CH722_Marlin3 3-Corner

B2 & B3

RF 性能报告

CONFIDENTIAL

版本 1.0

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1. TX 基本性能测试

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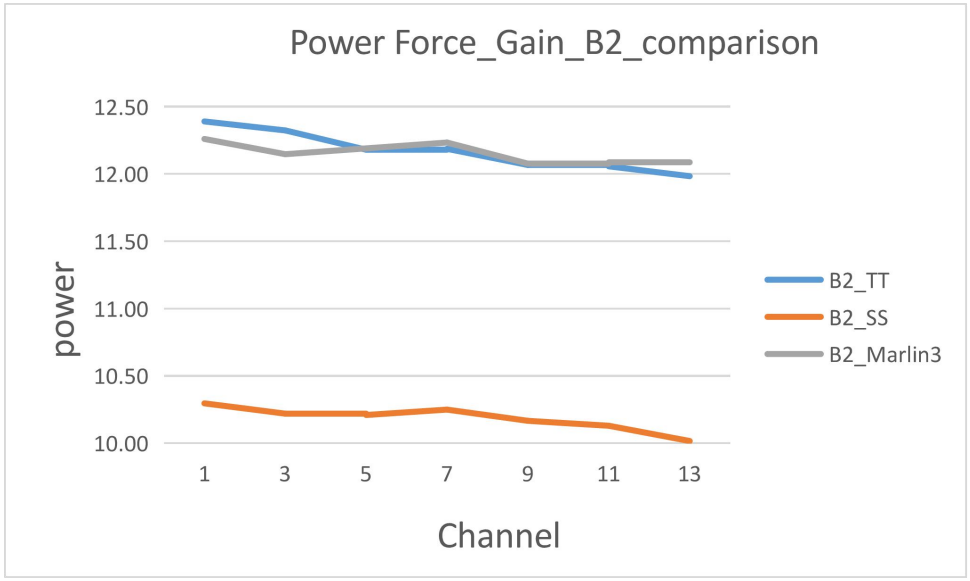
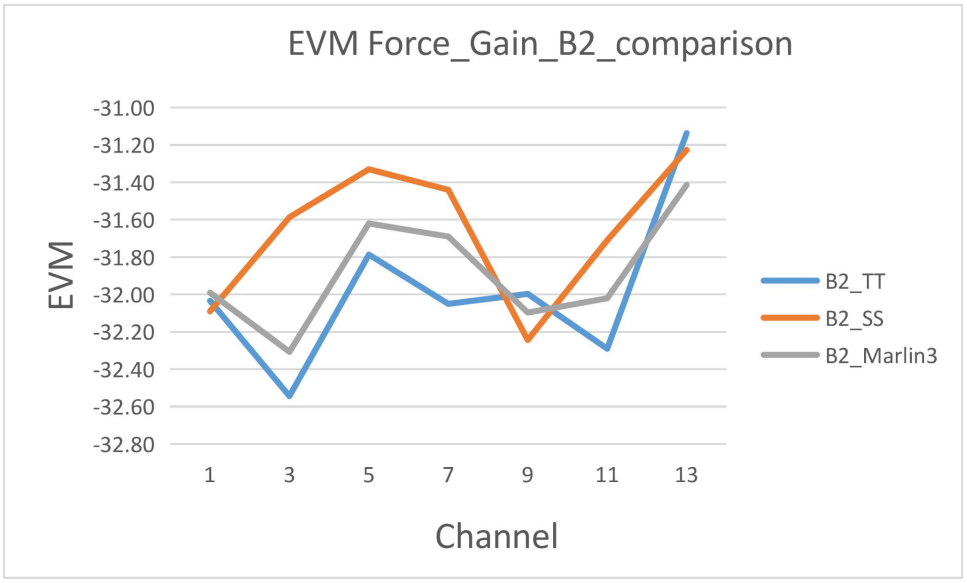
1.1 固定 gain 下对比各个 corner 的 power 和 EVM

- 固定各级 gain（pa_gain=0x5f, bb_gain=0x20, digital_gain=11），测试 B2 TT &SS &上一版 Marlin3，以及 B3 TT &SS &上一版 Marlin3 的 TX power 和 EVM，结果如下：
  - ❖ B2 _SS Power 比 B2_TT 以及 B2_Marlin3 低 2 dB；



  - ❖ B2 三种芯片的 EVM 对比结果下图所示，B2_TT EVM 比其他两种芯片好大概 0.3dB



❖ B3 _SS Power 比 B3_TT 以及 B3_Marlin3 低近 3 dB；

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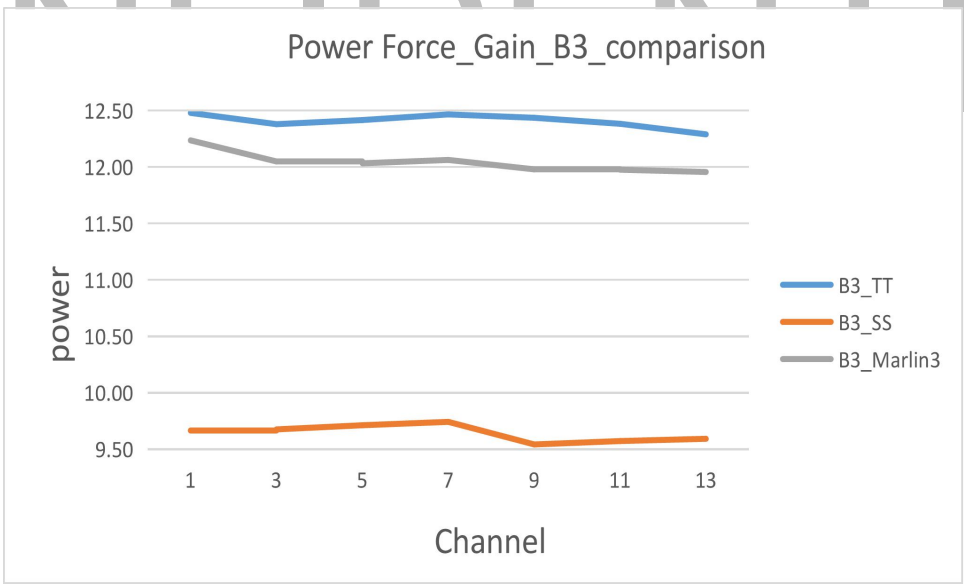
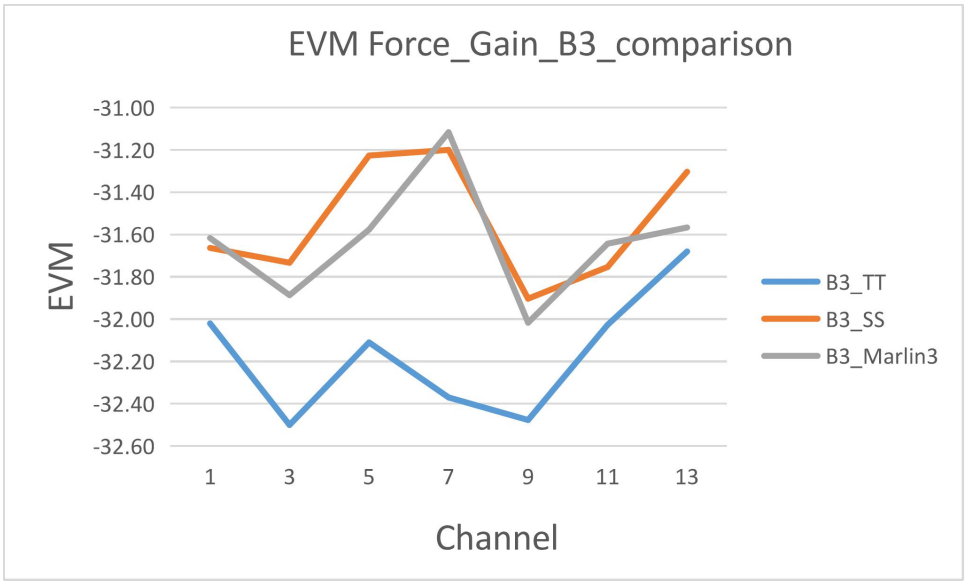


❖ B3 三种芯片的 EVM 对比结果下图所示，B3_TT EVM 明显好于比其他两种芯片，差异性至少 0.4dB。



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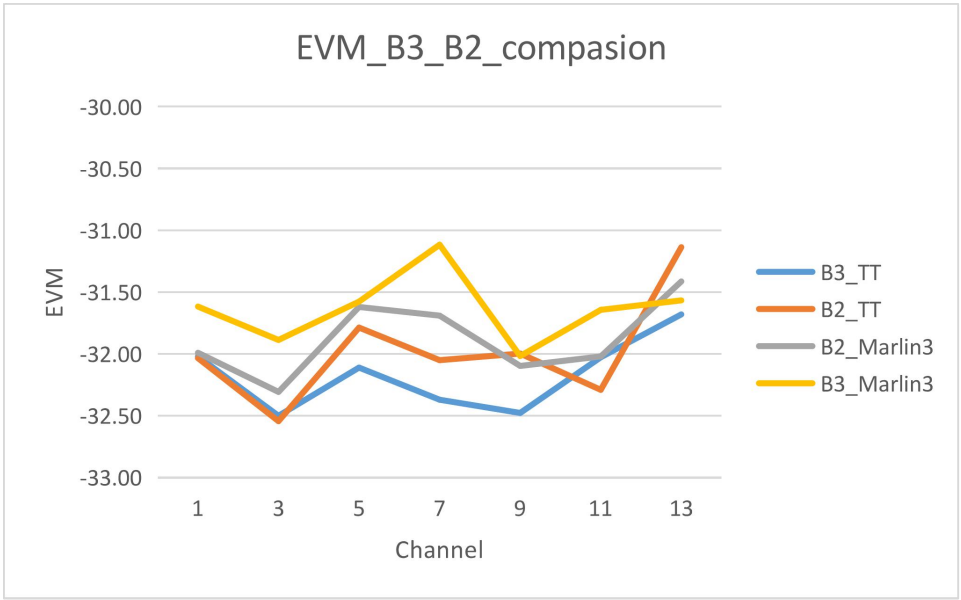
❖ 对比 B2 B3 TT 以及上一版 marlin3 芯片的 EVM 的测试结果，如下图所示，B3_TT EVM 最好，比上一版 marlin3 有 0.6dB 的差异性；



