

Sq.(dB)	$\frac{V_x(0)}{V_x(r)}$	$\sqrt{\frac{V_x(0)}{V_x(r)}}$	$\langle \hat{n} \rangle$	r
1	0.794	0.891	0.0133	0.115
2	0.631	0.794	0.0540	0.230
3	0.501	0.708	0.124	0.345
4	0.398	0.631	0.227	0.461
5	0.316	0.562	0.370	0.576
6	0.251	0.501	0.558	0.691
7	0.200	0.447	0.803	0.806
8	0.158	0.398	1.12	0.921
9	0.126	0.355	1.52	1.04
10	0.100	0.316	2.03	1.15
11	0.0794	0.282	2.67	1.27
12	0.0631	0.251	3.48	1.38
13	0.0501	0.224	4.50	1.50
14	0.0398	0.200	5.79	1.61
15	0.0316	0.178	7.41	1.73
16	0.0251	0.158	9.46	1.84
17	0.0200	0.141	12.0	1.96
18	0.0158	0.126	15.3	2.07
19	0.0126	0.112	19.4	2.19
20	0.0100	0.100	24.5	2.30
21	0.00794	0.0891	31.0	2.42
22	0.00631	0.0794	39.1	2.53
23	0.00501	0.0708	49.4	2.65
24	0.00398	0.0631	62.3	2.76
25	0.00316	0.0562	78.6	2.88
26	0.00251	0.0501	99.0	2.99

Squeezed states: $|r\rangle = \exp\left(\frac{r}{2}(a^{\dagger 2} - a^2)\right)|0\rangle = \frac{1}{\sqrt{\cosh r}} \sum_{n=0}^{\infty} \frac{\sqrt{(2n)!}}{2^n n!} \tanh^n(r) |2n\rangle$.

Variances: $V_x(r)/V_x(0) = e^{2r} = V_p(0)/V_p(r)$. Squeezing level in dB: $-10 \log_{10} \frac{V_x(r)}{V_x(0)}$

Photon number moments: $\langle \hat{n} \rangle = \langle \hat{a}^{\dagger} \hat{a} \rangle = \sinh^2 r$, $\langle \hat{n}^2 \rangle = 3\langle \hat{n} \rangle^2 + 2\langle \hat{n} \rangle$.

Pair number distribution: if $N = 2n$ with PMF $p(N = 2n) = |\langle 2n|r \rangle|^2$ then N has a negative binomial distribution NB $(r = \frac{1}{2}, p = 1 - \tanh^2 r)$.

This file can be found at <https://nquesada.github.io/misc/squeezing.pdf>