	0°00'00,0"	0	-1	1,129
	330°50'06,0"						
2131	58°01'05,0"	58°01'07,5"	267°11'06,0"	267°11'08,1"	2	1	1,129
	238°01'10,0"						
2131	150°50'02,0"	150°50'03,0"	0°00'00,0"	0°00'00,0"	0	-1	0,473
	330°50'04,0"						
2117	79°06'40,0"	79°06'41,0"	288°16'37,8"	288°16'39,1"	1	1	0,473
	259°06'42,0"						
2131	150°50'06,0"	150°50'03,5"	0°00'00,0"	0°00'00,0"	0	-1	0,473
	330°50'01,0"						
18058	150°49'58,0"	150°50'01,5"	0°00'00,0"	0°00'00,0"	0	-1	1,129
	330°50'05,0"						

$q = -(\Sigma d)/n = -1$  Незам.КЛ = -1 Незам.КП = 1 Незам. среднее = 0

$m$  (ошибка ед.веса) = 3  $m$  (СКО уравнен. на станции направления) = 1

#### Станция 2117

#### Прием 1

2119	0°00'00,0"	0°00'01,0"	0°00'00,0"	0°00'00,0"	0	0	0,000
	180°00'02,0"						
2123	253°07'20,0"	253°07'19,5"	253°07'15,8"	253°07'15,8"	0	0	0,000
	73°07'19,0"						
2119	0°00'04,0"	0°00'06,5"	0°00'00,0"	0°00'00,0"	0	0	0,000
	180°00'09,0"						

$q = -(\Sigma d)/n = 0$  Незам.КЛ = 4 Незам.КП = 7 Незам. среднее = 5

#### Прием 2

2123	283°17'17,0"	283°17'19,0"	253°07'15,5"	253°07'15,8"	0	0	0,021
	103°17'21,0"						
2119	30°10'04,0"	30°10'03,5"	0°00'00,0"	0°00'00,0"	0	0	0,021
	210°10'03,0"						
2119	30°10'02,0"	30°10'03,5"	0°00'00,0"	0°00'00,0"	0	0	0,021
	210°10'05,0"						

$q = -(\Sigma d)/n = 0$  Незам.КЛ = 2 Незам.КП = -2 Незам. среднее = 0

#### Прием 3

2119	60°20'00,0"	60°20'03,0"	0°00'00,0"	0°00'00,0"	0	0	0,230
	240°20'06,0"						
2123	313°27'20,0"	313°27'20,5"	253°07'16,8"	253°07'15,8"	-1	0	0,230
	133°27'21,0"						