Force_Gain_B2		B2_TT_1592	B2_TT_1593	B2_TT_1594	B2_SS_2530	B2_SS_2531	B2_SS_2533	B2_Marlin3_A7AF	B2_Marlin3_A7D2	B2_Marlin3_A746
channel	rate	power	power	power	power	power	power	power	power	power
1	mcs7	12.86	12.86	11.45	10.24	10.09	10.56	12.44	12.25	12.09
3	mcs7	12.74	12.9	11.33	10.15	9.97	10.54	12.27	12.19	11.98
5	mcs7	12.65	12.69	11.2	10.21	10	10.42	12.29	12.29	11.99
7	mcs7	12.58	12.69	11.29	10.25	10.03	10.47	12.33	12.34	12.03

9	mcs7	12.34	12.6	11.26	10.17	9.92	10.41	12.07	12.28	11.88
11	mcs7	12.36	12.55	11.26	10.14	9.9	10.35	12.11	12.25	11.90
13	mcs7	12.32	12.45	11.18	10.03	9.77	10.25	12.13	12.24	11.93
channel	rate	evm	evm	evm	evm	evm	evm	evm	evm	evm
1	mcs7	-31.75	-32.18	-32.17	-31.09	-33.36	-31.82	-32.16	-31.80	-32.01
3	mcs7	-32.04	-33.4	-32.19	-30.43	-33.04	-31.29	-32.16	-32.52	-32.24
5	mcs7	-31.13	-32.12	-32.11	-30.65	-32.57	-30.77	-32.01	-31.14	-31.71
7	mcs7	-31.68	-32.14	-32.33	-31.11	-32.69	-30.52	-31.88	-31.42	-31.77
9	mcs7	-31.61	-32.32	-32.06	-31.32	-33.25	-32.16	-31.95	-32.21	-32.13
11	mcs7	-31.36	-33.06	-32.45	-31.22	-32.67	-31.24	-32.21	-31.99	-31.86
13	mcs7	-30.7	-31.12	-31.59	-30.91	-32.12	-30.65	-31.33	-31.24	-31.67
channel	rate	evm_std	evm_std	evm_std	evm_std	evm_std	evm_std	evm_std	evm_std	evm_std
1	mcs7	0.79	0.89	1.04	0.51	0.55	0.92	1.12	0.82	0.76
3	mcs7	0.65	0.75	0.65	0.99	0.48	1.39	0.88	0.69	0.57
5	mcs7	1.09	0.8	0.59	0.77	0.89	1.39	0.76	1.18	0.86
7	mcs7	0.77	0.72	0.66	0.27	1.02	0.91	0.83	1.08	0.95
9	mcs7	1.23	0.85	1.19	0.43	0.63	0.59	0.69	0.63	0.92
11	mcs7	0.72	0.79	0.71	0.54	0.77	0.82	0.61	0.75	0.88
13	mcs7	1.33	1.37	0.62	0.63	0.72	0.75	0.95	0.88	0.69

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Force_Gain_B3		B3_TT_197A	B3_TT_197B	B3_TT_197C	B3_SS_291D	B3_SS_291E	B3_SS_2921	B3_Marlin3_A84E	B3_Marlin3_A845	B3_Marlin3_A876
channel	rate	power	power	power	power	power	power	power	power	power
1	mcs7	11.9	12.85	12.69	8.88	9.89	10.23	12.57	12.62	11.52
3	mcs7	11.75	12.73	12.66	8.92	9.85	10.26	12.44	12.43	11.28
5	mcs7	11.78	12.78	12.69	8.9	9.91	10.33	12.4	12.34	11.36
7	mcs7	11.89	12.83	12.68	8.93	9.95	10.35	12.47	12.40	11.32
9	mcs7	11.88	12.82	12.61	8.82	9.64	10.17	12.41	12.40	11.13
11	mcs7	11.82	12.74	12.59	8.81	9.73	10.18	12.44	12.37	11.12
13	mcs7	11.64	12.64	12.59	8.73	9.84	10.21	12.41	12.36	11.10
channel	rate	evm	evm	evm	evm	evm	evm	evm	evm	evm
1	mcs7	-32.39	-31.8	-31.87	-31.7	-31.83	-31.46	-31.25	-31.13	-32.47
3	mcs7	-31.66	-33.09	-32.75	-31.55	-31.26	-32.39	-32.4	-31.31	-31.95
5	mcs7	-32.2	-32.17	-31.96	-31.09	-31.14	-31.45	-31.79	-31.18	-31.76
7	mcs7	-32.46	-32.28	-32.37	-30.12	-31.63	-31.85	-31.25	-30.33	-31.77
9	mcs7	-32.97	-31.78	-32.68	-31.47	-31.55	-32.69	-32.1	-31.50	-32.45
11	mcs7	-31.47	-31.86	-32.75	-31.99	-31.33	-31.94	-31.81	-31.39	-31.73
13	mcs7	-31.28	-31.7	-32.06	-31.69	-30.55	-31.67	-31.56	-31.54	-31.60

channel	rate	evm_std	evm_std	evm_std	evm_std	evm_std	evm_std	evm_std	evm_std	evm_std
1	mcs7	0.53	0.95	1.39	1.11	0.49	0.97	1.01	0.63	0.45
3	mcs7	1.11	0.42	0.66	0.93	0.79	0.78	0.92	1.22	0.73
5	mcs7	0.71	0.96	0.85	1.15	0.64	0.92	0.94	0.50	1.09
7	mcs7	0.82	0.45	0.51	1.18	0.54	0.9	1.31	1.16	0.88
9	mcs7	0.4	1.28	0.63	1.08	0.62	0.39	1.04	1.23	0.78
11	mcs7	1.48	0.87	0.8	0.66	0.7	0.61	0.98	0.83	0.98
13	mcs7	0.61	0.51	0.43	0.56	1.09	0.78	1.13	0.50	0.68

1.2 Mask Margins 对比结果

- 对比六种芯片的 MCS0 lower 4 的余量， B3_TT 和 B2_TT 比 上一版 Marlin3 B2 B3 好 0.5dB，但 B3 _SS 的最差， 比 B3_TT 差近 2dB。（B3_TT 的功率和 B2_SS 的功率相当）；

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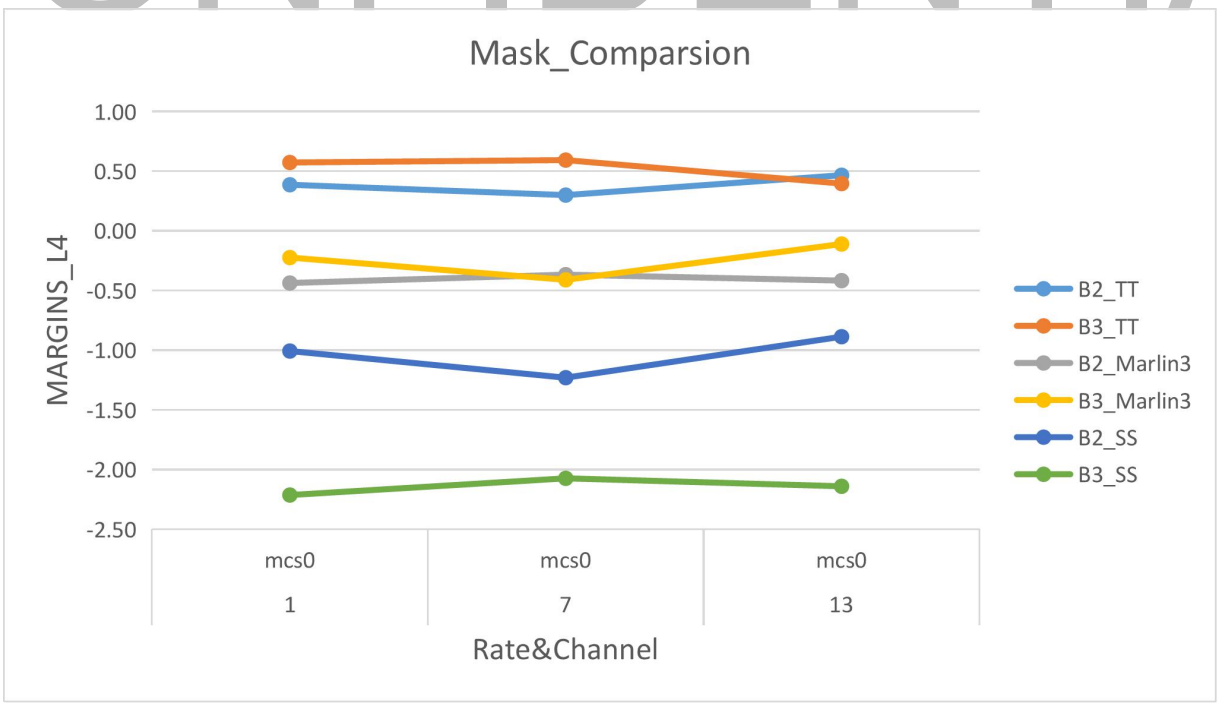

