

Running automated testing:

WFF_FHT Test: Pure sine wave with frequency = 2500 Hz and amplitude of +-16383
FHT_LEN = 128, N_DB = 64

Test 1 - Rectangular window, linear output

Output from generateSample():

0,	11585,	16383,	11585,	0,	-11585,	-16383,	-11585,	0,	11585,	16383,	11585,	0,	-11585,	-16383,	-11585,
0,	11584,	16383,	11585,	0,	-11584,	-16383,	-11585,	0,	11585,	16383,	11585,	0,	-11585,	-16383,	-11585,
0,	11585,	16383,	11584,	0,	-11585,	-16383,	-11584,	0,	11585,	16383,	11584,	0,	-11585,	-16383,	-11585,
0,	11584,	16383,	11585,	0,	-11584,	-16383,	-11585,	0,	11584,	16383,	11585,	0,	-11584,	-16383,	-11585,
0,	11584,	16383,	11585,	1,	-11584,	-16383,	-11585,	-1,	11584,	16383,	11585,	1,	-11584,	-16383,	-11585,
-1,	11584,	16383,	11585,	1,	-11584,	-16383,	-11585,	-1,	11584,	16383,	11585,	1,	-11584,	-16383,	-11585,
-1,	11584,	16383,	11585,	1,	-11584,	-16383,	-11585,	-1,	11584,	16383,	11585,	1,	-11584,	-16383,	-11586,
-1,	11583,	16383,	11586,	2,	-11583,	-16383,	-11586,	-2,	11583,	16383,	11586,	2,	-11583,	-16383,	-11586

Output from fhtDitInt():

-1,	-2,	-2,	-2,	-1,	-2,	-1,	-2,	0,	-2,	-2,	-2,	-1,	-2,	-2,	-2,
8133,	0,	-1,	0,	0,	0,	-1,	0,	0,	-1,	0,	-1,	-1,	-1,	-1,	-1,
-1,	-2,	-1,	-2,	-1,	-2,	-1,	-2,	0,	-1,	-1,	-1,	-1,	-1,	-1,	-1,
-114,	-1,	-1,	-1,	-1,	-1,	-1,	-1,	0,	-1,	0,	-1,	-1,	-1,	-1,	-1,
0,	0,	0,	0,	1,	0,	0,	-1,	0,	0,	0,	1,	-1,	0,	0,	0,
57,	0,	1,	0,	0,	0,	1,	0,	0,	1,	0,	1,	1,	1,	1,	1,
-1,	0,	-1,	0,	1,	0,	-1,	0,	0,	-1,	-1,	1,	-1,	-1,	-1,	-1,
-8078,	1,	1,	1,	1,	1,	1,	1,	0,	1,	0,	1,	1,	1,	1,	1

Output from complexToReal():

0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
63,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

Test 2 - Rectangular window, decibel output

Output from generateSample():

0,	11585,	16383,	11585,	0,	-11585,	-16383,	-11585,	0,	11585,	16383,	11585,	0,	-11585,	-16383,	-11585,
----	--------	--------	--------	----	---------	---------	---------	----	--------	--------	--------	----	---------	---------	---------

0, 11584, 16383, 11585,	0, -11584, -16383, -11585,	0, 11585, 16383, 11585,	0, -11585, -16383, -11585,
0, 11585, 16383, 11584,	0, -11585, -16383, -11584,	0, 11585, 16383, 11584,	0, -11585, -16383, -11585,
0, 11584, 16383, 11585,	0, -11584, -16383, -11585,	0, 11584, 16383, 11585,	0, -11584, -16383, -11585,
0, 11584, 16383, 11585,	1, -11584, -16383, -11585,	-1, 11584, 16383, 11585,	1, -11584, -16383, -11585,
-1, 11584, 16383, 11585,	1, -11584, -16383, -11585,	-1, 11584, 16383, 11585,	1, -11584, -16383, -11585,
-1, 11584, 16383, 11585,	1, -11584, -16383, -11585,	-1, 11584, 16383, 11585,	1, -11584, -16383, -11586,
-1, 11583, 16383, 11586,	2, -11583, -16383, -11586,	-2, 11583, 16383, 11586,	2, -11583, -16383, -11586

Output from fhtDitInt():

-1,	-2,	-2,	-2,	-1,	-2,	-1,	-2,	0,	-2,	-2,	-2,	-1,	-2,	-2,	-2,
8133,	0,	-1,	0,	0,	0,	-1,	0,	0,	-1,	0,	-1,	-1,	-1,	-1,	-1,
-1,	-2,	-1,	-2,	-1,	-2,	-1,	-2,	0,	-1,	-1,	-1,	-1,	-1,	-1,	-1,
-114,	-1,	-1,	-1,	-1,	-1,	-1,	-1,	0,	-1,	0,	-1,	-1,	-1,	-1,	-1,
0,	0,	0,	0,	1,	0,	-1,	0,	0,	0,	0,	0,	1,	0,	0,	0,
57,	0,	1,	0,	0,	0,	1,	0,	0,	1,	0,	1,	1,	1,	1,	1,
-1,	0,	-1,	0,	1,	0,	-1,	0,	0,	-1,	-1,	-1,	1,	-1,	-1,	-1,
-8078,	1,	1,	1,	1,	1,	1,	1,	0,	1,	0,	1,	1,	1,	1,	1

Output from complexToDecibel():

0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
63,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

Test 3 - Hamming window, linear output

Output from generateSample():

0, 11585, 16383, 11585,	0, -11585, -16383, -11585,	0, 11585, 16383, 11585,	0, -11585, -16383, -11585,
0, 11584, 16383, 11585,	0, -11584, -16383, -11585,	0, 11585, 16383, 11585,	0, -11585, -16383, -11585,
0, 11585, 16383, 11584,	0, -11585, -16383, -11584,	0, 11585, 16383, 11584,	0, -11585, -16383, -11585,
0, 11584, 16383, 11585,	0, -11584, -16383, -11585,	0, 11584, 16383, 11585,	0, -11584, -16383, -11585,
0, 11584, 16383, 11585,	1, -11584, -16383, -11585,	-1, 11584, 16383, 11585,	1, -11584, -16383, -11585,
-1, 11584, 16383, 11585,	1, -11584, -16383, -11585,	-1, 11584, 16383, 11585,	1, -11584, -16383, -11585,
-1, 11584, 16383, 11585,	1, -11584, -16383, -11585,	-1, 11584, 16383, 11585,	1, -11584, -16383, -11586,
-1, 11583, 16383, 11586,	2, -11583, -16383, -11586,	-2, 11583, 16383, 11586,	2, -11583, -16383, -11586

Output from applyHammingWindow():

0,	932,	1346,	984,	0,	-1089,	-1640,	-1244,	0,	1446,	2213,	1696,	0,	-1992,	-3047,	-2328,
0,	2702,	4105,	3112,	0,	-3553,	-5351,	-4020,	0,	4509,	6731,	5014,	0,	-5533,	-8195,	-6058,

