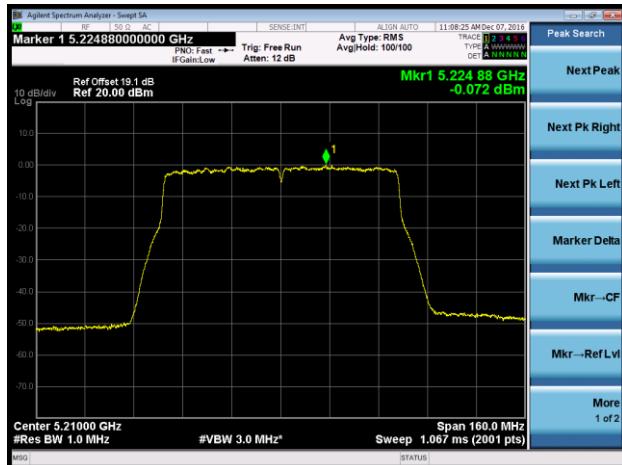


802.11ac-VHT 80 + 80 Power Spectral Density - Ant 0 / Ant 0 + 1 + 2 + 3

Channel 42 (5210MHz)



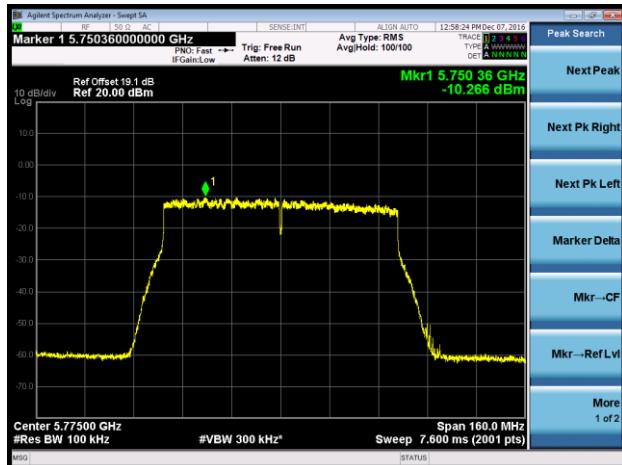
802.11ac-VHT 80 + 80 Power Spectral Density - Ant 1 / Ant 0 + 1 + 2 + 3

Channel 42 (5210MHz)



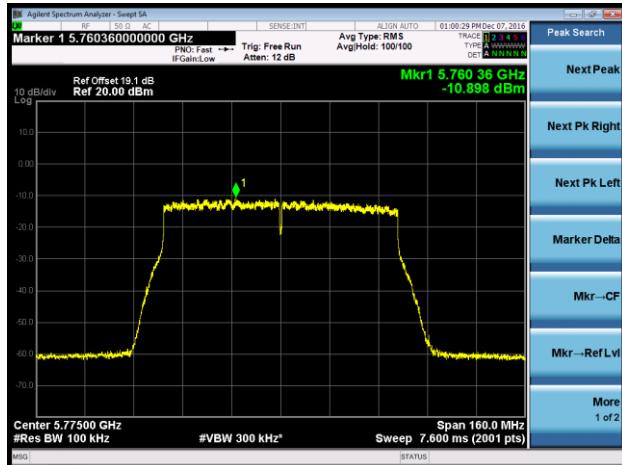
802.11ac-VHT 80 + 80 Power Spectral Density - Ant 2 / Ant 0 + 1 + 2 + 3

Channel 155 (5775MHz)



802.11ac-VHT 80 + 80 Power Spectral Density - Ant 3 / Ant 0 + 1 + 2 + 3

Channel 155 (5775MHz)