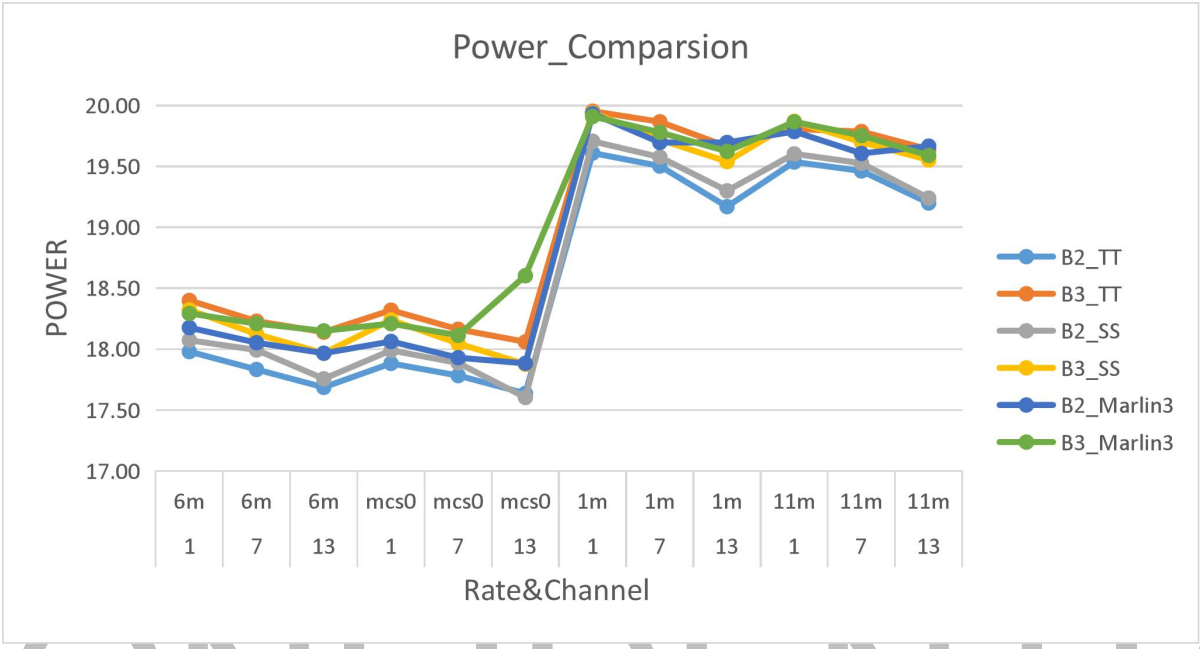

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1.3 Power 校准后性能对比

- 经 Power Detector 校准后测得, 功率无明显差异性， 但 B2_SS 比 B2_TT EVM 差 1 dB 左右；

Power_detector_cal		B2_TT_1590	B2_TT_1591	B2_TT_1592	B2_TT_1593	B2_TT_1594	B2_SS_2530	B2_SS_2531	B2_SS_2531_500	B2_SS_2532	B2_SS_2533
channel	rate	power	power	power	power	power	power	power	power	power	power
1	mcs7	13.35	13.51	13.6	13.33	13.66	13.4	13.36	13.89	13.81	13.16
3	mcs7	13.38	13.56	13.59	13.25	13.61	13.34	13.41	13.81	13.85	13.17
5	mcs7	13.36	13.6	13.52	13.37	13.66	13.54	13.65	13.98	13.78	13.22
7	mcs7	13.22	13.32	13.46	13.11	13.46	13.28	13.5	13.7	13.78	13.24
9	mcs7	12.86	13.08	13.29	13.04	13.43	13.19	13.25	13.6	13.67	13.18
11	mcs7	13.17	12.89	13.3	13.27	13.42	13.41	13.34	13.57	13.65	13.14
13	mcs7	13.11	12.87	13.09	13.15	13.32	13.28	13.19	13.46	13.54	13.01
channel	rate	evm	evm	evm	evm	evm	evm	evm	evm	evm	evm
1	mcs7	-31.61	-31.85	-30.2	-32.19	-31.75	-30.88	-30.98	-30.14	-29.57	-29.94
3	mcs7	-31.29	-32.56	-31.28	-32.72	-31.6	-30.96	-31.38	-29.56	-30.32	-30.21
5	mcs7	-31.52	-31	-30.49	-31.19	-30.94	-30.58	-30.14	-29.31	-29.71	-30.17

7	mcs7	-31.13	-31.6	-30.57	-31.91	-30.73	-30.45	-30.41	-29.75	-29.63	-29.83
9	mcs7	-32.33	-31.42	-31.43	-32.47	-31.17	-31.39	-31.3	-29.86	-30.39	-31.32
11	mcs7	-32.35	-31.79	-30.81	-32.61	-30.65	-31.22	-30.9	-30.05	-30.48	-30.44
13	mcs7	-30.94	-31.89	-29.77	-31.2	-30.1	-30.46	-30.32	-29.91	-29.71	-29.8
channel	rate	evm_std	evm_std	evm_std	evm_std	evm_std	evm_std	evm_std	evm_std	evm_std	evm_std
1	mcs7	0.97	0.67	1.53	1.03	0.51	0.71	0.79	0.59	0.7	1.35
3	mcs7	1	0.4	0.82	0.92	0.32	0.72	0.31	1.23	0.37	1.01
5	mcs7	0.66	0.7	0.83	0.98	0.55	0.58	0.43	0.51	0.6	0.71
7	mcs7	0.74	0.62	0.56	0.54	0.6	0.68	0.86	0.32	0.87	1.01
9	mcs7	0.69	0.6	0.79	0.55	0.84	0.52	0.29	0.65	0.51	0.27
11	mcs7	0.62	0.53	0.59	0.47	1.3	0.46	0.56	0.57	0.36	0.65
13	mcs7	0.88	0.35	1.24	0.62	0.78	0.63	0.49	0.58	0.46	0.72

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- 经 Power Detector 校准后测得, B3 TT 与 B3_SS 功率无明显差异性，但 B3_SS 比 B3_TT EVM 差 1.7~2 dB 的差异性；

Power_detector_cal		B3_TT_1978	B3_TT_1979	B3_TT_197A	B3_TT_197B	B3_TT_197C	B3_SS_2918	B3_SS_291B	B3_SS_291E	B3_SS_291D	B3_SS_2921
channel	rate	power	power	power	power	power	power	power	power	power	power
1	mcs7	13.65	13.59	13.91	13.95	13.73	13.85	13.79	13.65	13.84	13.47
3	mcs7	13.69	13.55	13.76	13.85	13.72	13.79	13.69	13.57	13.76	13.39
5	mcs7	13.57	13.61	13.8	13.96	13.72	13.88	13.66	13.68	13.71	13.55
7	mcs7	13.64	13.42	13.53	13.8	13.53	13.54	13.63	13.38	13.44	13.32
9	mcs7	13.51	13.3	13.57	13.7	13.42	13.32	13.54	13.23	13.32	13.21
11	mcs7	13.64	13.32	13.76	13.74	13.52	13.34	13.55	13.22	13.58	13.19
13	mcs7	13.65	13.25	13.72	13.69	13.53	13.27	13.48	13.11	13.48	13.07
channel	rate	evm	evm	evm	evm	evm	evm	evm	evm	evm	evm
1	mcs7	-32.21	-32.37	-31.17	-31.13	-31.41	-29.12	-29.24	-29.94	-29.56	-29.87
3	mcs7	-32.51	-32.46	-31.04	-31.43	-31.69	-30.31	-29.43	-30.09	-29.82	-30.35
5	mcs7	-31.91	-31.71	-31.04	-30.79	-31.4	-29.11	-29.21	-29.51	-28.65	-29.74
7	mcs7	-30.6	-32.24	-30.47	-31.09	-31.69	-30.23	-29.75	-29.95	-29.79	-30.03
9	mcs7	-32.08	-32.4	-31.56	-31.67	-31.96	-29.75	-29.23	-29.97	-29.82	-30.72
11	mcs7	-32.39	-31.37	-31.01	-30.98	-31.92	-29.74	-29.27	-29.92	-29.84	-30.37
13	mcs7	-31.36	-31.56	-29.87	-30.61	-31.53	-29.84	-29.61	-29.56	-29.64	-29.82
channel	rate	evm_std	evm_std	evm_std	evm_std	evm_std	evm_std	evm_std	evm_std	evm_std	evm_std