1	2	3	4	5	6	7	8
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2119	60°20'05,0"	60°20'04,5"	0°00'00,0"	0°00'00,0"	0	0	0,230
	240°20'04,0"						
q = -(Σd)/n = 0                                  Незам.КЛ = 5                                  Незам.КП = -2                                  Незам. среднее = 1							
Прием 4							
2123	343°37'18,0"	343°37'19,5"	253°07'15,3"	253°07'15,8"	1	0	0,073
	163°37'21,0"						
2119	90°30'05,0"	90°30'05,0"	0°00'00,0"	0°00'00,0"	0	0	0,073
	270°30'05,0"						
2119	90°30'04,0"	90°30'03,5"	0°00'00,0"	0°00'00,0"	0	0	0,073
	270°30'03,0"						
q = -(Σd)/n = 0                                  Незам.КЛ = -1                                  Незам.КП = -2                                  Незам. среднее = -1							
Прием 5							
2119	120°40'02,0"	120°40'03,5"	0°00'00,0"	0°00'00,0"	0	0	0,073
	300°40'05,0"						
2123	13°47'18,0"	13°47'18,5"	253°07'15,3"	253°07'15,8"	1	0	0,073
	193°47'19,0"						
2119	120°40'00,0"	120°40'03,0"	0°00'00,0"	0°00'00,0"	0	0	0,073
	300°40'06,0"						
q = -(Σd)/n = 0                                  Незам.КЛ = 2                                  Незам.КП = -1                                  Незам. среднее = 1							
Прием 6							
2119	150°50'05,0"	150°50'04,0"	0°00'00,0"	0°00'00,0"	0	0	0,053
	330°50'03,0"						
2123	43°57'19,0"	43°57'20,0"	253°07'16,2"	253°07'15,8"	0	0	0,053
	223°57'21,0"						
2119	150°50'03,0"	150°50'03,5"	0°00'00,0"	0°00'00,0"	0	0	0,053
	330°50'04,0"						
q = -(Σd)/n = 0                                  Незам.КЛ = 2                                  Незам.КП = -1                                  Незам. среднее = 0							
m (ошибка ед.веса) = 0							m (СКО уравнен. на станции направления) = 0
Станция 0320							
Прием 1							
2131	0°00'00,0"	0°00'00,0"	0°00'00,0"	0°00'00,0"	0	1	0,918
	180°00'00,0"						
18032	264°59'48,0"	264°59'47,0"	264°59'46,8"	264°59'44,8"	-2	-1	0,918
	84°59'46,0"						
2131	0°00'01,0"	0°00'00,5"	0°00'00,0"	0°00'00,0"	0	1	0,918
	180°00'00,0"						
q = -(Σd)/n = 1                                  Незам.КЛ = 1                                  Незам.КП = 0                                  Незам. среднее = 1							
Прием 2							
18032	295°09'47,0"	295°09'45,0"	264°59'45,0"	264°59'44,8"	0	0	0,007
	115°09'43,0"						
2131	30°10'02,0"	30°10'01,0"	0°00'00,0"	0°00'00,0"	0	0	0,007
	210°10'00,0"						
2131	30°10'01,0"	30°09'59,0"	0°00'00,0"	0°00'00,0"	0	0	0,007
	210°09'57,0"						
q = -(Σd)/n = 0                                  Незам.КЛ = 1                                  Незам.КП = 3                                  Незам. среднее = 2							
Прием 3							

1	2	3	4	5	6	7	8
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2131	60°19'59,0"	60°19'58,0"	0°00'00,0"	0°00'00,0"	0	-1	0,444
	240°19'57,0"						
18032	325°19'46,0" 145°19'39,0"	325°19'42,5"	264°59'43,5"	264°59'44,8"	1	1	0,444
2131	60°20'01,0"	60°20'00,0"	0°00'00,0"	0°00'00,0"	0	-1	0,444
	240°19'59,0"						
q = -(Σd)/n = -1                      Незам.КЛ = 2                      Незам.КП = 2                      Незам. среднее = 2							
Прием 4							
2131	90°30'01,0"	90°29'59,5"	0°00'00,0"	0°00'00,0"	0	-1	0,444
	270°29'58,0"						
18032	355°29'48,0" 175°29'38,0"	355°29'43,0"	264°59'43,5"	264°59'44,8"	1	1	0,444
2131	90°30'02,0"	90°29'59,5"	0°00'00,0"	0°00'00,0"	0	-1	0,444
	270°29'57,0"						
q = -(Σd)/n = -1                      Незам.КЛ = 1                      Незам.КП = -1                      Незам. среднее = 0							
Прием 5							
18032	25°39'48,0" 205°39'38,0"	25°39'43,0"	264°59'46,0"	264°59'44,8"	-1	-1	0,340
2131	120°39'57,0"	120°39'57,0"	0°00'00,0"	0°00'00,0"	0	1	0,340
	300°39'57,0"						
2131	120°39'57,0"	120°39'57,0"	0°00'00,0"	0°00'00,0"	0	1	0,340
	300°39'57,0"						
q = -(Σd)/n = 1                      Незам.КЛ = 0                      Незам.КП = 0                      Незам. среднее = 0							
Прием 6							
2131	150°49'58,0" 330°49'59,0"	150°49'58,0"	0°00'00,0"	0°00'00,0"	0	0	0,085
2131	150°50'00,0" 330°49'56,0"						
18032	55°49'45,0" 235°49'40,0"	55°49'42,5"	264°59'44,3"	264°59'44,8"	1	0	0,085
q = -(Σd)/n = 0                      Незам.КЛ = 2                      Незам.КП = -3                      Незам. среднее = -1							
m (ошибка ед.веса) = 1							m (СКО уравнен. на станции направления) = 0
Станция 18032							
Прием 1							
0320	0°00'00,0" 180°00'01,0"	0°00'00,5"	0°00'00,0"	0°00'00,0"	0	1	0,532
18058	157°06'50,0" 337°06'53,0"						
0320	0°00'00,0" 180°00'05,0"	0°00'02,5"	0°00'00,0"	0°00'00,0"	0	1	0,532
q = -(Σd)/n = 1                      Незам.КЛ = 0                      Незам.КП = 4                      Незам. среднее = 2							
Прием 2							
0320	30°10'03,0"	30°10'05,5"	0°00'00,0"	0°00'00,0"	0	-1	0,271
	210°10'08,0"						
0320	30°10'01,0"	30°10'04,5"	0°00'00,0"	0°00'00,0"	0	-1	0,271
	210°10'08,0"						
18058	187°16'50,0"	187°16'52,5"	157°06'47,5"	157°06'48,5"	1	1	0,271

