

# HAMAMATSU FINAL TEST SHEET

PHOTOMULTIPLIER TUBE ASSEMBLY TYPE: R14688-100-Y003

HC/LAWRENCE BERKELEY NATIONAL LAB(US) QUANTITY: 16 pcs.

Serial Number	(1) Cathode Luminous Sens. $\mu$ A/lm	(2) Anode Luminous Sens. A/lm	(3) Anode Dark Current nA	(4) Cathode Blue Sens. Index			
VA1117	83	278	7.60	13.6			
VA1119	124	979	81.00	13.2			
VA1120	88	265	7.60	13.7			
VA1121	73	373	7.70	13.3			
VA1123	127	950	66.00	15.1			
5 VA1124	130	1389	15.00	13.6			
VA1125	138	951	160.00	14.6			
VA1126	98	534	17.00	13.0			
VA1127	120	804	84.00	13.5			
VA1128	118	702	22.00	13.1			
10 VA1129	129	841	29.00	14.0			
VA1130	127	1023	9.10	14.1			
VA1131	113	662	26.00	13.0			
VA1132	120	1023	54.00	12.7			
VA1134	135	645	76.00	14.7			
15 VA1135	138	1067	150.00	15.1			
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**NOTES**

- (1) (2) (4) Light source: Tungsten filament lamp operated at 2856 K.
- (2) (3) Overall supply voltage: 1500 V
- (2) (3) Refer to the attached sheet for the voltage distribution ratio.
- (3) The bulb of the tube is insulated from ground potential.
- (4) Measured with a blue filter .

Date : January 19, 2023

**HAMAMATSU FINAL TEST SHEET**

PHOTOMULTIPLIER TUBE ASSEMBLY TYPE: R14688-100-Y003

HC/LAWRENCE BERKELEY NATIONAL LAB(US) QUANTITY: 16 pcs.

Serial Number	(5) Supply Voltage	(6) P/V	(7) T.T.S	(8) Dark Count	(9) After Pulse		
	V		nsec	s <sup>-1</sup>	%		
VA1117	1720	4.53	1.02	800	5.1		
VA1119	1540	4.21	1.22	1300	5.3		
VA1120	1760	4.20	0.94	500	5.9		
VA1121	1610	4.02	1.04	500	6.8		
VA1123	1550	4.21	1.01	800	6.0		
5 VA1124	1500	4.15	1.24	2100	5.0		
VA1125	1590	4.36	1.05	1400	6.3		
VA1126	1620	4.30	1.03	500	3.7		
VA1127	1580	4.14	1.00	800	4.9		
VA1128	1630	4.36	1.06	1000	7.0		
10 VA1129	1610	4.81	1.01	1100	9.7		
VA1130	1560	4.68	1.04	1100	9.9		
VA1131	1630	4.24	1.09	900	5.6		
VA1132	1540	4.04	1.17	1000	7.7		
VA1134	1670	4.28	0.93	1200	6.3		
15 VA1135	1550	4.20	1.06	1300	7.0		
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25 NOTES

- (5) Voltage to give a gain of  $1 \times 10^7$ .
- (6) P/V: Peak to Valley Ratio
- (7) T.T.S.: Transit Time Spread
- (6) (7) (8) (9) Supply voltage: Voltage in (5)

Date : January 19, 2023  
Approved by: *M. Suzuki*

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PHOTOMULTIPLIER TUBE ASSEMBLY TYPE: R14688-100-Y003

LAWRENCE BERKELEY NATIONAL LAB QUANTITY: 16 pcs.

Serial Number	(1) Cathode Luminous Sens. $\mu$ A/lm	(2) Anode Luminous Sens. A/lm	(3) Anode Dark Current nA	(4) Cathode Blue Sens. Index			
	VA1099	142	724	140.00	14.6		
VA1100	130	452	40.00	14.7			
VA1101	124	879	51.00	15.1			
VA1102	117	690	50.00	13.5			
VA1103	118	609	49.00	14.1			
5 VA1104	151	656	200.00	14.3			
VA1105	147	631	180.00	14.7			
VA1106	142	844	130.00	14.0			
VA1107	132	912	200.00	13.6			
VA1108	134	657	150.00	13.5			
10 VA1110	151	780	160.00	13.8			
VA1111	134	431	58.00	13.9			
VA1113	128	1067	170.00	13.9			
VA1114	136	953	67.00	14.1			
VA1115	121	858	44.00	14.5			
15 VA1116	78	269	3.90	13.1			
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NOTES

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- (2) (3) Overall supply voltage: 1500 V
- (2) (3) Refer to the attached sheet for the voltage distribution ratio.
- (3) The bulb of the tube is insulated from ground potential.
- (4) Measured with a blue filter .