1	mcs7	0.51	0.49	0.48	0.42	0.72	0.81	0.32	0.46	0.54	0.74
3	mcs7	0.55	0.41	0.37	0.35	0.61	0.37	0.46	0.4	0.28	0.75
5	mcs7	0.59	0.49	0.37	0.82	0.45	0.93	0.48	0.32	0.55	0.7
7	mcs7	1.15	0.54	1.01	0.4	0.6	0.42	0.32	0.51	0.31	0.58
9	mcs7	0.71	0.59	0.39	0.44	0.59	0.55	0.47	0.37	0.42	0.27
11	mcs7	0.38	0.99	0.44	0.54	0.3	0.55	0.36	0.44	0.51	0.41
13	mcs7	0.45	0.8	0.64	0.38	0.54	0.59	0.48	0.46	0.29	0.75
channel	rate	evm_max	evm_max	evm_max	evm_max	evm_max	evm_max	evm_max	evm_max	evm_max	evm_max
1	mcs7	-31.25	-31.58	-30.21	-30.44	-29.78	-27.47	-28.6	-28.96	-28.07	-28.78
3	mcs7	-31.33	-31.97	-30.23	-30.66	-30.56	-29.7	-28.21	-29.12	-29.43	-28.83
5	mcs7	-30.84	-30.81	-30.41	-29.3	-30.52	-27.33	-28.55	-28.78	-27.58	-28.33
7	mcs7	-28.4	-30.99	-28.88	-30.37	-30.14	-29.2	-29.26	-28.97	-29.11	-28.9
9	mcs7	-30.72	-31.34	-30.67	-30.77	-30.62	-28.43	-28.39	-29.2	-28.79	-30.13
11	mcs7	-31.69	-29.17	-30.23	-29.96	-31.31	-28.59	-28.69	-29.45	-29.06	-29.82
13	mcs7	-30.63	-30.19	-28.89	-29.98	-30.37	-28.89	-28.52	-28.83	-29.17	-28.53

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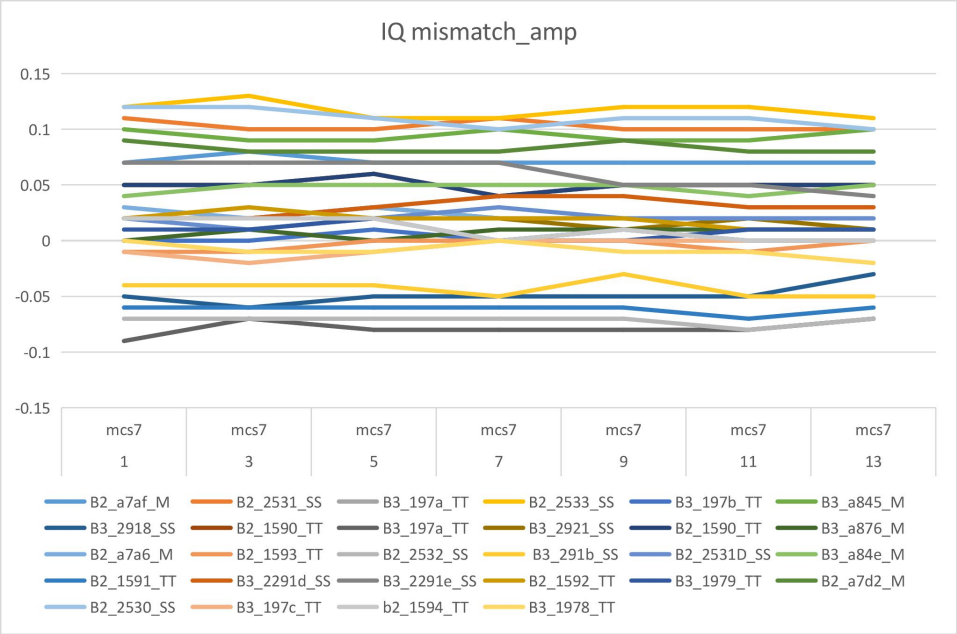
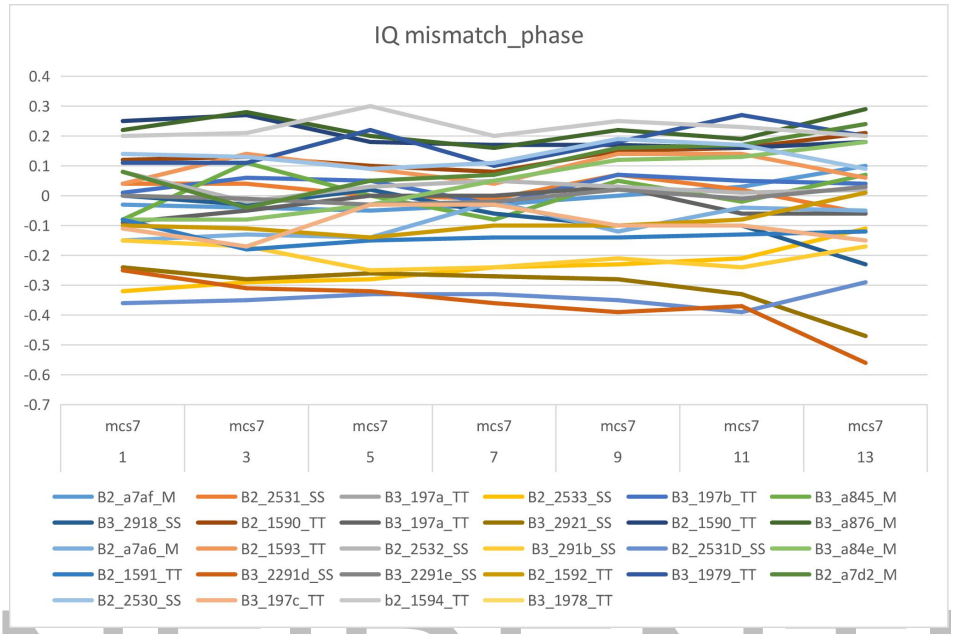
1.4 IQ Mismatch

- 对比 B2_Marlin3、B3_Marlin3、B2_TT、B3_TT、B2_SS、B3_SS 六款芯片 IQ mismatch 的结果，如下图所示，无明显差异。





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2. I2C 遍历

用 Marlin3 最优配置作为默认配置，遍历寄存器，测试 mcs7，目标功率 13dBm，得到以下结果：

- B2 TT 与 B3 TT ，当前配置的 PA 寄存器基本为最优；Bias 寄存器 cp1p6_dreg、cp1p2_dreg 最优配置，不同模块表现略有差异。
- 从 B3 EVM 来看，SS 较 TT ，I2C 最优配置不同，典型参数有：
  cp1p6_dreg (TT 为 7 较优，SS 为 5 较优），
  cp1p2_dreg（TT 为 7 较优，SS 为 5 较优），
  PA2G_ICT_STG0（TT 为 8 较优，SS 为 12 较优），
  PA2G_STG1_SEL_ICGM_N（TT 为 1 较优，SS 为 0 较优）等

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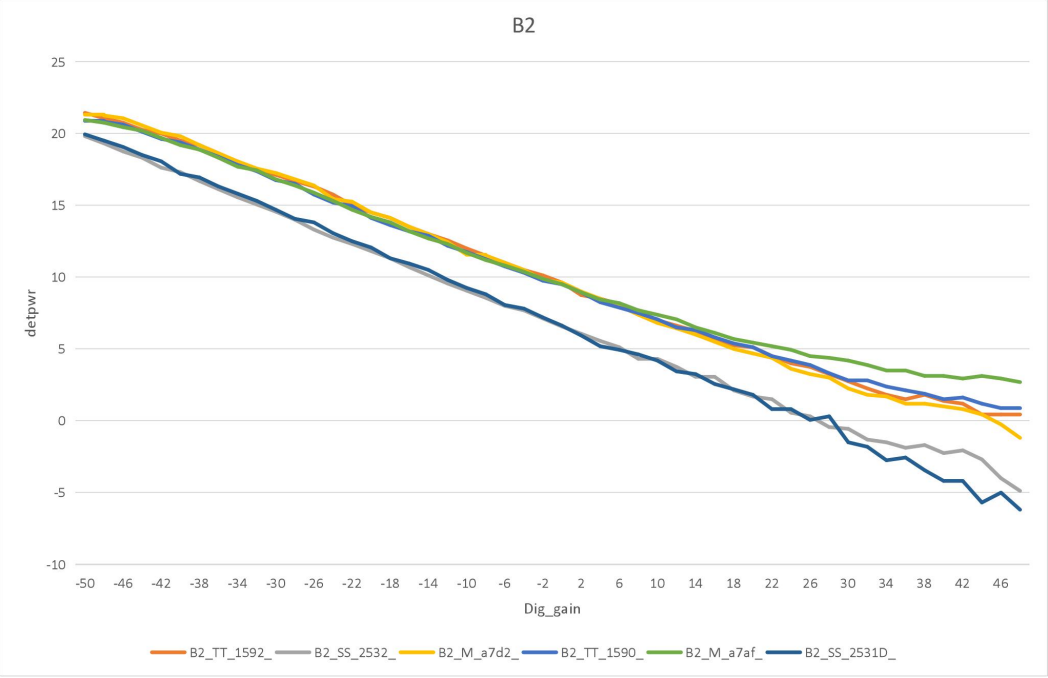
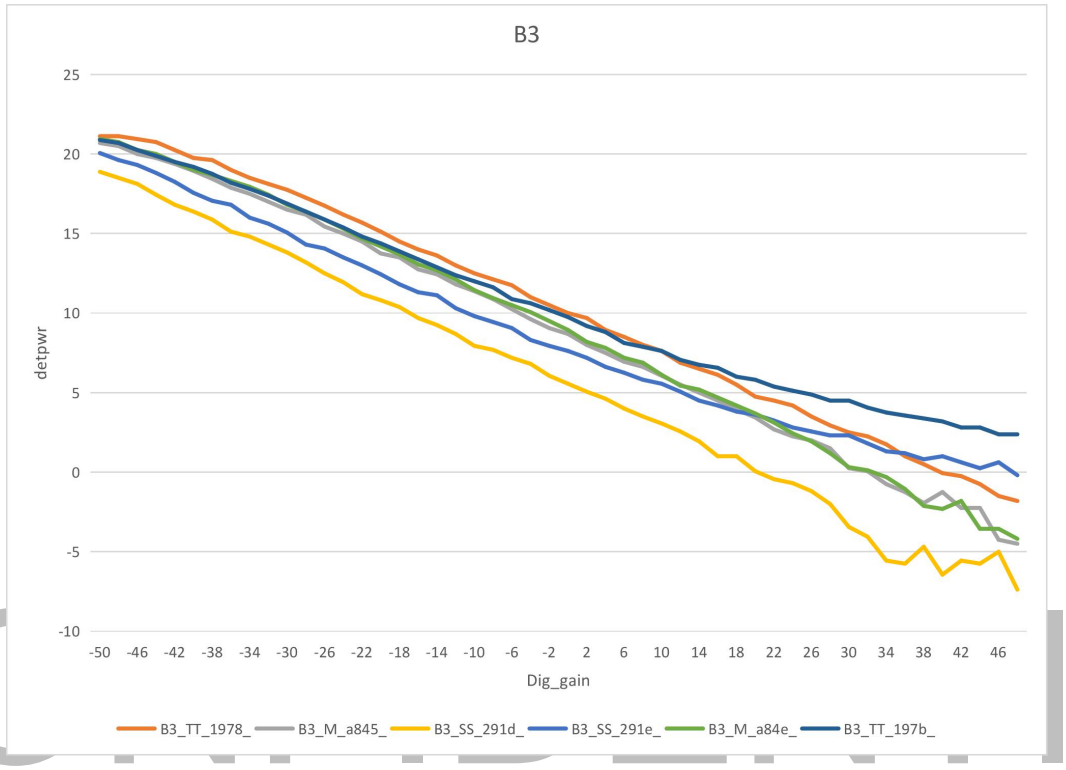
3. Power Detector 测试