1	2	3	4	5	6	7	8
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	7°16'55,0"						
q = -(Σd)/n = -1		Незам.КЛ = 2		Незам.КП = 0		Незам. среднее = 1	
Прием 3							
18058	217°26'50,0"	217°26'51,0"	157°06'47,5"	157°06'48,5"	1	1	0,271
	37°26'52,0"						
0320	60°20'02,0"	60°20'03,5"	0°00'00,0"	0°00'00,0"	0	-1	0,271
	240°20'05,0"						
0320	60°20'00,0"	60°20'03,5"	0°00'00,0"	0°00'00,0"	0	-1	0,271
	240°20'07,0"						
q = -(Σd)/n = -1		Незам.КЛ = -2		Незам.КП = 2		Незам. среднее = 0	
Прием 4							
0320	90°29'59,0"	90°30'02,0"	0°00'00,0"	0°00'00,0"	0	1	0,365
	270°30'05,0"						
0320	90°30'01,0"	90°30'03,5"	0°00'00,0"	0°00'00,0"	0	1	0,365
	270°30'06,0"						
18058	247°36'49,0"	247°36'52,5"	157°06'49,8"	157°06'48,5"	-1	-1	0,365
	67°36'56,0"						
q = -(Σd)/n = 1		Незам.КЛ = 2		Незам.КП = 1		Незам. среднее = 2	
Прием 5							
0320	120°40'01,0"	120°40'02,0"	0°00'00,0"	0°00'00,0"	0	0	0,125
	300°40'03,0"						
0320	120°40'00,0"	120°40'00,5"	0°00'00,0"	0°00'00,0"	0	0	0,125
	300°40'01,0"						
18058	277°46'51,0"	277°46'50,5"	157°06'49,2"	157°06'48,5"	-1	0	0,125
	97°46'50,0"						
q = -(Σd)/n = 0		Незам.КЛ = -1		Незам.КП = -2		Незам. среднее = -2	
Прием 6							
0320	150°50'02,0"	150°50'02,5"	0°00'00,0"	0°00'00,0"	0	-1	0,417
	330°50'03,0"						
18058	307°56'48,0"	307°56'50,0"	157°06'47,2"	157°06'48,5"	1	1	0,417
	127°56'52,0"						
0320	150°50'02,0"	150°50'03,0"	0°00'00,0"	0°00'00,0"	0	-1	0,417
	330°50'04,0"						
q = -(Σd)/n = -1		Незам.КЛ = 0		Незам.КП = -1		Незам. среднее = -1	
m (ошибка ед.веса) = 1				m (СКО уравнен. на станции направления) = 0			
Станция 18058							
Прием 1							
18032	0°00'02,0"	0°00'01,5"	0°00'00,0"	0°00'00,0"	0	0	0,011
	180°00'01,0"						
18032	0°00'00,0"	0°00'01,5"	0°00'00,0"	0°00'00,0"	0	0	0,011
	180°00'03,0"						
2119	299°26'12,0"	299°26'12,5"	299°26'11,0"	299°26'11,2"	0	0	0,011
	119°26'13,0"						
q = -(Σd)/n = 0		Незам.КЛ = 2		Незам.КП = -2		Незам. среднее = 0	
Прием 2							
18032	30°10'00,0"	30°10'03,5"	0°00'00,0"	0°00'00,0"	0	-1	1,511