Power Spectral Density Measurement Limit of Sector-Antenna 1356.17.0011

Frequency Band (MHz)	Per Chain Max Antenna Gain (dBi)				CDD & Beam Forming Directional Gain (dBi)	Limit of SISO (dBm/MHz)				
	Ant 0	Ant 1	Ant 2	Ant 3		Ant 0	Ant 1	Ant 2	Ant 3	
5150 ~ 5250	16.00	16.00	16.00	16.00	N/A	7.00	7.00	7.00	7.00	7.00
Frequency Band (MHz)	Per Chain Max Antenna Gain (dBi)				CDD & Beam Forming Directional Gain (dBi)	Limit of SISO (dBm/500kHz)				
	Ant 0	Ant 1	Ant 2	Ant 3		Ant 0	Ant 1	Ant 2	Ant 3	Ant 0+1+2+3
5725 ~ 5850	17.00	17.00	17.00	17.00	N/A	19.00	19.00	19.00	19.00	19.00

Product	US WI-FI AP 4X4 OD ext. antenna	Temperature	25°C
Test Engineer	Johnson Liao	Relative Humidity	50 ~ 58%
Test Site	SR2	Test Date	2016/11/14
Test Item	Power Spectral Density	Antenna Model No.	Sector-Antenna 1356.17.0011

Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 0								
11a	6	36	5180	2.40	97.18	2.53	≤ 7.00	Pass
11a	6	44	5220	6.28	97.18	6.40	≤ 7.00	Pass
11a	6	48	5240	6.53	97.18	6.66	≤ 7.00	Pass
11n-HT20	6.5	36	5180	1.79	98.81	1.84	≤ 7.00	Pass
11n-HT20	6.5	44	5220	6.26	98.81	6.31	≤ 7.00	Pass
11n-HT20	6.5	48	5240	6.10	98.81	6.15	≤ 7.00	Pass
11n-HT40	13.5	38	5190	-4.45	97.55	-4.34	≤ 7.00	Pass
11n-HT40	13.5	46	5230	3.44	97.55	3.55	≤ 7.00	Pass
11ac-VHT20	6.5	36	5180	3.68	98.82	3.73	≤ 7.00	Pass
11ac-VHT20	6.5	44	5220	6.32	98.82	6.37	≤ 7.00	Pass
11ac-VHT20	6.5	48	5240	6.50	98.82	6.55	≤ 7.00	Pass
11ac-VHT40	13.5	38	5190	-2.69	97.40	-2.58	≤ 7.00	Pass
11ac-VHT40	13.5	46	5230	3.55	97.40	3.66	≤ 7.00	Pass
11ac-VHT80	29.3	42	5210	-6.86	94.30	-6.61	≤ 7.00	Pass

Note: Total PSD (dBm/MHz) = Ant PSD (dBm/MHz) + 10*log(1/duty cycle)

Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 1								
11a	6	36	5180	3.94	97.18	4.06	≤ 7.00	Pass
11a	6	44	5220	6.48	97.18	6.60	≤ 7.00	Pass
11a	6	48	5240	6.43	97.18	6.56	≤ 7.00	Pass
11n-HT20	6.5	36	5180	4.43	98.81	4.48	≤ 7.00	Pass
11n-HT20	6.5	44	5220	5.85	98.81	5.91	≤ 7.00	Pass
11n-HT20	6.5	48	5240	6.06	98.81	6.11	≤ 7.00	Pass
11n-HT40	13.5	38	5190	-1.23	97.55	-1.13	≤ 7.00	Pass
11n-HT40	13.5	46	5230	3.47	97.55	3.58	≤ 7.00	Pass
11ac-VHT20	6.5	36	5180	4.45	98.82	4.50	≤ 7.00	Pass
11ac-VHT20	6.5	44	5220	5.86	98.82	5.91	≤ 7.00	Pass
11ac-VHT20	6.5	48	5240	5.98	98.82	6.03	≤ 7.00	Pass
11ac-VHT40	13.5	38	5190	-1.07	97.40	-0.96	≤ 7.00	Pass
11ac-VHT40	13.5	46	5230	3.47	97.40	3.58	≤ 7.00	Pass
11ac-VHT80	29.3	42	5210	-4.47	94.30	-4.22	≤ 7.00	Pass

Note: Total PSD (dBm/MHz) = Ant PSD (dBm/MHz) + 10*log(1/duty cycle)

Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 2								
11a	6	36	5180	6.17	97.18	6.30	≤ 7.00	Pass
11a	6	44	5220	6.15	97.18	6.27	≤ 7.00	Pass
11a	6	48	5240	6.47	97.18	6.60	≤ 7.00	Pass
11n-HT20	6.5	36	5180	6.05	98.81	6.10	≤ 7.00	Pass
11n-HT20	6.5	44	5220	6.07	98.81	6.12	≤ 7.00	Pass
11n-HT20	6.5	48	5240	6.44	98.81	6.49	≤ 7.00	Pass
11n-HT40	13.5	38	5190	-0.04	97.55	0.07	≤ 7.00	Pass
11n-HT40	13.5	46	5230	3.88	97.55	3.99	≤ 7.00	Pass
11ac-VHT20	6.5	36	5180	5.86	98.82	5.91	≤ 7.00	Pass
11ac-VHT20	6.5	44	5220	6.21	98.82	6.26	≤ 7.00	Pass
11ac-VHT20	6.5	48	5240	6.52	98.82	6.57	≤ 7.00	Pass
11ac-VHT40	13.5	38	5190	-0.24	97.40	-0.12	≤ 7.00	Pass
11ac-VHT40	13.5	46	5230	3.78	97.40	3.89	≤ 7.00	Pass
11ac-VHT80	29.3	42	5210	-4.39	94.30	-4.14	≤ 7.00	Pass
Ant 3								
11a	6	36	5180	6.19	97.18	6.31	≤ 7.00	Pass
11a	6	44	5220	6.26	97.18	6.38	≤ 7.00	Pass
11a	6	48	5240	6.52	97.18	6.65	≤ 7.00	Pass
11n-HT20	6.5	36	5180	5.87	98.81	5.92	≤ 7.00	Pass
11n-HT20	6.5	44	5220	6.11	98.81	6.16	≤ 7.00	Pass
11n-HT20	6.5	48	5240	6.10	98.81	6.16	≤ 7.00	Pass
11n-HT40	13.5	38	5190	0.76	97.55	0.86	≤ 7.00	Pass
11n-HT40	13.5	46	5230	3.65	97.55	3.75	≤ 7.00	Pass
11ac-VHT20	6.5	36	5180	5.73	98.82	5.78	≤ 7.00	Pass
11ac-VHT20	6.5	44	5220	6.29	98.82	6.34	≤ 7.00	Pass
11ac-VHT20	6.5	48	5240	6.07	98.82	6.13	≤ 7.00	Pass
11ac-VHT40	13.5	38	5190	0.59	97.40	0.70	≤ 7.00	Pass
11ac-VHT40	13.5	46	5230	3.51	97.40	3.63	≤ 7.00	Pass
11ac-VHT80	29.3	42	5210	-4.10	94.30	-3.85	≤ 7.00	Pass

Note: Total PSD (dBm/MHz) = Ant PSD (dBm/MHz) + $10 \log(1/\text{duty cycle})$

Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Ant 3 PSD (dBm/ MHz)	Duty Cycle (%)	Total Max PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 0 + 1 + 2 + 3											
11a	6	36	5180	6.14	6.11	5.90	5.83	97.18	6.26	≤ 7.00	Pass
11a	6	44	5220	6.57	6.27	6.53	6.21	97.18	6.69	≤ 7.00	Pass
11a	6	48	5240	6.45	6.27	6.03	5.77	97.18	6.57	≤ 7.00	Pass
11n-HT20	13	36	5180	5.39	5.59	5.48	5.40	98.81	5.64	≤ 7.00	Pass
11n-HT20	13	44	5220	6.08	6.16	5.82	6.25	98.81	6.30	≤ 7.00	Pass
11n-HT20	13	48	5240	6.38	6.78	6.23	6.17	98.81	6.83	≤ 7.00	Pass
11n-HT40	27	38	5190	-1.14	-1.30	-0.87	-1.37	97.55	-0.76	≤ 7.00	Pass
11n-HT40	27	46	5230	3.35	3.42	2.88	3.12	97.55	3.53	≤ 7.00	Pass
11ac-VHT20	13	36	5180	5.59	5.55	5.68	5.92	98.82	5.97	≤ 7.00	Pass
11ac-VHT20	13	44	5220	6.16	6.36	5.87	6.17	98.82	6.41	≤ 7.00	Pass
11ac-VHT20	13	48	5240	6.59	6.64	6.04	6.29	98.82	6.69	≤ 7.00	Pass
11ac-VHT40	27	38	5190	-1.82	-1.82	-1.79	-1.97	97.40	-1.68	≤ 7.00	Pass
11ac-VHT40	27	46	5230	3.38	2.95	3.04	3.41	97.40	3.52	≤ 7.00	Pass
11ac-VHT80	58.6	42	5210	-4.43	-3.89	-3.90	-4.70	94.30	-3.64	≤ 7.00	Pass