- 对比 B2_Marlin3、B3_Marlin3、B2_TT、B3_TT、B2_SS、B3_SS 六款芯片的 Power Detector，从整段的线性度来看，几种芯片基本一致。





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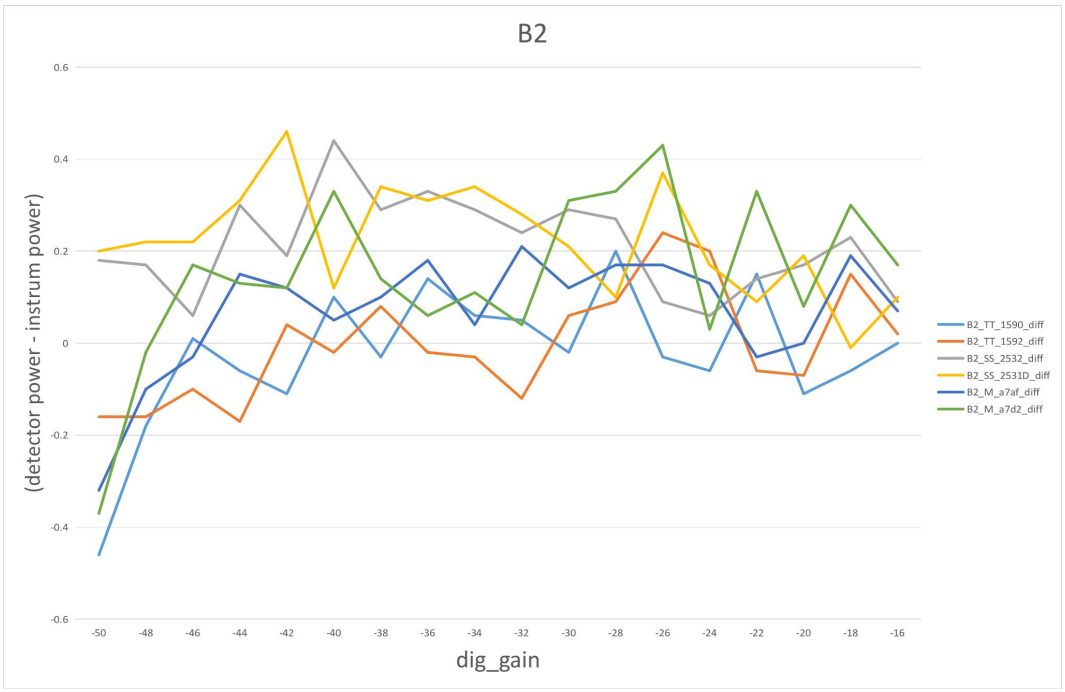
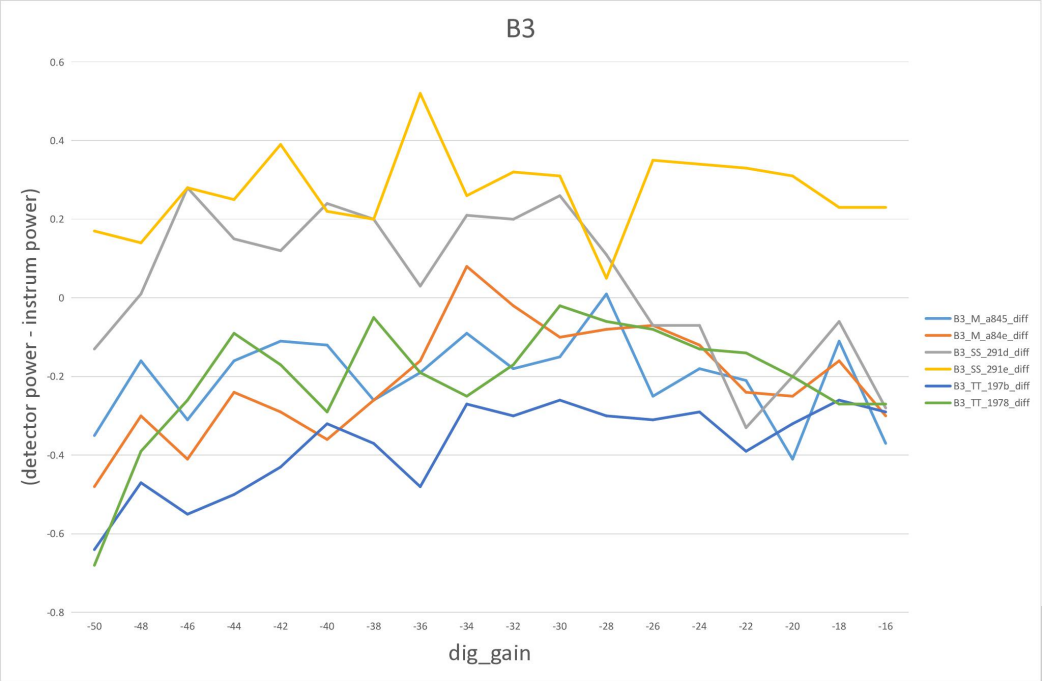
- 从 power detector 与 仪器校准的 power 的差值看来，各种芯片的差异性在[-0.6,0.6]之间，无明显的差异性；





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4. P1dB 测试

- B2_Marlin3、B3_Marlin3、B2_TT、B3_TT、B2_SS、B3_SS 的 PA 1dB 压缩点结果如下.

  使用相同的模组板的情况下，SS 的 P1dB 比 TT 和 marlin3 低近 2dB。

IC_type	B2_M	B2_SS	B2_TT	B3_M	B2_SS	B3_TT
P1dB	22.2dB	20.5dB	22.1dB	22.3dB	20.6dB	22.3dB

5. TX 电流测试

- B2_Marlin3、B3_Marlin3、B2_TT、B3_TT、B2_SS、B3_SS 六款类型，各测 2 块模组，从 TX 电流来看，在自校准功率后，达到相同功率的情况下，电流基本相当。