1	2	3	4	5	6	7	8
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	210°10'07,0"						
2119	329°36'14,0" 149°36'11,0"	329°36'12,5"	299°26'08,8"	299°26'11,2"	2	1	1,511
18032	30°10'01,0"	30°10'04,0"	0°00'00,0"	0°00'00,0"	0	-1	1,511
	210°10'07,0"						

$q = -(\Sigma d)/n = -1$  Незам.КЛ = -1 Незам.КП = 0 Незам. среднее = -1

### Прием 3

18032	60°20'02,0" 240°20'02,0"	60°20'02,0"	0°00'00,0"	0°00'00,0"	0	2	2,313
2119	359°46'18,0" 179°46'16,0"	359°46'17,0"	299°26'14,3"	299°26'11,2"	-3	-2	2,313
18032	60°20'03,0" 240°20'04,0"	60°20'03,5"	0°00'00,0"	0°00'00,0"	0	2	2,313

$q = -(\Sigma d)/n = 2$  Незам.КЛ = -1 Незам.КП = -2 Незам. среднее = -1

### Прием 4

18032	90°30'05,0" 270°30'03,0"	90°30'04,0"	0°00'00,0"	0°00'00,0"	0	0	0,073
2119	29°56'15,0" 209°56'17,0"	29°56'16,0"	299°26'11,8"	299°26'11,2"	-1	0	0,073
18032	90°30'04,0" 270°30'05,0"	90°30'04,5"	0°00'00,0"	0°00'00,0"	0	0	0,073

$q = -(\Sigma d)/n = 0$  Незам.КЛ = 1 Незам.КП = -2 Незам. среднее = 0

### Прием 5

18032	120°40'01,0" 300°40'00,0"	120°40'00,5"	0°00'00,0"	0°00'00,0"	0	0	0,053
18032	120°40'00,0" 300°40'02,0"	120°40'01,0"	0°00'00,0"	0°00'00,0"	0	0	0,053
2119	60°06'12,0" 240°06'11,0"	60°06'11,5"	299°26'10,8"	299°26'11,2"	0	0	0,053

$q = -(\Sigma d)/n = 0$  Незам.КЛ = -1 Незам.КП = 2 Незам. среднее = 0

### Прием 6

18032	150°50'03,0" 330°50'04,0"	150°50'03,5"	0°00'00,0"	0°00'00,0"	0	0	0,053
2119	90°16'14,0" 270°16'15,0"	90°16'14,5"	299°26'10,8"	299°26'11,2"	0	0	0,053
18032	150°50'06,0" 330°50'02,0"	150°50'04,0"	0°00'00,0"	0°00'00,0"	0	0	0,053

$q = -(\Sigma d)/n = 0$  Незам.КЛ = -3 Незам.КП = 2 Незам. среднее = 0

$m$  (ошибка ед.веса) = 1  $m$  (СКО уравнен. на станции направления) = 1