0,	6585,	9683,	7107,	0,	-7624,	-11140,	-8126,	0,	8610,	12506,	9069,	0,	-9505,	-13731,	-9906,
0,	10270,	14763,	10597,	0,	-10881,	-15566,	-11121,	0,	11310,	16105,	11452,	0,	-11543,	-16363,	-11583,
0,	11569,	16325,	11505,	0,	-11388,	-15997,	-11223,	-1,	11005,	15388,	10744,	0,	-10439,	-14526,	-10094,
-1,	9708,	13440,	9291,	0,	-8843,	-12177,	-8371,	-1,	7876,	10781,	7367,	0,	-6847,	-9313,	-6322,
-1,	5794,	7824,	5272,	0,	-4760,	-6377,	-4262,	-1,	3783,	5024,	3328,	0,	-2904,	-3822,	-2512,
-1,	2154,	2815,	1838,	0,	-1566,	-2045,	-1339,	-1,	1159,	1539,	1030,	0,	-953,	-1319,	-927

Output from fhtDitInt():

-2,	-5,	-2,	-2,	-2,	-2,	-2,	-1,	-1,	-3,	-1,	-1,	0,	2,	8,	-1830,
4361,	-1907,	9,	2,	0,	0,	0,	-1,	0,	0,	-1,	-1,	-1,	-1,	-2,	-1,
0,	0,	-1,	0,	0,	0,	-1,	-1,	-1,	-1,	-1,	-1,	-1,	-2,	-2,	30,
-61,	20,	-1,	-1,	-1,	-1,	-1,	-1,	-1,	-1,	-1,	-1,	-1,	-2,	-1,	-2,
0,	1,	0,	0,	0,	0,	0,	1,	1,	1,	1,	1,	0,	0,	0,	-2,
31,	-5,	-1,	0,	0,	0,	0,	-1,	0,	0,	-1,	-1,	-1,	-1,	0,	-1,
0,	2,	1,	0,	0,	0,	1,	1,	1,	1,	1,	1,	-1,	-2,	-8,	1800,
-4333,	1892,	-9,	-3,	-1,	1,	1,	1,	1,	1,	1,	1,	1,	2,	1,	2

Output from complexToReal():

0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	14,
33,	14,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

```

*****
*****
*****

```

Test 4 - Hamming window, decibel output with gain

Output from generateSample():

0,	11585,	16383,	11585,	0,	-11585,	-16383,	-11585,	0,	11585,	16383,	11585,	0,	-11585,	-16383,	-11585,
0,	11584,	16383,	11585,	0,	-11584,	-16383,	-11585,	0,	11585,	16383,	11585,	0,	-11585,	-16383,	-11585,
0,	11585,	16383,	11584,	0,	-11585,	-16383,	-11584,	0,	11585,	16383,	11584,	0,	-11585,	-16383,	-11585,
0,	11584,	16383,	11585,	0,	-11584,	-16383,	-11585,	0,	11584,	16383,	11585,	0,	-11584,	-16383,	-11585,
0,	11584,	16383,	11585,	1,	-11584,	-16383,	-11585,	-1,	11584,	16383,	11585,	1,	-11584,	-16383,	-11585,
-1,	11584,	16383,	11585,	1,	-11584,	-16383,	-11585,	-1,	11584,	16383,	11585,	1,	-11584,	-16383,	-11585,
-1,	11584,	16383,	11585,	1,	-11584,	-16383,	-11585,	-1,	11584,	16383,	11585,	1,	-11584,	-16383,	-11586,
-1,	11583,	16383,	11586,	2,	-11583,	-16383,	-11586,	-2,	11583,	16383,	11586,	2,	-11583,	-16383,	-11586

Output from applyHammingWindow():

0,	932,	1346,	984,	0,	-1089,	-1640,	-1244,	0,	1446,	2213,	1696,	0,	-1992,	-3047,	-2328,
0,	2702,	4105,	3112,	0,	-3553,	-5351,	-4020,	0,	4509,	6731,	5014,	0,	-5533,	-8195,	-6058,
0,	6585,	9683,	7107,	0,	-7624,	-11140,	-8126,	0,	8610,	12506,	9069,	0,	-9505,	-13731,	-9906,

0	10270	14763	10597	0	-10881	-15566	-11121	0	11310	16105	11452	0	-11543	-16363	-11583
0	11569	16325	11505	0	-11388	-15997	-11223	-1	11005	15388	10744	0	-10439	-14526	-10094
-1	9708	13440	9291	0	-8843	-12177	-8371	-1	7876	10781	7367	0	-6847	-9313	-6322
-1	5794	7824	5272	0	-4760	-6377	-4262	-1	3783	5024	3328	0	-2904	-3822	-2512
-1	2154	2815	1838	0	-1566	-2045	-1339	-1	1159	1539	1030	0	-953	-1319	-927

Output from fhtDitInt():

-2	-5	-2	-2	-2	-2	-2	-1	-1	-3	-1	-1	0	2	8	-1830
4361	-1907	9	2	0	0	0	0	-1	0	-1	-1	-1	-1	-2	-1
0	0	-1	0	0	0	-1	-1	-1	-1	-1	-1	-1	-2	-2	30
-61	20	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-2	-1	-2
0	1	0	0	0	0	0	1	1	1	1	1	0	0	0	-2
31	-5	-1	0	0	0	0	0	-1	0	0	-1	-1	-1	0	-1
0	2	1	0	0	0	1	1	1	1	1	1	-1	-2	-8	1800
-4333	1892	-9	-3	-1	1	1	1	1	1	1	1	1	2	1	2

Output from complexToDecibelWithGain():

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	63
63	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

Test 5 - Hann window, linear output
Output from generateSample():

0	11585	16383	11585	0	-11585	-16383	-11585	0	11585	16383	11585	0	-11585	-16383	-11585
0	11584	16383	11585	0	-11584	-16383	-11585	0	11585	16383	11585	0	-11585	-16383	-11585
0	11585	16383	11584	0	-11585	-16383	-11584	0	11585	16383	11584	0	-11585	-16383	-11585
0	11584	16383	11585	0	-11584	-16383	-11585	0	11584	16383	11585	0	-11584	-16383	-11585
0	11584	16383	11585	1	-11584	-16383	-11585	-1	11584	16383	11585	1	-11584	-16383	-11585
-1	11584	16383	11585	1	-11584	-16383	-11585	-1	11584	16383	11585	1	-11584	-16383	-11585
-1	11584	16383	11585	1	-11584	-16383	-11585	-1	11584	16383	11585	1	-11584	-16383	-11586
-1	11583	16383	11586	2	-11583	-16383	-11586	-2	11583	16383	11586	2	-11583	-16383	-11586

Output from applyHannWindow():