B3_Marlin3			A84E			A845		
cbw40m	rate	channel	curr_max	pwr	evm	curr_max	pwr	evm
0	1m	1	332.59	19.68	-26.6	343.73	19.51	-26.46
0	1m	6	334.07	19.52	-26.02	343.99	19.28	-25.68
0	1m	11	346.48	19.5	-27.06	354.08	19.11	-26.59
0	11m	1	332.96	19.38	-26.11	343.2	19.25	-25.86
0	11m	6	335.07	19.33	-25.66	343.68	19.12	-25.39
0	11m	11	349.33	19.4	-26.28	356.09	19	-25.98
0	6m	1	285.02	17.75	-20.63	293.2	17.58	-20.72
0	6m	6	287.23	17.72	-20.34	294.47	17.48	-20.6
0	6m	11	297.95	17.78	-19.43	304.6	17.44	-19.72
0	54m	1	236.55	15.03	-27.04	242.46	14.82	-27.19
0	54m	6	238.08	15.02	-26.75	243.57	14.75	-26.94
0	54m	11	247.95	15.25	-25.49	251.7	14.82	-26.12
0	mcs0	1	283.96	17.65	-21.21	292.04	17.52	-21.33
0	mcs0	6	285.91	17.59	-20.97	292.99	17.37	-21.13
0	mcs0	11	297.16	17.66	-19.93	303.71	17.39	-20.27
0	mcs7	1	213.1	13.06	-30.8	218.54	12.91	-31.32
0	mcs7	6	213.84	12.98	-30.15	218.43	12.76	-30.33
0	mcs7	11	222.34	13.32	-29.8	225.93	12.91	-30.21
B2_Marlin3			A7D2			A746		
cbw40m	rate	channel	curr_max	pwr	evm	curr_max	pwr	evm
0	1m	1	321.29	19.28	-25.96	342.41	19.82	-26.19
0	1m	6	323.93	19.17	-25.6	336.65	19.41	-25.63
0	1m	11	337.5	19.27	-26.16	345.1	19.25	-26.33
0	11m	1	322.29	19.01	-25.66	342.3	19.49	-25.91
0	11m	6	325.2	19	-25.47	336.92	19.19	-25.44
0	11m	11	340.67	19.13	-25.86	347.06	19.11	-25.99
0	6m	1	277.47	17.4	-21.93	289.98	17.77	-20.88
0	6m	6	279.21	17.33	-21.46	289.29	17.62	-20.75
0	6m	11	291.88	17.49	-20.34	295.63	17.47	-20.39
0	54m	1	229.95	14.49	-28.02	239.45	15.01	-27.24

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0	54m	6	231.95	14.43	-27.41	238.71	14.83	-26.97
0	54m	11	241.09	14.63	-26.8	244.52	14.8	-26.86
0	mcs0	1	276.46	17.17	-22.53	288.82	17.67	-21.42
0	mcs0	6	278.1	17.13	-21.98	287.92	17.48	-21.23
0	mcs0	11	290.82	17.33	-20.92	294.47	17.34	-21.02
0	mcs7	1	207.4	12.43	-30.68	214.84	12.95	-30.37
0	mcs7	6	209.14	12.5	-30.31	214.69	12.83	-30.09
0	mcs7	11	216.96	12.81	-30.67	219.23	12.82	-30.71
B3_TT			197C			1978		
cbw40m	rate	channel	curr_max	pwr	evm	curr_max	pwr	evm
0	1m	1	330.32	19.21	-25.97	314.69	19.19	-26.31
0	1m	6	332.96	19.15	-25.82	318.65	19.15	-26.08
0	1m	11	344.31	19.13	-26.35	330.05	19.17	-26.44
0	11m	1	327.52	18.31	-25.82	312.52	18.79	-26.09
0	11m	6	333.75	18.45	-25.59	318.65	18.9	-25.88
0	11m	11	346.48	18.34	-25.97	331.06	18.98	-26.2
0	6m	1	281.27	16.86	-22.1	272.13	17.23	-22.64
0	6m	6	286.71	16.98	-21.42	276.78	17.38	-21.91
0	6m	11	296.26	16.89	-20.81	284.17	17.36	-21.38
0	54m	1	233.85	14.07	-27.88	227.41	14.33	-28.25
0	54m	6	238.82	14.39	-27.16	231.32	14.55	-27.52
0	54m	11	245.63	14.51	-27.23	238.39	14.65	-27.19
0	mcs0	1	281.06	17.11	-22.83	270.97	17.1	-23.52
0	mcs0	6	286.86	17.25	-21.94	275.88	17.23	-22.59
0	mcs0	11	296.21	17.26	-21.35	283.64	17.23	-22.13
0	mcs7	1	211.57	12.49	-31.01	207.66	12.37	-30.88
0	mcs7	6	215.48	12.72	-30.17	210.88	12.6	-30.46
0	mcs7	11	220.49	12.75	-30.83	215.79	12.7	-30.92
B2_TT			1592			1590		
cbw40m	rate	channel	curr_max	pwr	evm	curr_max	pwr	evm
0	1m	1	331.69	19.33	-26.37	324.77	19.21	-26.17
0	1m	6	332.59	19.09	-26.19	324.72	19.03	-25.62
0	1m	11	334.07	18.63	-26.91	329	18.87	-26.61
0	11m	1	332.27	19.06	-26.15	324.51	18.92	-25.94
0	11m	6	335.12	18.95	-25.93	325.41	18.84	-25.53
0	11m	11	337.13	18.53	-26.31	331.53	18.74	-26.09
0	6m	1	286.86	17.49	-21.17	278.52	17.27	-21.86
0	6m	6	288.66	17.39	-20.93	280.05	17.25	-21.65
0	6m	11	292.88	17.1	-20.79	286.44	17.21	-21.21

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0	54m	1	238.71	14.76	-27.57	232.22	14.48	-28.28
0	54m	6	240.82	14.72	-27.03	234.12	14.51	-27.48
0	54m	11	244.47	14.46	-26.98	239.08	14.53	-27.26
0	mcs0	1	286.44	17.44	-21.8	277.62	17.17	-22.85
0	mcs0	6	288.34	17.32	-21.51	279.21	17.13	-22.25
0	mcs0	11	292.72	17.03	-21.34	285.39	17.09	-21.83
0	mcs7	1	215.58	12.77	-31.11	210.15	12.42	-31.56
0	mcs7	6	217.75	12.76	-30.14	211.78	12.52	-30.4
0	mcs7	11	220.34	12.52	-30.23	215.74	12.55	-31.05
B2_SS			2532			2531		
cbw40m	rate	channel	curr_max	pwr	evm	curr_max	pwr	evm
0	1m	1	326.94	19.68	-26.01	322.87	19.27	-26.15
0	1m	6	325.14	19.37	-25.86	323.72	19.08	-25.54
0	1m	11	333.22	19.1	-26.51	334.12	19	-26.4
0	11m	1	331.43	19.43	-25.66	322.98	18.96	-25.63
0	11m	6	330.9	19.25	-25.46	323.98	18.88	-25.28
0	11m	11	338.24	19.01	-25.88	336.76	18.87	-25.69
0	6m	1	284.01	17.84	-19.46	276.15	17.34	-21.96
0	6m	6	282.69	17.65	-19.54	278.1	17.32	-21.57
0	6m	11	291.3	17.53	-19.01	287.71	17.31	-20.77
0	54m	1	233.17	15.06	-25.71	227.15	14.48	-28.01
0	54m	6	234.01	14.98	-25.57	228.15	14.43	-27.8
0	54m	11	239.45	14.87	-25.25	236.07	14.56	-27.31
0	mcs0	1	283.38	17.74	-20.14	274.93	17.24	-22.71
0	mcs0	6	282.69	17.51	-20.32	276.99	17.19	-22.29
0	mcs0	11	291.25	17.4	-19.66	286.18	17.19	-21.43
0	mcs7	1	208.56	12.98	-29.39	204.6	12.47	-30.87
0	mcs7	6	210.25	12.99	-28.72	206.08	12.51	-30.37
0	mcs7	11	214.26	12.86	-29.08	211.73	12.6	-30.49
B3_SS			2918			291D		
cbw40m	rate	channel	curr_max	pwr	evm	curr_max	pwr	evm
0	1m	1	333.17	19.42	-26.31	321.55	19.1	-26.24
0	1m	6	328.63	19	-25.86	327.41	19.09	-25.74
0	1m	11	340.03	18.88	-26.67	332.27	18.76	-26.44
0	11m	1	333.17	19.09	-25.92	322.66	18.85	-25.75
0	11m	6	329.84	18.79	-25.58	329.58	18.94	-25.38
0	11m	11	342.52	18.74	-26.08	335.6	18.68	-25.76
0	6m	1	285.07	17.48	-20.99	277.36	17.33	-21.07
0	6m	6	282.85	17.22	-21.04	283.17	17.44	-20.3

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0	6m	11	294.04	17.22	-20.07	288.61	17.18	-19.97
0	54m	1	233.48	14.61	-27.47	227.99	14.47	-27.21
0	54m	6	232.74	14.42	-27.11	231.95	14.62	-26.42
0	54m	11	241.14	14.5	-26.37	236.86	14.47	-26.19
0	mcs0	1	283.48	17.36	-21.59	276.88	17.23	-21.71
0	mcs0	6	281.06	17.09	-21.65	282.32	17.31	-21
0	mcs0	11	292.78	17.1	-20.69	287.76	17.07	-20.56
0	mcs7	1	210.41	12.68	-29.78	205.23	12.49	-29.72
0	mcs7	6	209.09	12.39	-29.37	207.45	12.56	-28.01
0	mcs7	11	216.9	12.63	-29.87	212.47	12.51	-28.94