Note 1: The result of the Max Total PSD has been selected the max PSD from each antenna

Note 2: Total Max PSD (dBm/MHz) = Ant PSD (dBm/MHz) + 10*log(1/duty cycle)

Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Ant 2 PSD (dBm/ MHz)	Ant 3 PSD (dBm/ MHz)	Duty Cycle (%)	Total Max PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 0 + 1 + 2 + 3											
11ac-VHT80+80	58.6	42	5210	0.73	-0.04	--	--	94.30	0.98	≤ 7.00	Pass

Note 1: The result of the Max Total PSD has been selected the max PSD from each antenna

Note 2: Total Max PSD (dBm/MHz) = Ant PSD (dBm/MHz) + 10*log(1/duty cycle)

Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	PSD (dBm/100kHz)	Duty Cycle (%)	Constant Factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Result
Ant 0									
11a	6	149	5745	-2.31	97.18	6.99	4.81	≤ 19.00	Pass
11a	6	157	5785	-2.25	97.18	6.99	4.86	≤ 19.00	Pass
11a	6	165	5825	-2.13	97.18	6.99	4.98	≤ 19.00	Pass
11n-HT20	6.5	149	5745	-2.19	98.81	6.99	4.85	≤ 19.00	Pass
11n-HT20	6.5	157	5785	-2.36	98.81	6.99	4.69	≤ 19.00	Pass
11n-HT20	6.5	165	5825	-2.87	98.81	6.99	4.17	≤ 19.00	Pass
11n-HT40	13.5	151	5755	-5.00	97.55	6.99	2.09	≤ 19.00	Pass
11n-HT40	13.5	159	5795	-5.48	97.55	6.99	1.62	≤ 19.00	Pass
11ac-VHT20	6.5	149	5745	-2.11	98.82	6.99	4.93	≤ 19.00	Pass
11ac-VHT20	6.5	157	5785	-2.35	98.82	6.99	4.69	≤ 19.00	Pass
11ac-VHT20	6.5	165	5825	-2.35	98.82	6.99	4.69	≤ 19.00	Pass
11ac-VHT40	13.5	151	5755	-4.99	97.40	6.99	2.11	≤ 19.00	Pass
11ac-VHT40	13.5	159	5795	-5.48	97.40	6.99	1.62	≤ 19.00	Pass
11ac-VHT80	29.3	155	5775	-8.10	94.30	6.99	-0.86	≤ 19.00	Pass
Ant 1									
11a	6	149	5745	-1.85	97.18	6.99	5.27	≤ 19.00	Pass
11a	6	157	5785	-1.29	97.18	6.99	5.83	≤ 19.00	Pass
11a	6	165	5825	-1.46	97.18	6.99	5.65	≤ 19.00	Pass
11n-HT20	6.5	149	5745	-1.86	98.81	6.99	5.18	≤ 19.00	Pass
11n-HT20	6.5	157	5785	-2.03	98.81	6.99	5.01	≤ 19.00	Pass
11n-HT20	6.5	165	5825	-4.39	98.81	6.99	2.65	≤ 19.00	Pass
11n-HT40	13.5	151	5755	-4.93	97.55	6.99	2.17	≤ 19.00	Pass
11n-HT40	13.5	159	5795	-4.86	97.55	6.99	2.24	≤ 19.00	Pass
11ac-VHT20	6.5	149	5745	-1.28	98.82	6.99	5.76	≤ 19.00	Pass
11ac-VHT20	6.5	157	5785	-1.74	98.82	6.99	5.30	≤ 19.00	Pass
11ac-VHT20	6.5	165	5825	-2.20	98.82	6.99	4.84	≤ 19.00	Pass
11ac-VHT40	13.5	151	5755	-4.83	97.40	6.99	2.28	≤ 19.00	Pass
11ac-VHT40	13.5	159	5795	-4.86	97.40	6.99	2.24	≤ 19.00	Pass
11ac-VHT80	29.3	155	5775	-7.90	94.30	6.99	-0.65	≤ 19.00	Pass