0	7	39	63	0	-177	-358	-344	0	564	981	836	0	-1157	-1887	-1524
0	1930	3038	2375	0	-2855	-4391	-3363	0	3893	5891	4443	0	-5007	-7483	-5578
0	6150	9101	6718	0	-7280	-10684	-7825	0	8351	12169	8851	0	-9324	-13500	-9760
0	10155	14622	10511	0	-10820	-15495	-11081	0	11287	16081	11441	0	-11540	-16361	-11583

0,	11567,	16320,	11498,	0,	-11371,	-15964,	-11191,	-1,	10955,	15302,	10672,	0,	-10339,	-14364,	-9964,
-1,	9544,	13184,	9091,	0,	-8605,	-11811,	-8092,	-1,	7553,	10294,	7000,	0,	-6436,	-8698,	-5864,
-1,	5290,	7079,	4723,	0,	-4166,	-5506,	-3626,	-1,	3104,	4036,	2611,	0,	-2149,	-2730,	-1722,
-1,	1334,	1635,	990,	0,	-695,	-798,	-448,	-1,	253,	248,	112,	0,	-29,	-10,	0

Output from fhtDitInt():

-2,	-5,	-2,	-2,	-2,	-2,	-1,	-1,	-1,	-3,	-1,	0,	0,	2,	10,	-1989,
4033,	-2073,	9,	3,	0,	0,	0,	0,	0,	0,	-1,	-2,	0,	-1,	-2,	-1,
0,	0,	-1,	0,	1,	-1,	-1,	-1,	-1,	0,	-1,	0,	-1,	0,	-1,	34,
-57,	22,	-1,	-1,	-1,	0,	-1,	-1,	-1,	-2,	-1,	-1,	-1,	-2,	-1,	-1,
0,	1,	0,	0,	0,	0,	1,	1,	1,	1,	1,	0,	0,	0,	0,	-1,
29,	-5,	1,	-1,	0,	0,	0,	0,	0,	0,	-1,	0,	0,	-1,	0,	-1,
0,	2,	1,	0,	1,	1,	1,	1,	1,	2,	1,	0,	-1,	-2,	-9,	1956,
-4007,	2054,	-9,	-3,	-1,	0,	1,	1,	1,	0,	1,	1,	1,	2,	1,	1

Output from complexToReal():

0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	15,
31,	15,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

```

*****
*****
*****

```

Test 6 - Hann window, decibel output with gain
Output from generateSample():

0,	11585,	16383,	11585,	0,	-11585,	-16383,	-11585,	0,	11585,	16383,	11585,	0,	-11585,	-16383,	-11585,
0,	11584,	16383,	11585,	0,	-11584,	-16383,	-11585,	0,	11585,	16383,	11585,	0,	-11585,	-16383,	-11585,
0,	11585,	16383,	11584,	0,	-11585,	-16383,	-11584,	0,	11585,	16383,	11584,	0,	-11585,	-16383,	-11585,
0,	11584,	16383,	11585,	0,	-11584,	-16383,	-11585,	0,	11584,	16383,	11585,	0,	-11584,	-16383,	-11585,
0,	11584,	16383,	11585,	1,	-11584,	-16383,	-11585,	-1,	11584,	16383,	11585,	1,	-11584,	-16383,	-11585,
-1,	11584,	16383,	11585,	1,	-11584,	-16383,	-11585,	-1,	11584,	16383,	11585,	1,	-11584,	-16383,	-11585,
-1,	11584,	16383,	11585,	1,	-11584,	-16383,	-11585,	-1,	11584,	16383,	11585,	1,	-11584,	-16383,	-11586,
-1,	11583,	16383,	11586,	2,	-11583,	-16383,	-11586,	-2,	11583,	16383,	11586,	2,	-11583,	-16383,	-11586

Output from applyHannWindow():

0,	7,	39,	63,	0,	-177,	-358,	-344,	0,	564,	981,	836,	0,	-1157,	-1887,	-1524,
0,	1930,	3038,	2375,	0,	-2855,	-4391,	-3363,	0,	3893,	5891,	4443,	0,	-5007,	-7483,	-5578,
0,	6150,	9101,	6718,	0,	-7280,	-10684,	-7825,	0,	8351,	12169,	8851,	0,	-9324,	-13500,	-9760,
0,	10155,	14622,	10511,	0,	-10820,	-15495,	-11081,	0,	11287,	16081,	11441,	0,	-11540,	-16361,	-11583,
0,	11567,	16320,	11498,	0,	-11371,	-15964,	-11191,	-1,	10955,	15302,	10672,	0,	-10339,	-14364,	-9964,

```
-1, 9544, 13184, 9091, 0, -8605, -11811, -8092, -1, 7553, 10294, 7000, 0, -6436, -8698, -5864,
-1, 5290, 7079, 4723, 0, -4166, -5506, -3626, -1, 3104, 4036, 2611, 0, -2149, -2730, -1722,
-1, 1334, 1635, 990, 0, -695, -798, -448, -1, 253, 248, 112, 0, -29, -10, 0
```

Output from fhtDitInt():

```
-2, -5, -2, -2, -2, -2, -1, -1, -1, -3, -1, 0, 0, 2, 10, -1989,
4033, -2073, 9, 3, 0, 0, 0, 0, 0, 0, -1, -2, 0, -1, -2, -1,
0, 0, -1, 0, 1, -1, -1, -1, -1, 0, -1, 0, -1, 0, -1, 34,
-57, 22, -1, -1, -1, 0, -1, -1, -1, -2, -1, -1, -1, -2, -1, -1,
0, 1, 0, 0, 0, 0, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0, -1,
29, -5, 1, -1, 0, 0, 0, 0, 0, 0, -1, 0, 0, -1, 0, 0, 0, -1,
0, 2, 1, 0, 1, 1, 1, 1, 2, 1, 0, 0, -1, -2, -9, 1956,
-4007, 2054, -9, -3, -1, 0, 1, 1, 1, 0, 1, 1, 1, 2, 1, 1
```

Output from complexToDecibelWithGain():

```
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 63,
63, 63, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
```

```
0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |
```

```
*****
*****
*****
```

Tests completed...

WFF_FHT Test: Pure sine wave with frequency = 5000 Hz and amplitude of +-16383
FHT_LEN = 128, N_DB = 64

Test 1 - Rectangular window, linear output
Output from generateSample():

```
0, 16383, 0, -16383, 0, 16383, 0, -16383, 0, 16383, 0, -16383, 0, 16383, 0, -16383,
0, 16383, 0, -16383, 0, 16383, 0, -16383, 0, 16383, 0, -16383, 0, 16383, 0, -16383,
0, 16383, 0, -16383, 0, 16383, 0, -16383, 0, 16383, 0, -16383, 0, 16383, 0, -16383,
-1, 16383, 1, -16383, -1, 16383, -1, 16383, -1, 16383, -1, 16383, -1, 16383, -1, 16383,
-2, 16383, 2, -16383, -2, 16383, 2, -16383, -2, 16383, 2, -16383, -2, 16383, 2, -16383,
-2, 16383, 2, -16383, -2, 16383, 3, -16383, -2, 16383, 3, -16383, -3, 16383, 3, -16383,
-3, 16383, 3, -16383, -3, 16383, 3, -16383, -3, 16383, 3, -16383, -3, 16383, 4, -16383
```

Output from fhtDitInt():

```
-1, -1, -1, -1, -1, -1, -1, -1, 0, -1, -1, -1, -1, -1, -1, -1,
```


1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

Tests completed...