6. RX Gain /Noise 测试

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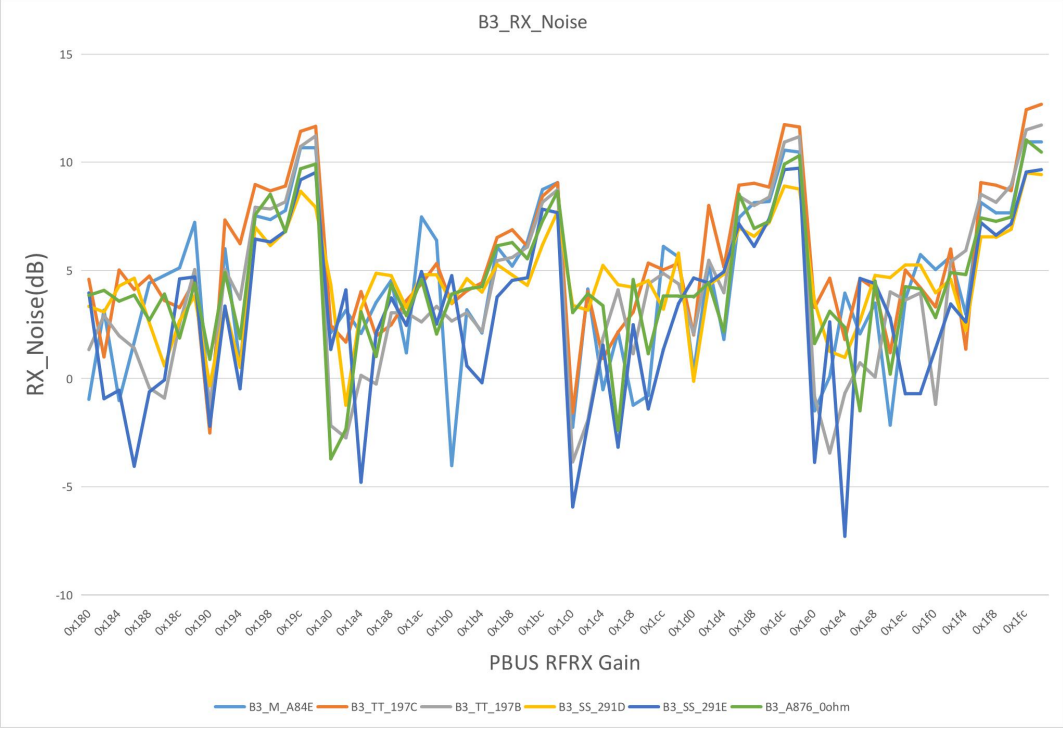
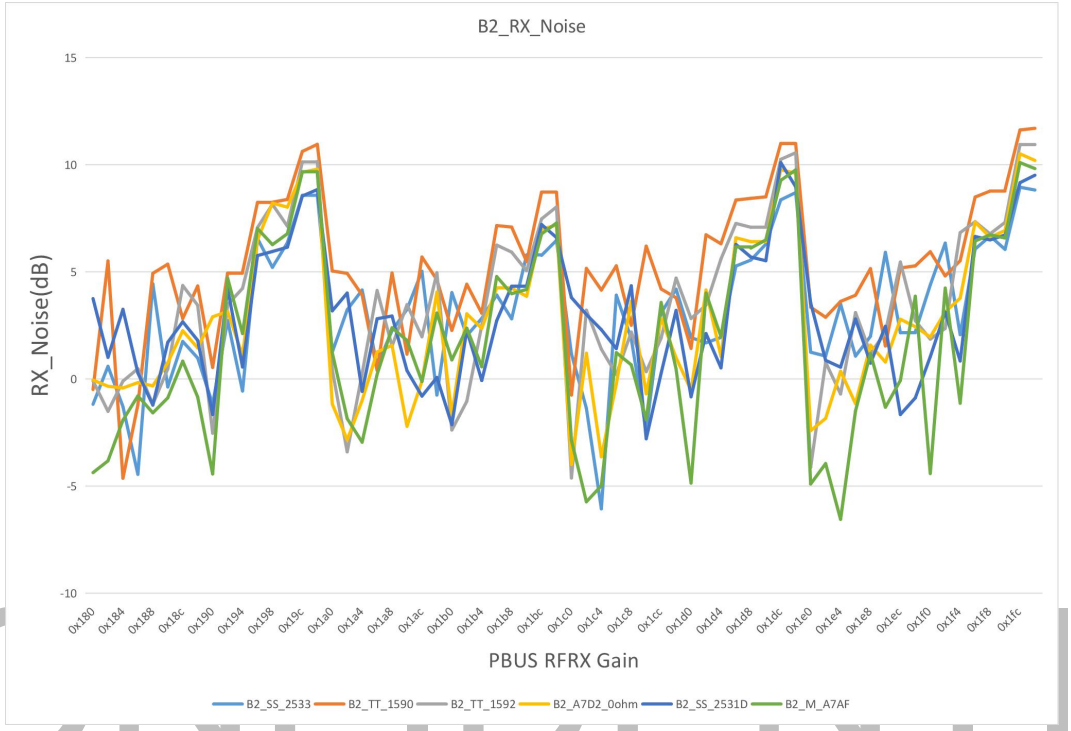
6.1 RX Noise 比较

- B2_Marlin3、B3_Marlin3、B2_TT、B3_TT、B2_SS、B3_SS 六款类型，各测 2 块模组，Rx_noise 未见明显差异。





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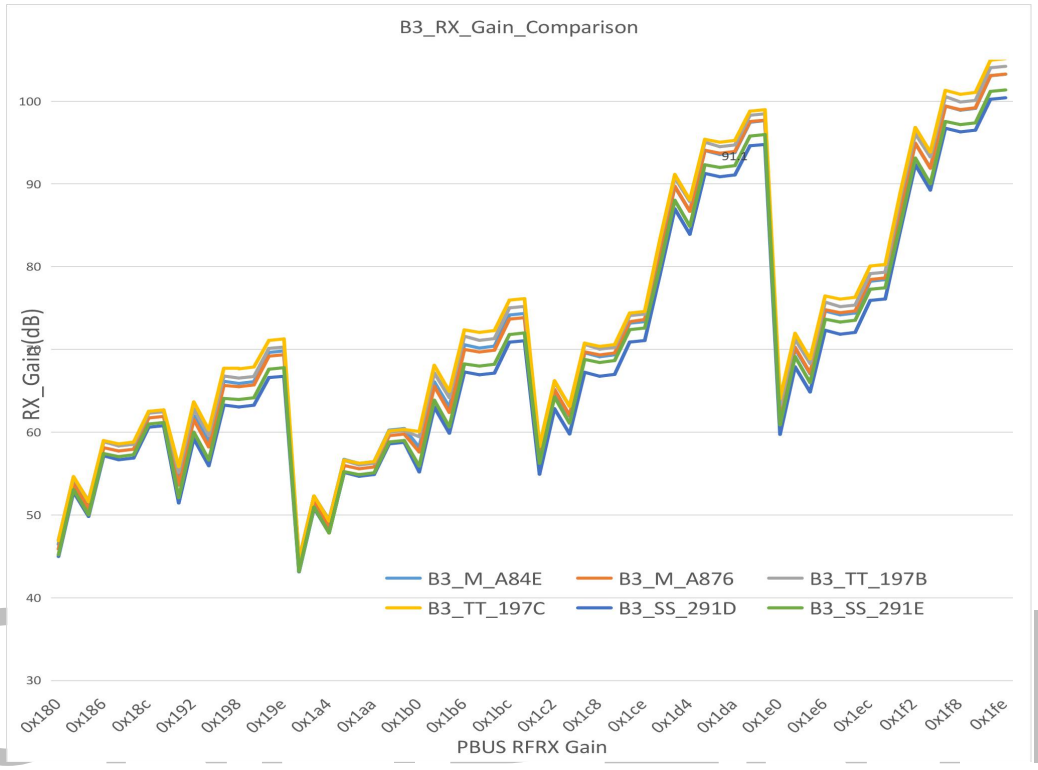
6.2 RX Gain 比较

- 测试 B2_Marlin3、B3_Marlin3、B2_TT、B3_TT、B2_SS、B3_SS 六款芯片，各测 2 块模组，SS RX Gain 比 TT 和 Marlin3 低 1.5~2dB。



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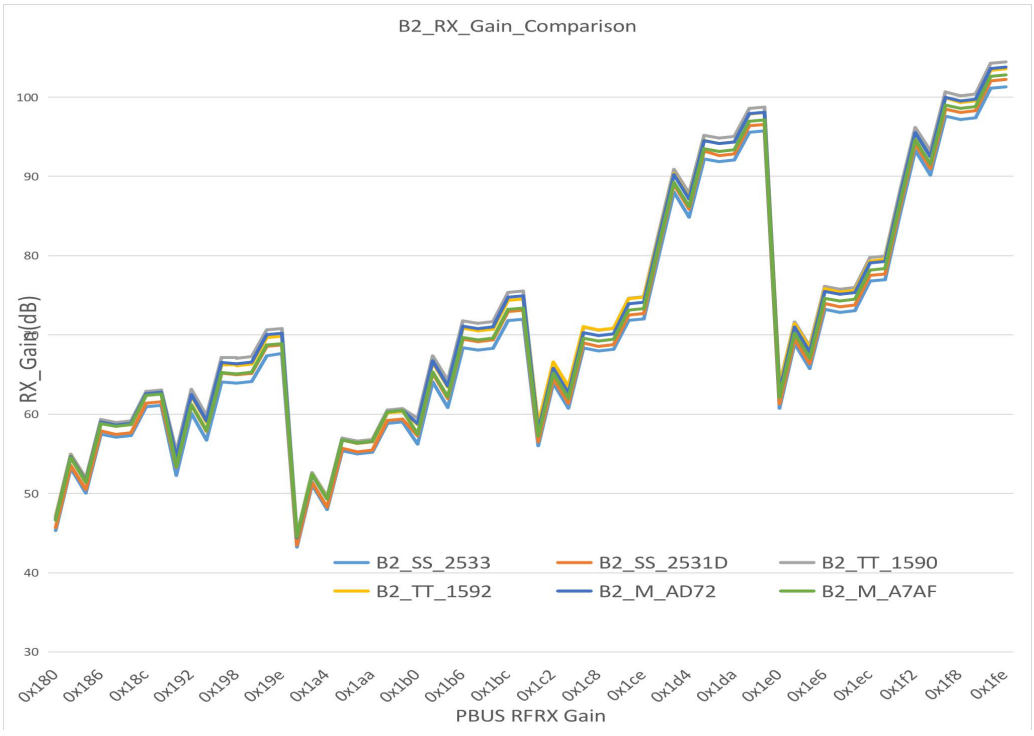

