

Document: Hardrock-50 Attenuator Test Data

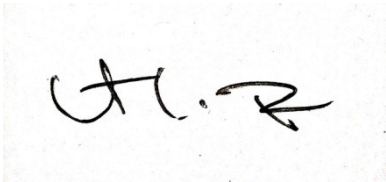
FCC Identifier: RHAHR50

Date: July 16, 2013

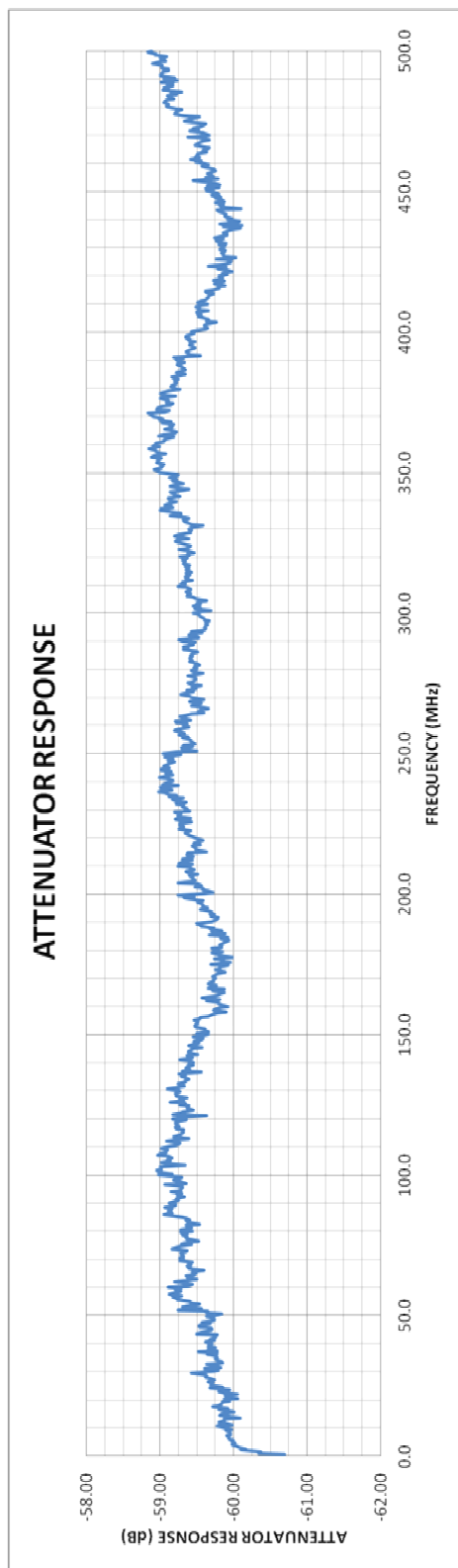
The following data is submitted with the application for type acceptance of the HobbyPCB, LLC.
Hardrock-50 amplifier, FCC ID RHAHR50. We certify that this information accurately represents the
device presented in the application.



James C Veatch



Curtis Pope



FREQ MHZ	S11 LOG MAG
0.5	-60.70
1.0	-60.35
1.5	-60.36
2.0	-60.10
2.5	-60.16
3.0	-60.06
3.5	-60.06
4.0	-59.99
4.5	-60.01
5.0	-59.99
5.5	-59.99
6.0	-59.94
6.5	-59.93
7.0	-59.91
7.5	-59.95
8.0	-59.96
8.5	-59.95
9.0	-59.89
9.5	-59.97
10.0	-59.88
10.5	-59.78
11.0	-59.98
11.5	-59.91
12.0	-59.80
12.5	-59.88
13.0	-59.87
13.5	-60.09
14.0	-59.94
14.5	-59.81
15.0	-59.84
15.5	-60.00
16.0	-59.96
16.5	-59.80
17.0	-59.92
17.5	-59.72
18.0	-59.80
18.5	-59.84
19.0	-59.84
19.5	-59.95
20.0	-59.87
20.5	-60.05

21.0	-59.90
21.5	-59.88
22.0	-60.05
22.5	-59.86
23.0	-59.81
23.5	-59.95
24.0	-59.68
24.5	-59.85
25.0	-59.69
25.5	-59.69
26.0	-59.72
26.5	-59.65
27.0	-59.74
27.5	-59.68
28.0	-59.62
28.5	-59.64
29.0	-59.61
29.5	-59.43
30.0	-59.73
30.5	-59.78
31.0	-59.61
31.5	-59.82
32.0	-59.75
32.5	-59.63
33.0	-59.85
33.5	-59.84
34.0	-59.78
34.5	-59.76
35.0	-59.78
35.5	-59.77
36.0	-59.64
36.5	-59.77
37.0	-59.52
37.5	-59.78
38.0	-59.66
38.5	-59.76
39.0	-59.65
39.5	-59.67
40.0	-59.71
40.5	-59.62
41.0	-59.74
41.5	-59.67