WFF_FHT Test: Pure sine wave with frequency = 7500 Hz and amplitude of +-16383
FHT_LEN = 128, N_DB = 64

Test 1 - Rectangular window, linear output
Output from generateSample():

0,	11585,	-16383,	11585,	0,	-11585,	16383,	-11585,	0,	11585,	-16383,	11584,	0,	-11585,	16383,	-11584,
0,	11585,	-16383,	11584,	0,	-11585,	16383,	-11584,	0,	11585,	-16383,	11584,	0,	-11584,	16383,	-11585,
0,	11584,	-16383,	11585,	0,	-11584,	16383,	-11585,	0,	11584,	-16383,	11585,	0,	-11585,	16383,	-11584,
0,	11585,	-16383,	11584,	1,	-11585,	16383,	-11584,	-1,	11585,	-16383,	11584,	1,	-11585,	16383,	-11584,
-1,	11586,	-16383,	11584,	2,	-11586,	16383,	-11583,	-2,	11586,	-16383,	11583,	2,	-11586,	16383,	-11583,
-2,	11586,	-16383,	11583,	3,	-11586,	16383,	-11583,	-3,	11587,	-16383,	11582,	3,	-11587,	16383,	-11582,
-3,	11587,	-16383,	11582,	4,	-11587,	16383,	-11582,	-4,	11587,	-16383,	11582,	4,	-11587,	16383,	-11581,
-4,	11588,	-16383,	11581,	5,	-11588,	16383,	-11581,	-5,	11588,	-16383,	11581,	5,	-11588,	16383,	-11581

Output from fhtDitInt():

-1,	-3,	-2,	-2,	-2,	-2,	-2,	-2,	0,	-2,	-2,	-2,	-2,	-2,	-1,	-2,
-59,	0,	-1,	-1,	-1,	-1,	-1,	-1,	0,	-1,	0,	-1,	-1,	-1,	-1,	-1,
-1,	-2,	-2,	-2,	-1,	-2,	-3,	-2,	0,	-2,	-2,	-2,	-2,	-2,	-2,	-2,
8076,	-1,	0,	-1,	0,	-1,	-1,	-1,	0,	-2,	-1,	-1,	-1,	-1,	-1,	-1,
0,	1,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	-1,	0,
-8135,	0,	1,	1,	1,	1,	1,	1,	0,	1,	0,	1,	1,	1,	1,	1,
-1,	0,	0,	0,	-1,	0,	1,	0,	0,	0,	0,	0,	0,	0,	0,	0,
114,	1,	0,	1,	0,	1,	1,	1,	0,	2,	1,	1,	1,	1,	1,	1

Output from complexToReal():

0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
63,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |

8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

Test 2 - Rectangular window, decibel output
Output from generateSample():

0,	11585,	-16383,	11585,	0,	-11585,	16383,	-11585,	0,	11585,	-16383,	11584,	0,	-11585,	16383,	-11584,
0,	11585,	-16383,	11584,	0,	-11585,	16383,	-11584,	0,	11585,	-16383,	11584,	0,	-11584,	16383,	-11585,
0,	11584,	-16383,	11585,	0,	-11584,	16383,	-11585,	0,	11584,	-16383,	11585,	0,	-11585,	16383,	-11584,
0,	11585,	-16383,	11584,	1,	-11585,	16383,	-11584,	-1,	11585,	-16383,	11584,	1,	-11585,	16383,	-11584,
-1,	11586,	-16383,	11584,	2,	-11586,	16383,	-11583,	-2,	11586,	-16383,	11583,	2,	-11586,	16383,	-11583,
-2,	11586,	-16383,	11583,	3,	-11586,	16383,	-11583,	-3,	11587,	-16383,	11582,	3,	-11587,	16383,	-11582,
-3,	11587,	-16383,	11582,	4,	-11587,	16383,	-11582,	-4,	11587,	-16383,	11582,	4,	-11587,	16383,	-11582,
-4,	11588,	-16383,	11581,	5,	-11588,	16383,	-11581,	-5,	11588,	-16383,	11581,	5,	-11588,	16383,	-11581

Output from fhtDitInt():

-1,	-3,	-2,	-2,	-2,	-2,	-2,	-2,	0,	-2,	-2,	-2,	-2,	-2,	-1,	-2,
-59,	0,	-1,	-1,	-1,	-1,	-1,	-1,	0,	-1,	0,	-1,	-1,	-1,	-1,	-1,
-1,	-2,	-2,	-2,	-1,	-2,	-3,	-2,	0,	-2,	-2,	-2,	-2,	-2,	-2,	-2,
8076,	-1,	0,	-1,	0,	-1,	-1,	-1,	0,	-2,	-1,	-1,	-1,	-1,	-1,	-1,
0,	1,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	-1,	0,
-8135,	0,	1,	1,	1,	1,	1,	1,	0,	1,	0,	1,	1,	1,	1,	1,
-1,	0,	0,	0,	-1,	0,	1,	0,	0,	0,	0,	0,	0,	0,	0,	0,
114,	1,	0,	1,	0,	1,	1,	1,	0,	2,	1,	1,	1,	1,	1,	1

Output from complexToDecibel():

0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
63,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |

20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

Test 3 - Hamming window, linear output
Output from generateSample():

0,	11585,	-16383,	11585,	0,	-11585,	16383,	-11585,	0,	11585,	-16383,	11584,	0,	-11585,	16383,	-11584,
0,	11585,	-16383,	11584,	0,	-11585,	16383,	-11584,	0,	11585,	-16383,	11584,	0,	-11584,	16383,	-11585,
0,	11584,	-16383,	11585,	0,	-11584,	16383,	-11585,	0,	11584,	-16383,	11585,	0,	-11585,	16383,	-11584,
0,	11585,	-16383,	11584,	1,	-11585,	16383,	-11584,	-1,	11585,	-16383,	11584,	1,	-11585,	16383,	-11584,
-1,	11586,	-16383,	11584,	2,	-11586,	16383,	-11583,	-2,	11586,	-16383,	11583,	2,	-11586,	16383,	-11583,
-2,	11586,	-16383,	11583,	3,	-11586,	16383,	-11583,	-3,	11587,	-16383,	11582,	3,	-11587,	16383,	-11582,
-3,	11587,	-16383,	11582,	4,	-11587,	16383,	-11582,	-4,	11587,	-16383,	11582,	4,	-11587,	16383,	-11581,
-4,	11588,	-16383,	11581,	5,	-11588,	16383,	-11581,	-5,	11588,	-16383,	11581,	5,	-11588,	16383,	-11581