Note: Total PSD (dBm/500kHz) = Ant PSD (dBm/100kHz) + $10 \log(1/\text{duty cycle})$ + Constant Factor.

Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	PSD (dBm/100kHz)	Duty Cycle (%)	Constant Factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Result
Ant 2									
11a	6	149	5745	-2.29	97.18	6.99	4.83	≤ 19.00	Pass
11a	6	157	5785	-2.18	97.18	6.99	4.93	≤ 19.00	Pass
11a	6	165	5825	-1.87	97.18	6.99	5.24	≤ 19.00	Pass
11n-HT20	6.5	149	5745	-1.94	98.81	6.99	5.10	≤ 19.00	Pass
11n-HT20	6.5	157	5785	-1.89	98.81	6.99	5.15	≤ 19.00	Pass
11n-HT20	6.5	165	5825	-1.56	98.81	6.99	5.48	≤ 19.00	Pass
11n-HT40	13.5	151	5755	-4.99	97.55	6.99	2.11	≤ 19.00	Pass
11n-HT40	13.5	159	5795	-4.57	97.55	6.99	2.53	≤ 19.00	Pass
11ac-VHT20	6.5	149	5745	-1.95	98.82	6.99	5.09	≤ 19.00	Pass
11ac-VHT20	6.5	157	5785	-2.05	98.82	6.99	4.99	≤ 19.00	Pass
11ac-VHT20	6.5	165	5825	-1.49	98.82	6.99	5.55	≤ 19.00	Pass
11ac-VHT40	13.5	151	5755	-4.67	97.40	6.99	2.44	≤ 19.00	Pass
11ac-VHT40	13.5	159	5795	-4.81	97.40	6.99	2.29	≤ 19.00	Pass
11ac-VHT80	29.3	155	5775	-7.01	94.30	6.99	0.24	≤ 19.00	Pass
Ant 3									
11a	6	149	5745	-1.55	97.18	6.99	5.56	≤ 19.00	Pass
11a	6	157	5785	-1.26	97.18	6.99	5.85	≤ 19.00	Pass
11a	6	165	5825	-1.51	97.18	6.99	5.61	≤ 19.00	Pass
11n-HT20	6.5	149	5745	-1.61	98.81	6.99	5.43	≤ 19.00	Pass
11n-HT20	6.5	157	5785	-2.07	98.81	6.99	4.97	≤ 19.00	Pass
11n-HT20	6.5	165	5825	-1.61	98.81	6.99	5.43	≤ 19.00	Pass
11n-HT40	13.5	151	5755	-4.63	97.55	6.99	2.47	≤ 19.00	Pass
11n-HT40	13.5	159	5795	-4.99	97.55	6.99	2.11	≤ 19.00	Pass
11ac-VHT20	6.5	149	5745	-1.44	98.82	6.99	5.60	≤ 19.00	Pass
11ac-VHT20	6.5	157	5785	-2.32	98.82	6.99	4.72	≤ 19.00	Pass
11ac-VHT20	6.5	165	5825	-1.56	98.82	6.99	5.48	≤ 19.00	Pass
11ac-VHT40	13.5	151	5755	-4.76	97.40	6.99	2.35	≤ 19.00	Pass
11ac-VHT40	13.5	159	5795	-4.98	97.40	6.99	2.12	≤ 19.00	Pass
11ac-VHT80	29.3	155	5775	-7.50	94.30	6.99	-0.26	≤ 19.00	Pass

Note: Total PSD (dBm/500kHz) = Ant PSD (dBm/100kHz) + $10 \log(1/\text{duty cycle})$ + Constant Factor.

Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/100kHz)	Ant 1 PSD (dBm/100kHz)	Ant 2 PSD (dBm/100kHz)	Ant 3 PSD (dBm/100kHz)	Duty Cycle (%)	Constant Factor	Total Max PSD (dBm/500kHz)	Limit (dBm/500kHz)	Result
Ant 0 + 1 + 2 + 3												
11a	6	149	5745	-1.32	-1.70	-1.31	-1.69	97.18	6.99	5.80	≤ 19.00	Pass
11a	6	157	5785	-1.53	-1.54	-1.72	-2.10	97.18	6.99	5.58	≤ 19.00	Pass
11a	6	165	5825	-1.69	-2.33	-2.05	-2.32	97.18	6.99	5.42	≤ 19.00	Pass
11n-HT20	13	149	5745	-1.63	-1.84	-1.03	-1.95	98.81	6.99	6.01	≤ 19.00	Pass
11n-HT20	13	157	5785	-1.77	-1.92	-2.05	-1.67	98.81	6.99	5.37	≤ 19.00	Pass
11n-HT20	13	165	5825	-1.94	-2.32	-2.60	-2.05	98.81	6.99	5.10	≤ 19.00	Pass
11n-HT40	27	151	5755	-4.47	-4.44	-4.46	-4.87	97.55	6.99	2.66	≤ 19.00	Pass
11n-HT40	27	159	5795	-4.93	-4.95	-4.58	-5.27	97.55	6.99	2.52	≤ 19.00	Pass
11ac-VHT20	13	149	5745	-1.72	-2.06	-2.01	-1.98	98.82	6.99	5.32	≤ 19.00	Pass
11ac-VHT20	13	157	5785	-1.87	-2.25	-2.09	-1.96	98.82	6.99	5.17	≤ 19.00	Pass
11ac-VHT20	13	165	5825	-2.09	-2.31	-2.56	-2.18	98.82	6.99	4.95	≤ 19.00	Pass
11ac-VHT40	27	151	5755	-4.61	-4.59	-4.24	-5.03	97.40	6.99	2.86	≤ 19.00	Pass
11ac-VHT40	27	159	5795	-4.72	-4.86	-4.84	-5.31	97.40	6.99	2.38	≤ 19.00	Pass
11ac-VHT80	58.6	155	5775	-8.29	-8.39	-7.85	-8.14	94.30	6.99	-0.61	≤ 19.00	Pass

Note 1: The result of the Max Total PSD has been selected the max PSD from each antenna + Constant Factor

Note 2: Total Max PSD (dBm/MHz) = Ant PSD (dBm/MHz) + $10 \log(1/\text{duty cycle})$ + Constant Factor

Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/100kHz)	Ant 1 PSD (dBm/100kHz)	Ant 2 PSD (dBm/100kHz)	Ant 3 PSD (dBm/100kHz)	Duty Cycle (%)	Constant Factor	Total Max PSD (dBm/500kHz)	Limit (dBm/500kHz)	Result
Ant 0 + 1 + 2 + 3												
11ac-VHT80+80	58.6	155	5775	--	--	-9.18	-9.39	94.30	6.99	-1.94	≤ 19.00	Pass

Note 1: The result of the Max Total PSD has been selected the max PSD from each antenna + Constant Factor

Note 2: Total Max PSD (dBm/MHz) = Ant PSD (dBm/MHz) + $10 \log(1/\text{duty cycle})$ + Constant Factor