42.0	-59.75
42.5	-59.74
43.0	-59.77
43.5	-59.50
44.0	-59.57
44.5	-59.70
45.0	-59.71
45.5	-59.69
46.0	-59.54
46.5	-59.54
47.0	-59.68
47.5	-59.57
48.0	-59.72
48.5	-59.75
49.0	-59.73
49.5	-59.64
50.0	-59.75
50.5	-59.84
51.0	-59.63
51.5	-59.65
52.0	-59.25
52.5	-59.56
53.0	-59.30
53.5	-59.37
54.0	-59.54
54.5	-59.43
55.0	-59.41
55.5	-59.24
56.0	-59.25
56.5	-59.18
57.0	-59.29
57.5	-59.13
58.0	-59.24
58.5	-59.28
59.0	-59.21
59.5	-59.28
60.0	-59.12
60.5	-59.38
61.0	-59.43
61.5	-59.30
62.0	-59.20
62.5	-59.40

63.0	-59.50
63.5	-59.38
64.0	-59.35
64.5	-59.46
65.0	-59.49
65.5	-59.43
66.0	-59.60
66.5	-59.39
67.0	-59.42
67.5	-59.37
68.0	-59.41
68.5	-59.39
69.0	-59.44
69.5	-59.27
70.0	-59.32
70.5	-59.27
71.0	-59.32
71.5	-59.31
72.0	-59.28
72.5	-59.36
73.0	-59.37
73.5	-59.16
74.0	-59.20
74.5	-59.26
75.0	-59.43
75.5	-59.29
76.0	-59.38
76.5	-59.52
77.0	-59.42
77.5	-59.35
78.0	-59.36
78.5	-59.31
79.0	-59.36
79.5	-59.28
80.0	-59.44
80.5	-59.28
81.0	-59.43
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83.0	-59.39
83.5	-59.36

84.0	-59.40
84.5	-59.36
85.0	-59.31
85.5	-59.15
86.0	-59.06
86.5	-59.16
87.0	-59.12
87.5	-59.15
88.0	-59.16
88.5	-59.07
89.0	-59.20
89.5	-59.20
90.0	-59.12
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91.0	-59.25
91.5	-59.22
92.0	-59.33
92.5	-59.25
93.0	-59.23
93.5	-59.29
94.0	-59.15
94.5	-59.28
95.0	-59.28
95.5	-59.30
96.0	-59.28
96.5	-59.07
97.0	-59.36
97.5	-59.29
98.0	-59.18
98.5	-59.22
99.0	-59.30
99.5	-59.22
100.0	-58.98
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102.0	-59.02
102.5	-59.02
103.0	-59.01
103.5	-59.34
104.0	-59.08
104.5	-59.02

105.0	-59.14
105.5	-59.10
106.0	-59.16
106.5	-59.12
107.0	-58.97
107.5	-59.01
108.0	-59.08
108.5	-59.09
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109.5	-59.02
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110.5	-59.21
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111.5	-59.27
112.0	-59.09
112.5	-59.26
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113.5	-59.18
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125.5	-59.34

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161.5	-59.79
162.0	-59.64
162.5	-59.81
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168.5	-59.67
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169.5	-59.73
170.0	-59.75
170.5	-59.72
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181.5	-59.84
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194.0	-59.68
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211.0	-59.26
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214.5	-59.38
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215.5	-59.51
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216.5	-59.48
217.0	-59.44
217.5	-59.54
218.0	-59.46
218.5	-59.51
219.0	-59.59
219.5	-59.54
220.0	-59.47
220.5	-59.42
221.0	-59.39
221.5	-59.35
222.0	-59.35
222.5	-59.41
223.0	-59.26
223.5	-59.31
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224.5	-59.27
225.0	-59.27
225.5	-59.43
226.0	-59.31
226.5	-59.20
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230.5	-59.37