Output from applyHammingWindow():

0,	932,	-1347,	984,	0,	-1089,	1639,	-1244,	0,	1446,	-2214,	1696,	0,	-1992,	3046,	-2328,
0,	2702,	-4106,	3112,	0,	-3554,	5350,	-4020,	0,	4509,	-6732,	5014,	0,	-5533,	8194,	-6058,
0,	6584,	-9684,	7108,	0,	-7624,	11139,	-8127,	0,	8609,	-12507,	9070,	0,	-9505,	13730,	-9905,
0,	10271,	-14764,	10596,	0,	-10882,	15565,	-11120,	-1,	11311,	-16106,	11451,	0,	-11544,	16362,	-11582,
-1,	11571,	-16326,	11504,	1,	-11390,	15996,	-11221,	-2,	11007,	-15389,	10743,	1,	-10441,	14525,	-10092,
-2,	9709,	-13441,	9289,	2,	-8845,	12176,	-8370,	-3,	7878,	-10782,	7365,	1,	-6849,	9312,	-6320,
-2,	5795,	-7825,	5271,	1,	-4761,	6376,	-4261,	-2,	3784,	-5025,	3328,	1,	-2904,	3821,	-2511,
-1,	2155,	-2816,	1837,	0,	-1566,	2044,	-1339,	-1,	1159,	-1540,	1029,	0,	-953,	1318,	-926

Output from fhtDitInt():

-2,	-4,	-2,	-2,	-2,	-2,	-2,	-2,	-2,	-3,	-2,	-2,	-1,	-1,	-1,	-1,
-31,	4,	-2,	-2,	-2,	-2,	-2,	-1,	-1,	-1,	-1,	-2,	-1,	-2,	-2,	-1,
0,	-1,	-1,	-1,	0,	-1,	-1,	-1,	-1,	-1,	0,	0,	1,	3,	9,	-1800,
4331,	-1890,	9,	2,	1,	1,	-1,	0,	-1,	0,	0,	-1,	-1,	0,	-1,	-2,
0,	2,	0,	0,	0,	0,	0,	0,	0,	1,	0,	-2,	-1,	-3,	-9,	1829,
-4363,	1906,	-10,	-4,	-2,	-2,	-2,	-1,	-1,	-1,	-1,	0,	-1,	0,	0,	-1,
0,	1,	1,	1,	0,	1,	1,	1,	1,	1,	2,	0,	1,	1,	1,	-30,
61,	-20,	1,	2,	1,	1,	1,	2,	1,	2,	2,	1,	1,	2,	1,	2

Output from complexToReal():

0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	14,
33,	14,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |

21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

```
*****  
*****  
*****
```

Test 4 - Hamming window, decibel output with gain
Output from generateSample():

0	11585	-16383	11585	0	-11585	16383	-11585	0	11585	-16383	11584	0	-11585	16383	-11584
0	11585	-16383	11584	0	-11585	16383	-11584	0	11585	-16383	11584	0	-11584	16383	-11585
0	11584	-16383	11585	0	-11584	16383	-11585	0	11584	-16383	11585	0	-11585	16383	-11584
0	11585	-16383	11584	1	-11585	16383	-11584	-1	11585	-16383	11584	1	-11585	16383	-11584
-1	11586	-16383	11584	2	-11586	16383	-11583	-2	11586	-16383	11583	2	-11586	16383	-11583
-2	11586	-16383	11583	3	-11586	16383	-11583	-3	11587	-16383	11582	3	-11587	16383	-11582
-3	11587	-16383	11582	4	-11587	16383	-11582	-4	11587	-16383	11582	4	-11587	16383	-11581
-4	11588	-16383	11581	5	-11588	16383	-11581	-5	11588	-16383	11581	5	-11588	16383	-11581

Output from applyHammingWindow():

0	932	-1347	984	0	-1089	1639	-1244	0	1446	-2214	1696	0	-1992	3046	-2328
0	2702	-4106	3112	0	-3554	5350	-4020	0	4509	-6732	5014	0	-5533	8194	-6058
0	6584	-9684	7108	0	-7624	11139	-8127	0	8609	-12507	9070	0	-9505	13730	-9905
0	10271	-14764	10596	0	-10882	15565	-11120	-1	11311	-16106	11451	0	-11544	16362	-11582
-1	11571	-16326	11504	1	-11390	15996	-11221	-2	11007	-15389	10743	1	-10441	14525	-10092
-2	9709	-13441	9289	2	-8845	12176	-8370	-3	7878	-10782	7365	1	-6849	9312	-6320
-2	5795	-7825	5271	1	-4761	6376	-4261	-2	3784	-5025	3328	1	-2904	3821	-2511
-1	2155	-2816	1837	0	-1566	2044	-1339	-1	1159	-1540	1029	0	-953	1318	-926

Output from fhtDitInt():

-2	-4	-2	-2	-2	-2	-2	-2	-2	-3	-2	-2	-1	-1	-1	-1
-31	4	-2	-2	-2	-2	-2	-1	-1	-1	-1	-2	-1	-2	-2	-1
0	-1	-1	-1	0	-1	-1	-1	-1	-1	0	0	1	3	9	-1800
4331	-1890	9	2	1	1	-1	0	-1	0	0	-1	-1	0	-1	-2
0	2	0	0	0	0	0	0	0	1	0	-2	-1	-3	-9	1829
-4363	1906	-10	-4	-2	-2	-2	-1	-1	-1	-1	0	-1	0	0	-1
0	1	1	1	0	1	1	1	1	1	2	0	1	1	1	-30
61	-20	1	2	1	1	1	2	1	2	2	1	1	2	1	2

Output from complexToDecibelWithGain():

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	63
63	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |

22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

```
*****  
*****  
*****
```

Test 5 - Hann window, linear output
Output from generateSample():

0,	11585,	-16383,	11585,	0,	-11585,	16383,	-11585,	0,	11585,	-16383,	11584,	0,	-11585,	16383,	-11584,
0,	11585,	-16383,	11584,	0,	-11585,	16383,	-11584,	0,	11585,	-16383,	11584,	0,	-11584,	16383,	-11585,
0,	11584,	-16383,	11585,	0,	-11584,	16383,	-11585,	0,	11584,	-16383,	11585,	0,	-11585,	16383,	-11584,
0,	11585,	-16383,	11584,	1,	-11585,	16383,	-11584,	-1,	11585,	-16383,	11584,	1,	-11585,	16383,	-11584,
-1,	11586,	-16383,	11584,	2,	-11586,	16383,	-11583,	-2,	11586,	-16383,	11583,	2,	-11586,	16383,	-11583,
-2,	11586,	-16383,	11583,	3,	-11586,	16383,	-11583,	-3,	11587,	-16383,	11582,	3,	-11587,	16383,	-11582,
-3,	11587,	-16383,	11582,	4,	-11587,	16383,	-11582,	-4,	11587,	-16383,	11582,	4,	-11587,	16383,	-11581,
-4,	11588,	-16383,	11581,	5,	-11588,	16383,	-11581,	-5,	11588,	-16383,	11581,	5,	-11588,	16383,	-11581

