SUPPLEMENTARY MATERIALS

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Chemometric Approach for the Determination of Vanadium by the LIBS Method

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Table S1

Matrix of the experiment for the second parameters optimization

Experiment	C(V), %	Lamp E, J	QSW_1, μs	ΔQSW, μs	Delay, μs	Num of Impulses
1	1	16	100	1	1	20
2	1	17	105	3	2	40
3	1	18	110	5	3	60
4	1	19	120	10	4	80
5	1	20	140	15	5	100
6	2	16	105	5	4	100
7	2	17	110	10	5	20
8	2	18	120	15	1	40
9	2	19	140	1	2	60
10	2	20	100	3	3	80
11	3	16	110	15	2	80
12	3	17	120	1	3	100
13	3	18	140	3	4	20
14	3	19	100	5	5	40
15	3	20	105	10	1	60
16	4	16	120	3	5	60
17	4	17	140	5	1	80
18	4	18	100	10	2	100
19	4	19	105	15	3	20
20	4	20	110	1	4	40
21	5	16	140	10	3	40
22	5	17	100	15	4	60
23	5	18	105	1	5	80
24	5	19	110	3	1	100
25	5	20	120	5	2	20

Table S2

Change of intensity of V lines during the optimization experiment

Experiment №	Rel. Int, $V(II)_{310.224}$	Rel. Int, $V(II)_{311.07}$
1	9.4844	13.8266
2	9.6503	12.6879
3	12.6537	14.9442
4	13.4581	17.0507
5	13.0473	18.7027
6	11.4226	13.8182
7	12.577	16.3702
8	11.2509	14.712
9	13.8233	17.4498
10	15.7635	21.9744
11	8.7442	11.8419
12	13.6625	17.4539
13	11.0111	15.5639
14	16.0697	22.1549
15	17.0423	21.4093
16	10.7452	13.8737
17	11.6414	14.5524
18	14.2872	19.7745
19	14.1206	21.6861
20	17.7863	23.4075
21	9.9787	12.4928
22	10.8315	14.2461
23	14.2963	18.4654
24	15.8887	19.1448
25	16.2395	21.9371

Table S3

Intensity of V lines in spectra of calibration glasses in optimal device settings

Glass №	V(V) concentration, %	Rel. Int, $V(II)_{310.224}$	Rel. Int, $V(II)_{311.07}$
1	0.0836±0.012	21.6753	24.272
		22.3176	25.5344
		20.7624	26.4317
		23.2391	26.4081
		23.2624	24.9356
2	0.0727±0.0023	19.7106	23.1327
		19.9887	24.4396
		19.3006	22.4311
		21.1675	23.9593
		17.6094	20.882
3	0.0615±0.0018	16.591	19.369
		15.5792	19.0344
		18.9544	21.1096
		18.3687	22.1493
		18.8188	22.0844
4	0.0507±0.009	12.7668	17.5708
		12.567	16.2959
		11.4984	17.337
		12.5621	15.7055
		11.9262	14.8861
5	0.0398±0.0042	10.9883	15.9213
		9.8929	16.7183
		12.0515	16.264
		11.0469	15.2874
		9.5222	14.925