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232.0	-59.22
232.5	-59.36
233.0	-59.22
233.5	-59.18
234.0	-59.32
234.5	-59.13
235.0	-59.22
235.5	-59.12
236.0	-59.07
236.5	-58.97
237.0	-59.16
237.5	-59.01
238.0	-59.01
238.5	-59.25
239.0	-59.05
239.5	-59.09
240.0	-59.17
240.5	-59.18
241.0	-59.09
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242.5	-59.17
243.0	-59.08
243.5	-59.15
244.0	-59.01
244.5	-59.02
245.0	-59.13
245.5	-59.06
246.0	-59.10
246.5	-59.14
247.0	-59.20
247.5	-59.11
248.0	-59.17
248.5	-59.07
249.0	-59.15
249.5	-59.28
250.0	-59.04
250.5	-59.22
251.0	-59.50
251.5	-59.30



252.0	-59.30
252.5	-59.44
253.0	-59.32
253.5	-59.47
254.0	-59.44
254.5	-59.41
255.0	-59.40
255.5	-59.30
256.0	-59.38
256.5	-59.25
257.0	-59.34
257.5	-59.30
258.0	-59.19
258.5	-59.21
259.0	-59.32
259.5	-59.39
260.0	-59.31
260.5	-59.36
261.0	-59.22
261.5	-59.21
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266.0	-59.65
266.5	-59.54
267.0	-59.43
267.5	-59.48
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268.5	-59.40
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269.5	-59.52
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271.0	-59.28
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272.5	-59.37

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273.5	-59.44
274.0	-59.56
274.5	-59.43
275.0	-59.38
275.5	-59.43
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276.5	-59.49
277.0	-59.47
277.5	-59.38
278.0	-59.47
278.5	-59.58
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281.0	-59.47
281.5	-59.54
282.0	-59.50
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283.0	-59.44
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285.5	-59.44
286.0	-59.51
286.5	-59.49
287.0	-59.32
287.5	-59.38
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293.0	-59.57
293.5	-59.43

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297.0	-59.67
297.5	-59.61
298.0	-59.60
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299.0	-59.53
299.5	-59.52
300.0	-59.45
300.5	-59.59
301.0	-59.69
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302.5	-59.45
303.0	-59.54
303.5	-59.49
304.0	-59.55
304.5	-59.63
305.0	-59.49
305.5	-59.45
306.0	-59.36
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307.0	-59.42
307.5	-59.35
308.0	-59.41
308.5	-59.41
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309.5	-59.24
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311.5	-59.44
312.0	-59.35
312.5	-59.37
313.0	-59.34
313.5	-59.41
314.0	-59.36
314.5	-59.42



HobbyPCB, LLC.
3373 E. Lake Shore Lane
Clearwater, Florida 33761

315.0	-59.40
315.5	-59.35
316.0	-59.39
316.5	-59.34
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319.0	-59.31
319.5	-59.37
320.0	-59.27
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322.0	-59.39
322.5	-59.25
323.0	-59.37
323.5	-59.40
324.0	-59.42
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325.0	-59.25
325.5	-59.21
326.0	-59.24
326.5	-59.39
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327.5	-59.20
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331.0	-59.58
331.5	-59.43
332.0	-59.38
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334.5	-59.14
335.0	-59.29
335.5	-59.28

336.0	-59.18
336.5	-59.00
337.0	-59.02
337.5	-59.17
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338.5	-59.06
339.0	-59.12
339.5	-59.23
340.0	-59.13
340.5	-59.12
341.0	-59.11
341.5	-59.27
342.0	-59.20
342.5	-59.19
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344.5	-59.27
345.0	-59.14
345.5	-59.22
346.0	-59.32
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347.0	-59.18
347.5	-59.22
348.0	-59.12
348.5	-59.21
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349.5	-59.19
350.0	-58.99
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351.0	-58.92
351.5	-59.01
352.0	-59.02
352.5	-59.00
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353.5	-58.96
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355.5	-58.89
356.0	-58.92
356.5	-59.08

357.0	-58.99
357.5	-58.95
358.0	-58.93
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361.0	-59.05
361.5	-59.05
362.0	-59.09
362.5	-59.19
363.0	-58.98
363.5	-59.05
364.0	-59.19
364.5	-59.22
365.0	-59.14
365.5	-59.06
366.0	-59.16
366.5	-59.14
367.0	-59.19
367.5	-59.03
368.0	-59.15
368.5	-58.99
369.0	-59.04
369.5	-58.98
370.0	-58.91
370.5	-58.88
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371.5	-59.06
372.0	-59.12
372.5	-58.95
373.0	-58.97
373.5	-59.02
374.0	-59.14
374.5	-59.17
375.0	-59.09
375.5	-59.11
376.0	-59.03
376.5	-59.01
377.0	-59.21
377.5	-59.04