Output from applyHannWindow():

0,	7,	-40,	63,	0,	-177,	357,	-344,	0,	564,	-982,	836,	0,	-1157,	1886,	-1523,
0,	1930,	-3039,	2375,	0,	-2855,	4390,	-3362,	0,	3893,	-5892,	4442,	0,	-5006,	7482,	-5578,
0,	6149,	-9102,	6719,	0,	-7279,	10683,	-7826,	0,	8350,	-12170,	8852,	0,	-9324,	13499,	-9759,
0,	10156,	-14623,	10510,	0,	-10821,	15494,	-11080,	-1,	11288,	-16082,	11440,	0,	-11541,	16360,	-11582,
-1,	11569,	-16321,	11497,	1,	-11373,	15963,	-11189,	-2,	10957,	-15303,	10670,	1,	-10341,	14363,	-9962,
-2,	9546,	-13185,	9090,	2,	-8607,	11810,	-8090,	-3,	7555,	-10295,	6999,	1,	-6438,	8697,	-5863,
-2,	5292,	-7080,	4722,	1,	-4167,	5505,	-3625,	-2,	3105,	-4037,	2610,	0,	-2150,	2729,	-1722,
-1,	1334,	-1636,	990,	0,	-695,	797,	-448,	-1,	253,	-249,	112,	0,	-29,	9,	0

Output from fhtDitInt():

-2,	-4,	-2,	-2,	-2,	-2,	-2,	-2,	-2,	-3,	-2,	-2,	-2,	-2,	-1,	0,
-29,	4,	-2,	-1,	-2,	-2,	-2,	-2,	-1,	-1,	-2,	-2,	-1,	-1,	-1,	-1,
0,	-2,	0,	0,	0,	-1,	-1,	-1,	-1,	-1,	-1,	0,	1,	2,	9,	-1957,
4006,	-2054,	9,	4,	1,	1,	-1,	0,	-1,	0,	-1,	-1,	-1,	-1,	-2,	-1,
0,	2,	0,	0,	0,	0,	0,	0,	0,	1,	0,	-2,	-2,	-4,	-11,	1986,
-4035,	2072,	-12,	-5,	-2,	-2,	-2,	-2,	-1,	-1,	0,	0,	-1,	-1,	-1,	-1,
0,	0,	0,	0,	0,	1,	1,	1,	1,	1,	1,	0,	1,	0,	1,	-33,
56,	-22,	1,	2,	1,	1,	1,	0,	1,	2,	1,	1,	1,	3,	2,	1

Output from complexToReal():

0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	15,
31,	15,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |

23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

```
*****  
*****  
*****
```

Test 6 - Hann window, decibel output with gain
Output from generateSample():

0,	11585,	-16383,	11585,	0,	-11585,	16383,	-11585,	0,	11585,	-16383,	11584,	0,	-11585,	16383,	-11584,
0,	11585,	-16383,	11584,	0,	-11585,	16383,	-11584,	0,	11585,	-16383,	11584,	0,	-11584,	16383,	-11585,
0,	11584,	-16383,	11585,	0,	-11584,	16383,	-11585,	0,	11584,	-16383,	11585,	0,	-11585,	16383,	-11584,
0,	11585,	-16383,	11584,	1,	-11585,	16383,	-11584,	-1,	11585,	-16383,	11584,	1,	-11585,	16383,	-11584,
-1,	11586,	-16383,	11584,	2,	-11586,	16383,	-11583,	-2,	11586,	-16383,	11583,	2,	-11586,	16383,	-11583,
-2,	11586,	-16383,	11583,	3,	-11586,	16383,	-11583,	-3,	11587,	-16383,	11582,	3,	-11587,	16383,	-11582,
-3,	11587,	-16383,	11582,	4,	-11587,	16383,	-11582,	-4,	11587,	-16383,	11582,	4,	-11587,	16383,	-11581,
-4,	11588,	-16383,	11581,	5,	-11588,	16383,	-11581,	-5,	11588,	-16383,	11581,	5,	-11588,	16383,	-11581

Output from applyHannWindow():

0,	7,	-40,	63,	0,	-177,	357,	-344,	0,	564,	-982,	836,	0,	-1157,	1886,	-1523,
0,	1930,	-3039,	2375,	0,	-2855,	4390,	-3362,	0,	3893,	-5892,	4442,	0,	-5006,	7482,	-5578,
0,	6149,	-9102,	6719,	0,	-7279,	10683,	-7826,	0,	8350,	-12170,	8852,	0,	-9324,	13499,	-9759,
0,	10156,	-14623,	10510,	0,	-10821,	15494,	-11080,	-1,	11288,	-16082,	11440,	0,	-11541,	16360,	-11582,
-1,	11569,	-16321,	11497,	1,	-11373,	15963,	-11189,	-2,	10957,	-15303,	10670,	1,	-10341,	14363,	-9962,
-2,	9546,	-13185,	9090,	2,	-8607,	11810,	-8090,	-3,	7555,	-10295,	6999,	1,	-6438,	8697,	-5863,
-2,	5292,	-7080,	4722,	1,	-4167,	5505,	-3625,	-2,	3105,	-4037,	2610,	0,	-2150,	2729,	-1722,
-1,	1334,	-1636,	990,	0,	-695,	797,	-448,	-1,	253,	-249,	112,	0,	-29,	9,	0

Output from fhtDitInt():

-2,	-4,	-2,	-2,	-2,	-2,	-2,	-2,	-2,	-3,	-2,	-2,	-2,	-2,	-1,	0,
-29,	4,	-2,	-1,	-2,	-2,	-2,	-2,	-1,	-1,	-2,	-2,	-1,	-1,	-1,	-1,
0,	-2,	0,	0,	0,	-1,	-1,	-1,	-1,	-1,	-1,	0,	1,	2,	9,	-1957,
4006,	-2054,	9,	4,	1,	1,	-1,	0,	-1,	0,	-1,	-1,	-1,	-1,	-2,	-1,
0,	2,	0,	0,	0,	0,	0,	0,	0,	1,	0,	-2,	-2,	-4,	-11,	1986,
-4035,	2072,	-12,	-5,	-2,	-2,	-2,	-2,	-1,	-1,	0,	0,	-1,	-1,	-1,	-1,
0,	0,	0,	0,	0,	1,	1,	1,	1,	1,	1,	0,	1,	0,	1,	-33,
56,	-22,	1,	2,	1,	1,	1,	0,	1,	2,	1,	1,	1,	3,	2,	1

Output from complexToDecibelWithGain():

0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	63,
63,	63,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |

24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |

47 | *****
48 | *****
49 | *****
50 |

51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

Tests completed...