Date : December 22, 2022

# HAMAMATSU FINAL TEST SHEET

PHOTOMULTIPLIER TUBE ASSEMBLY TYPE: R14688-100-Y003

LAWRENCE BERKELEY NATIONAL LAB QUANTITY: 16 pcs.

Serial Number	(5) Supply Voltage V	(6) P/V	(7) T.T.S nsec	(8) Dark Count s <sup>-1</sup>	(9) After Pulse %		
VA1099	1660	4.27	0.98	4300	3.3		
VA1100	1750	3.93	0.93	1600	4.1		
VA1101	1570	4.12	1.07	1900	4.5		
VA1102	1610	4.27	1.06	2100	6.1		
VA1103	1640	4.55	0.96	1000	6.1		
5 VA1104	1710	3.80	0.92	3700	2.0		
VA1105	1700	4.31	0.97	2900	2.7		
VA1106	1640	4.13	0.98	3000	4.0		
VA1107	1590	4.36	1.04	2100	4.0		
VA1108	1670	4.19	0.98	2200	3.4		
10 VA1110	1670	4.38	1.14	4100	5.5		
VA1111	1780	4.37	1.01	2100	5.0		
VA1113	1540	3.85	1.15	1600	3.9		
VA1114	1580	4.19	1.08	1300	3.5		
VA1115	1570	4.69	1.00	900	5.9		
15 VA1116	1740	4.34	0.97	700	6.4		
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## NOTES

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- (6) P/V: Peak to Valley Ratio
- (7) T.T.S.: Transit Time Spread
- (6) (7) (8) (9) Supply voltage: Voltage in (5)

Date : December 22, 2022

Approved by: *M. Suzuki*

**HAMAMATSU FINAL TEST SHEET**

PHOTOMULTIPLIER TUBE ASSEMBLY TYPE: R14688-100-Y003

LAWRENCE BERKELEY NATIONAL LAB QUANTITY: 16 pcs.

Serial Number	(1) Cathode Luminous Sens. $\mu$ A/lm	(2) Anode Luminous Sens. A/lm	(3) Anode Dark Current nA	(4) Cathode Blue Sens. Index			
VA1059	126	758	230.00	14.0			
VA1060	114	223	20.00	13.9			
VA1062	122	622	64.00	14.0			
VA1064	121	863	120.00	14.4			
VA1065	134	931	160.00	13.7			
5 VA1066	105	734	18.00	13.8			
VA1067	121	1232	72.00	14.2			
VA1068	140	1903	240.00	14.1			
VA1070	118	1422	110.00	13.6			
VA1071	117	1064	80.00	13.6			
10 VA1072	91	651	3.90	13.5			
VA1073	104	666	14.00	13.6			
VA1074	115	1062	36.00	13.5			
VA1075	121	1026	56.00	14.2			
VA1076	112	1168	44.00	13.5			
15 VA1077	92	641	13.00	12.7			
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NOTES

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- (2) (3) Overall supply voltage: 1500 V
- (2) (3) Refer to the attached sheet for the voltage distribution ratio.
- (3) The bulb of the tube is insulated from ground potential.
- (4) Measured with a blue filter .

Date : October 27, 2022

**HAMAMATSU FINAL TEST SHEET**

PHOTOMULTIPLIER TUBE ASSEMBLY TYPE: R14688-100-Y003

LAWRENCE BERKELEY NATIONAL LAB

QUANTITY: 16 pcs.