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378.0	-59.00
378.5	-59.02
379.0	-59.12
379.5	-59.27
380.0	-59.21
380.5	-59.15
381.0	-59.16
381.5	-59.22
382.0	-59.22
382.5	-59.20
383.0	-59.24
383.5	-59.20
384.0	-59.16
384.5	-59.23
385.0	-59.34
385.5	-59.22
386.0	-59.26
386.5	-59.35
387.0	-59.33
387.5	-59.30
388.0	-59.25
388.5	-59.24
389.0	-59.33
389.5	-59.26
390.0	-59.23
390.5	-59.32
391.0	-59.19
391.5	-59.54
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394.0	-59.46
394.5	-59.47
395.0	-59.44
395.5	-59.40
396.0	-59.41
396.5	-59.48
397.0	-59.39
397.5	-59.40
398.0	-59.36
398.5	-59.36

399.0	-59.43
399.5	-59.46
400.0	-59.43
400.5	-59.47
401.0	-59.62
401.5	-59.64
402.0	-59.61
402.5	-59.60
403.0	-59.66
403.5	-59.77
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404.5	-59.65
405.0	-59.58
405.5	-59.52
406.0	-59.56
406.5	-59.51
407.0	-59.49
407.5	-59.66
408.0	-59.52
408.5	-59.53
409.0	-59.49
409.5	-59.56
410.0	-59.64
410.5	-59.51
411.0	-59.55
411.5	-59.62
412.0	-59.64
412.5	-59.65
413.0	-59.67
413.5	-59.73
414.0	-59.64
414.5	-59.62
415.0	-59.72
415.5	-59.80
416.0	-59.79
416.5	-59.88
417.0	-59.75
417.5	-59.79
418.0	-59.88
418.5	-59.72
419.0	-59.85
419.5	-59.85

420.0	-59.80
420.5	-59.91
421.0	-59.84
421.5	-59.98
422.0	-59.91
422.5	-59.79
423.0	-59.89
423.5	-59.66
424.0	-59.87
424.5	-59.95
425.0	-59.94
425.5	-59.97
426.0	-59.77
426.5	-60.03
427.0	-59.87
427.5	-59.86
428.0	-59.83
428.5	-59.87
429.0	-59.89
429.5	-59.82
430.0	-59.85
430.5	-59.88
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431.5	-59.89
432.0	-59.80
432.5	-59.76
433.0	-59.86
433.5	-59.73
434.0	-59.82
434.5	-59.90
435.0	-59.91
435.5	-59.86
436.0	-59.92
436.5	-60.01
437.0	-60.09
437.5	-59.86
438.0	-60.12
438.5	-59.82
439.0	-60.06
439.5	-60.08
440.0	-59.92
440.5	-59.96

441.0	-59.89
441.5	-59.89
442.0	-59.90
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445.0	-59.81
445.5	-59.86
446.0	-59.75
446.5	-59.87
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447.5	-59.75
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454.0	-59.45
454.5	-59.79
455.0	-59.62
455.5	-59.71
456.0	-59.69
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457.0	-59.72
457.5	-59.76
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460.5	-59.49
461.0	-59.56
461.5	-59.42

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462.5	-59.48
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463.5	-59.52
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464.5	-59.58
465.0	-59.63
465.5	-59.67
466.0	-59.60
466.5	-59.47
467.0	-59.52
467.5	-59.54
468.0	-59.61
468.5	-59.67
469.0	-59.58
469.5	-59.38
470.0	-59.67
470.5	-59.60
471.0	-59.58
471.5	-59.40
472.0	-59.53
472.5	-59.45
473.0	-59.55
473.5	-59.58
474.0	-59.62
474.5	-59.51
475.0	-59.32
475.5	-59.40
476.0	-59.44
476.5	-59.54
477.0	-59.33
477.5	-59.20
478.0	-59.21
478.5	-59.22
479.0	-59.29
479.5	-59.22
480.0	-59.10
480.5	-59.08
481.0	-59.12
481.5	-59.06
482.0	-59.07
482.5	-59.09

483.0	-59.18
483.5	-59.12
484.0	-59.10
484.5	-59.22
485.0	-59.15
485.5	-59.29
486.0	-59.04
486.5	-59.11
487.0	-59.05
487.5	-59.17
488.0	-59.10
488.5	-59.17
489.0	-59.02
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490.0	-59.05
490.5	-59.20
491.0	-59.02
491.5	-59.00
492.0	-59.03
492.5	-59.04
493.0	-59.11
493.5	-59.11
494.0	-59.03
494.5	-59.03
495.0	-59.03
495.5	-58.90
496.0	-58.99
496.5	-59.08
497.0	-59.04
497.5	-59.01
498.0	-59.09
498.5	-58.94
499.0	-58.94
499.5	-58.84
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