WFF_FHT Test: Pure sine wave with frequency = 1990 Hz and amplitude of +-16383
FHT_LEN = 128, N_DB = 64

Test 1 - Rectangular window, linear output
Output from generateSample():

0,	9588,	15549,	15628,	9795,	257,	-9378,	-15466,	-15703,	-10001,	-515,	9166,	15379,	15775,	10203,	772,
-8952,	-15289,	-15842,	-10403,	-1029,	8735,	15194,	15906,	10601,	1285,	-8516,	-15096,	-15966,	-10796,	-1542,	8295,
14994,	16021,	10988,	1798,	-8072,	-14889,	-16073,	-11177,	-2053,	7847,	14780,	16121,	11364,	2308,	-7621,	-14667,
-16165,	-11548,	-2563,	7392,	14550,	16205,	11729,	2817,	-7161,	-14430,	-16241,	-11908,	-3070,	6929,	14307,	16272,
12083,	3323,	-6695,	-14179,	-16300,	-12255,	-3574,	6459,	14049,	16324,	12425,	3825,	-6221,	-13914,	-16344,	-12591,
-4075,	5983,	13777,	16360,	12754,	4324,	-5742,	-13636,	-16371,	-12914,	-4571,	5500,	13491,	16379,	13071,	4818,
-5257,	-13344,	-16383,	-13224,	-5064,	5013,	13193,	16382,	13375,	5308,	-4767,	-13039,	-16378,	-13522,	-5551,	4520,
12881,	16369,	13665,	5792,	-4272,	-12720,	-16357,	-13806,	-6032,	4023,	12557,	16340,	13943,	6271,	-3773,	-12390

Output from fhtDitInt():

278,	260,	247,	235,	226,	228,	213,	206,	203,	204,	208,	224,	302,	-258,	62,	96,
106,	104,	104,	78,	121,	107,	109,	108,	105,	103,	100,	98,	98,	87,	91,	90,
92,	85,	83,	79,	81,	77,	77,	76,	75,	73,	72,	71,	77,	31,	54,	56,
57,	50,	42,	-20,	86,	68,	63,	59,	56,	53,	51,	48,	47,	47,	44,	43,
41,	40,	37,	33,	36,	34,	31,	30,	29,	26,	24,	22,	30,	-20,	4,	4,
6,	2,	-2,	-12,	-3,	-5,	-11,	-14,	-19,	-23,	-28,	-36,	-38,	-39,	-47,	-54,
-65,	-69,	-79,	-95,	-95,	-107,	-125,	-142,	-163,	-187,	-216,	-259,	-297,	-347,	-434,	-554,
-755,	-1110,	-2046,	-10068,	3714,	1616,	1049,	787,	638,	535,	467,	418,	371,	357,	322,	299

Output from complexToReal():

1,	2,	2,	2,	2,	2,	3,	3,	4,	5,	9,	20,	55,	11,	6,
4,	3,	2,	1,	1,	1,	1,	1,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0

0 | *
1 | **
2 | **
3 | **
4 | **
5 | **
6 | **
7 | ***
8 | ***
9 | ****
10 | *****
11 | *****
12 | *****
13 | *****
14 | *****
15 | *****
16 | ****
17 | ***
18 | **
19 | *
20 | *
21 | *
22 | *
23 | *
24 | *
25 | |
26 | |
27 | |
28 | |
29 | |
30 | |

31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

Test 2 - Rectangular window, decibel output
Output from generateSample():

0,	9588,	15549,	15628,	9795,	257,	-9378,	-15466,	-15703,	-10001,	-515,	9166,	15379,	15775,	10203,	772,
-8952,	-15289,	-15842,	-10403,	-1029,	8735,	15194,	15906,	10601,	1285,	-8516,	-15096,	-15966,	-10796,	-1542,	8295,
14994,	16021,	10988,	1798,	-8072,	-14889,	-16073,	-11177,	-2053,	7847,	14780,	16121,	11364,	2308,	-7621,	-14667,
-16165,	-11548,	-2563,	7392,	14550,	16205,	11729,	2817,	-7161,	-14430,	-16241,	-11908,	-3070,	6929,	14307,	16272,
12083,	3323,	-6695,	-14179,	-16300,	-12255,	-3574,	6459,	14049,	16324,	12425,	3825,	-6221,	-13914,	-16344,	-12591,
-4075,	5983,	13777,	16360,	12754,	4324,	-5742,	-13636,	-16371,	-12914,	-4571,	5500,	13491,	16379,	13071,	4818,
-5257,	-13344,	-16383,	-13224,	-5064,	5013,	13193,	16382,	13375,	5308,	-4767,	-13039,	-16378,	-13522,	-5551,	4520,
12881,	16369,	13665,	5792,	-4272,	-12720,	-16357,	-13806,	-6032,	4023,	12557,	16340,	13943,	6271,	-3773,	-12390

Output from fhtDitInt():

278,	260,	247,	235,	226,	228,	213,	206,	203,	204,	208,	224,	302,	-258,	62,	96,
106,	104,	104,	78,	121,	107,	109,	108,	105,	103,	100,	98,	98,	87,	91,	90,
92,	85,	83,	79,	81,	77,	77,	76,	75,	73,	72,	71,	77,	31,	54,	56,
57,	50,	42,	-20,	86,	68,	63,	59,	56,	53,	51,	48,	47,	47,	44,	43,
41,	40,	37,	33,	36,	34,	31,	30,	29,	26,	24,	22,	30,	-20,	4,	4,
6,	2,	-2,	-12,	-3,	-5,	-11,	-14,	-19,	-23,	-28,	-36,	-38,	-39,	-47,	-54,
-65,	-69,	-79,	-95,	-95,	-107,	-125,	-142,	-163,	-187,	-216,	-259,	-297,	-347,	-434,	-554,
-755,	-1110,	-2046,	-10068,	3714,	1616,	1049,	787,	638,	535,	467,	418,	371,	357,	322,	299

Output from complexToDecibel():

9,	15,	16,	16,	16,	18,	19,	21,	23,	26,	29,	36,	47,	62,	39,	30,
25,	20,	17,	13,	12,	9,	7,	4,	4,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0

0 | *****
1 | *****
2 | *****
3 | *****
4 | *****
5 | *****
6 | *****
7 | *****
8 | *****
9 | *****
10 | *****
11 | *****
12 | *****
13 | *****
14 | *****
15 | *****
16 | *****
17 | *****
18 | *****
19 | *****
20 | *****
21 | *****
22 | *****
23 | ****
24 | ****
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |

43 |
44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

Test 3 - Hamming window, linear output
Output from generateSample():