7. RX 基本性能测试

7.1 RX 接收灵敏度

- 测试了 B2_Marlin3、B3_Marlin3、B2_TT、B3_TT、B2_SS、B3_SS 六款芯片的 Rx_sens，测试结果如下，SS 芯片的 Rx_sens 要比 TT 和 Marilin3 的低 1~2 dB。

0ohm	B3_M_A84E	B3_M_A876	B3_TT_197B	B3_TT_197C	B3_SS_291D	B3_SS_291E	B2_SS_2531D	B2_SS_2533	B2_TT_1590	B2_TT_1592	B2_M_A7D2	B2_M_A7AF
Rate	1m	1m	1m	1m	1m	1m	1m	1m	1m	1m	1m	1m
1	-97	-96	-97	-97	-96	-96	-96	-96	-97	-97	-97	-97
7	-98	-97	-97	-98	-96	-96	-96	-97	-98	-98	-97	-97
14	-98	-97	-98	-98	-97	-96	-97	-97	-98	-98	-97	-97
Rate	11ml	11ml	11ml	11ml	11ml	11ml	11ml	11ml	11ml	11ml	11ml	11ml
1	-88	-87	-88	-88	-87	-88	-87	-87	-88	-88	-88	-87
7	-89	-89	-88	-89	-88	-88	-88	-88	-89	-89	-88	-88
14	-89	-88	-89	-89	-88	-88	-88	-89	-89	-89	-89	-88
Rate	6m	6m	6m	6m	6m	6m	6m	6m	6m	6m	6m	6m
1	-91	-91	-92	-92	-92	-91	-92	-91	-92	-93	-92	-91
7	-92	-92	-93	-93	-92	-92	-92	-92	-92	-91	-92	-91
14	-92	-93	-92	-93	-92	-92	-91	-91	-91	-92	-93	-92
Rate	54m	54m	54m	54m	54m	54m	54m	54m	54m	54m	54m	54m
1	-75	-74	-75	-74	-75	-74	-74	-75	-75	-75	-75	-74
7	-74	-75	-75	-75	-75	-75	-75	-75	-75	-75	-75	-75
14	-75	-75	-76	-75	-75	-75	-75	-75	-75	-76	-76	-74
Rate	mcs0	mcs0	mcs0	mcs0	mcs0	mcs0	mcs0	mcs0	mcs0	mcs0	mcs0	mcs0
1	-92	-93	-93	-91	-92	-92	-92	-89	-92	-92	-92	-92
7	-93	-91	-92	-92	-92	-92	-92	-92	-92	-93	-92	-91
14	-93	-93	-93	-93	-92	-92	-92	-92	-92	-92	-93	-93
Rate	mcs7	mcs7	mcs7	mcs7	mcs7	mcs7	mcs7	mcs7	mcs7	mcs7	mcs7	mcs7
1	-73	-72	-73	-73	-72	-72	-71	-72	-73	-71	-73	-72
7	-73	-73	-73	-73	-72	-72	-71	-72	-73	-73	-73	-72
14	-73	-73	-73	-73	-73	-72	-72	-72	-73	-73	-73	-73
Rate	mcs0_40	mcs0_40	mcs0_40	mcs0_40	mcs0_40	mcs0_40	mcs0_40	mcs0_40	mcs0_40	mcs0_40	mcs0_40	mcs0_40
1	-87	-89	-88	-87	-88	-88	-88	-88	-87	-88	-86	-89

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7	-88	-88	-89	-89	-88	-88	-88	-88	-88	-88	-87	-89
14	-87	-88	-89	-89	-89	-86	-89	-88	-89	-89	-89	-88
Rate	mcs7_40	mcs7_40	mcs7_40	mcs7_40	mcs7_40	mcs7_40	mcs7_40	mcs7_40	mcs7_40	mcs7_40	mcs7_40	mcs7_40
1	-68	-69	-67	-68	-68	-69	-69	-69	-69	-69	-68	-69
7	-69	-69	-70	-69	-69	-69	-69	-69	-69	-70	-70	-68
14	-70	-69	-68	-69	-70	-69	-69	-69	-70	-70	-70	-70

7.2 RX 最大接收电平

- 测试了 B2_Marlin3、B3_Marlin3、B2_TT、B3_TT、B2_SS、B3_SS 六款芯片各 3 pcs 的 Rx_maxlevel，经对比，11b 各个芯片基本一致，在 54M 和 MCS7 时，SS 芯片的 Rx_sens 要比 TT 和 Marilin3 的高 1 dB。

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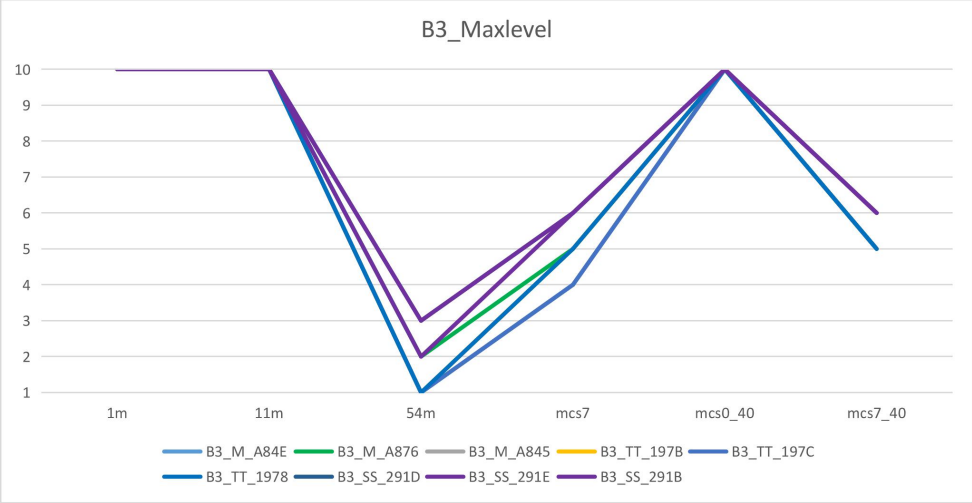
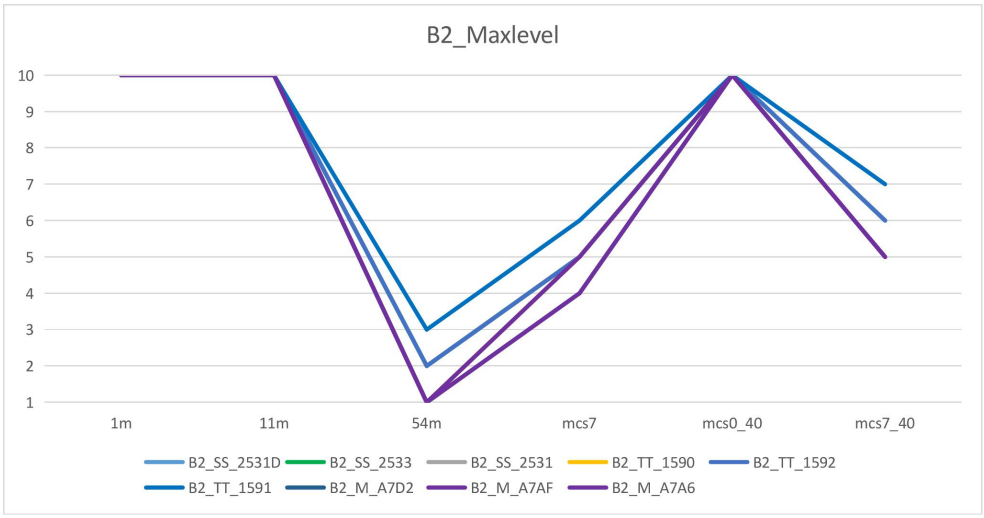
Ch14	B3_M_A84E	B3_M_A876	B3_M_A845	B3_TT_197B	B3_TT_197C	B3_TT_1978	B3_SS_291D	B3_SS_291E	B3_SS_291B	B2_SS_2531D	B2_SS_25533	B2_SS_25531	B2_TT_1590	B2_TT_1592	B2_TT_1591	B2_M_A7D2	B2_M_A7AF	B2_M_A7A6
1m	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
11m	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
54m	1	2	1	1	1	1	3	3	2	2	2	2	1	2	3	1	1	1
mcs7	4	5	4	5	4	5	6	6	6	5	5	5	5	5	6	4	4	5
mcs0_40	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
mcs7_40	5	5	5	5	5	5	6	6	6	6	6	6	5	6	7	5	5	5





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