Serial Number	(5) Supply Voltage	(6) P/V	(7) T.T.S	(8) Dark Count	(9) After Pulse		
	V		nsec	s <sup>-1</sup>	%		
VA1059	1630	4.11	0.97	1500	9.5		
VA1060	1940	4.11	0.88	1100	7.4		
VA1062	1650	3.82	0.96	1300	5.1		
VA1064	1560	3.87	1.04	1300	4.8		
VA1065	1590	4.01	1.01	1900	5.6		
5 VA1066	1560	3.48	1.09	700	4.3		
VA1067	1490	3.87	0.97	1100	6.1		
VA1068	1430	3.57	1.06	2500	8.2		
VA1070	1460	3.47	1.08	2300	7.4		
VA1071	1520	2.61	1.04	900	6.7		
10 VA1072	1530	3.57	0.98	400	3.1		
VA1073	1610	3.55	1.03	600	4.9		
VA1074	1510	4.12	1.09	700	6.6		
VA1075	1520	4.29	1.05	900	5.2		
VA1076	1480	3.81	1.10	800	8.2		
15 VA1077	1560	3.72	1.05	1100	6.0		
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NOTES

- (5) Voltage to give a gain of  $1 \times 10^7$ .
- (6) P/V: Peak to Valley Ratio
- (7) T.T.S.: Transit Time Spread
- (6) (7) (8) (9) Supply voltage: Voltage in (5)

Date: October 27, 2022

Approved by: *M. Suzuki*

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PHOTOMULTIPLIER TUBE ASSEMBLY TYPE: R14688-100-Y003

LAWRENCE BERKELEY NATIONAL LAB

QUANTITY: 16 pcs.

Serial Number	(1) Cathode Luminous Sens. $\mu$ A/lm	(2) Anode Luminous Sens. A/lm	(3) Anode Dark Current nA	(4) Cathode Blue Sens. Index			
VA1078	93	752	16.00	13.6			
VA1080	135	1149	120.00	13.8			
VA1081	133	1857	150.00	14.7			
VA1082	99	1503	58.00	12.8			
VA1084	114	699	27.00	13.4			
5 VA1086	116	636	240.00	13.2			
VA1088	125	559	47.00	13.5			
VA1089	134	1388	190.00	14.9			
VA1090	95	782	13.00	13.3			
VA1091	128	1153	57.00	14.0			
10 VA1092	129	1167	130.00	14.3			
VA1093	133	1704	350.00	14.0			
VA1094	121	1588	350.00	14.0			
VA1095	131	1568	800.00	13.6			
VA1097	142	709	170.00	14.2			
15 VA1098	143	530	200.00	14.1			
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25 NOTES

- (1) (2) (4) Light source: Tungsten filament lamp operated at 2856 K.
- (2) (3) Overall supply voltage: 1500 V
- (2) (3) Refer to the attached sheet for the voltage distribution ratio.
- (3) The bulb of the tube is insulated from ground potential.
- (4) Measured with a blue filter .

Date : November 24, 2022

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PHOTOMULTIPLIER TUBE ASSEMBLY TYPE: R14688-100-Y003

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Serial Number	(5) Supply Voltage	(6) P/V	(7) T.T.S	(8) Dark Count	(9) After Pulse		
	V		nsec	s <sup>-1</sup>	%		
VA1078	1520	4.43	1.02	1000	5.3		
VA1080	1540	3.80	1.00	1800	6.4		
VA1081	1430	3.80	1.07	1700	6.7		
VA1082	1410	4.01	1.14	1200	5.7		
VA1084	1610	4.31	0.97	3200	6.5		
5 VA1086	1640	4.05	1.01	2200	6.7		
VA1088	1700	4.29	1.00	3600	9.0		
VA1089	1490	4.38	1.09	2300	6.2		
VA1090	1530	4.33	1.19	1100	5.7		
VA1091	1530	4.54	1.11	3100	9.0		
10 VA1092	1530	4.32	1.02	1900	7.7		
VA1093	1450	4.38	1.08	3800	7.9		
VA1094	1440	4.22	1.08	1700	8.5		
VA1095	1470	4.23	1.12	2300	8.2		
VA1097	1670	4.08	0.95	2800	2.6		
15 VA1098	1760	3.92	0.93	3300	3.0		
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NOTES

- (5) Voltage to give a gain of  $1 \times 10^7$ .
- (6) P/V: Peak to Valley Ratio
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- (6) (7) (8) (9) Supply voltage: Voltage in (5)

Date : November 24, 2022

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