0,	9588,	15549,	15628,	9795,	257,	-9378,	-15466,	-15703,	-10001,	-515,	9166,	15379,	15775,	10203,	772,
-8952,	-15289,	-15842,	-10403,	-1029,	8735,	15194,	15906,	10601,	1285,	-8516,	-15096,	-15966,	-10796,	-1542,	8295,
14994,	16021,	10988,	1798,	-8072,	-14889,	-16073,	-11177,	-2053,	7847,	14780,	16121,	11364,	2308,	-7621,	-14667,
-16165,	-11548,	-2563,	7392,	14550,	16205,	11729,	2817,	-7161,	-14430,	-16241,	-11908,	-3070,	6929,	14307,	16272,
12083,	3323,	-6695,	-14179,	-16300,	-12255,	-3574,	6459,	14049,	16324,	12425,	3825,	-6221,	-13914,	-16344,	-12591,
-4075,	5983,	13777,	16360,	12754,	4324,	-5742,	-13636,	-16371,	-12914,	-4571,	5500,	13491,	16379,	13071,	4818,
-5257,	-13344,	-16383,	-13224,	-5064,	5013,	13193,	16382,	13375,	5308,	-4767,	-13039,	-16378,	-13522,	-5551,	4520,
12881,	16369,	13665,	5792,	-4272,	-12720,	-16357,	-13806,	-6032,	4023,	12557,	16340,	13943,	6271,	-3773,	-12390

Output from applyHammingWindow():

0,	771,	1278,	1328,	871,	24,	-939,	-1660,	-1815,	-1249,	-70,	1342,	2440,	2711,	1897,	155,
-1941,	-3567,	-3971,	-2796,	-296,	2679,	4962,	5519,	3899,	500,	-3500,	-6535,	-7267,	-5157,	-772,	4337,
8181,	9106,	6494,	1103,	-5134,	-9799,	-10929,	-7841,	-1484,	5832,	11282,	12622,	9113,	1893,	-6387,	-12541,
-14084,	-10239,	-2310,	6762,	13494,	15220,	11143,	2704,	-6937,	-14090,	-15966,	-11773,	-3049,	6904,	14288,	16269,
12080,	3318,	-6672,	-14082,	-16114,	-12048,	-3490,	6256,	13485,	15508,	11670,	3547,	-5691,	-12539,	-14491,	-10970,
-3485,	5014,	11302,	13120,	9985,	3300,	-4268,	-9853,	-11484,	-8781,	-3009,	3497,	8277,	9681,	7429,	2628,
-2749,	-6675,	-7825,	-6019,	-2193,	2059,	5134,	6026,	4640,	1733,	-1463,	-3747,	-4401,	-3389,	-1295,	979,
2588,	3044,	2348,	919,	-626,	-1719,	-2042,	-1596,	-648,	402,	1180,	1453,	1185,	515,	-304,	-991

Output from fhtDitInt():

19,	17,	16,	16,	14,	20,	13,	12,	12,	10,	6,	-15,	233,	-193,	18,	4,
6,	6,	12,	-12,	18,	2,	7,	8,	7,	6,	6,	6,	9,	2,	7,	6,
7,	7,	6,	3,	7,	5,	5,	4,	4,	4,	5,	3,	16,	-15,	9,	4,
4,	5,	16,	-42,	33,	1,	4,	4,	4,	3,	3,	3,	3,	3,	3,	3,
3,	3,	4,	0,	6,	2,	3,	2,	2,	2,	-1,	15,	-19,	-19,	6,	2,
0,	0,	2,	-6,	2,	0,	-1,	-2,	-1,	-2,	-2,	-4,	-5,	-2,	-3,	-4,
-5,	-5,	-4,	-11,	-3,	-7,	-9,	-10,	-12,	-14,	-15,	-23,	-22,	-19,	-29,	-28,
-24,	39,	1490,	-5782,	3945,	-241,	10,	36,	38,	37,	33,	35,	23,	33,	25,	25

Output from complexToReal():

0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	1,	21,	31,	8,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |

*

44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

Test 4 - Hamming window, decibel output with gain
Output from generateSample():

0,	9588,	15549,	15628,	9795,	257,	-9378,	-15466,	-15703,	-10001,	-515,	9166,	15379,	15775,	10203,	772,
-8952,	-15289,	-15842,	-10403,	-1029,	8735,	15194,	15906,	10601,	1285,	-8516,	-15096,	-15966,	-10796,	-1542,	8295,
14994,	16021,	10988,	1798,	-8072,	-14889,	-16073,	-11177,	-2053,	7847,	14780,	16121,	11364,	2308,	-7621,	-14667,
-16165,	-11548,	-2563,	7392,	14550,	16205,	11729,	2817,	-7161,	-14430,	-16241,	-11908,	-3070,	6929,	14307,	16272,
12083,	3323,	-6695,	-14179,	-16300,	-12255,	-3574,	6459,	14049,	16324,	12425,	3825,	-6221,	-13914,	-16344,	-12591,
-4075,	5983,	13777,	16360,	12754,	4324,	-5742,	-13636,	-16371,	-12914,	-4571,	5500,	13491,	16379,	13071,	4818,
-5257,	-13344,	-16383,	-13224,	-5064,	5013,	13193,	16382,	13375,	5308,	-4767,	-13039,	-16378,	-13522,	-5551,	4520,
12881,	16369,	13665,	5792,	-4272,	-12720,	-16357,	-13806,	-6032,	4023,	12557,	16340,	13943,	6271,	-3773,	-12390

Output from applyHammingWindow():

0,	771,	1278,	1328,	871,	24,	-939,	-1660,	-1815,	-1249,	-70,	1342,	2440,	2711,	1897,	155,
-1941,	-3567,	-3971,	-2796,	-296,	2679,	4962,	5519,	3899,	500,	-3500,	-6535,	-7267,	-5157,	-772,	4337,
8181,	9106,	6494,	1103,	-5134,	-9799,	-10929,	-7841,	-1484,	5832,	11282,	12622,	9113,	1893,	-6387,	-12541,
-14084,	-10239,	-2310,	6762,	13494,	15220,	11143,	2704,	-6937,	-14090,	-15966,	-11773,	-3049,	6904,	14288,	16269,
12080,	3318,	-6672,	-14082,	-16114,	-12048,	-3490,	6256,	13485,	15508,	11670,	3547,	-5691,	-12539,	-14491,	-10970,
-3485,	5014,	11302,	13120,	9985,	3300,	-4268,	-9853,	-11484,	-8781,	-3009,	3497,	8277,	9681,	7429,	2628,
-2749,	-6675,	-7825,	-6019,	-2193,	2059,	5134,	6026,	4640,	1733,	-1463,	-3747,	-4401,	-3389,	-1295,	979,
2588,	3044,	2348,	919,	-626,	-1719,	-2042,	-1596,	-648,	402,	1180,	1453,	1185,	515,	-304,	-991

Output from fhtDitInt():

19,	17,	16,	16,	14,	20,	13,	12,	12,	10,	6,	-15,	233,	-193,	18,	4,
6,	6,	12,	-12,	18,	2,	7,	8,	7,	6,	6,	6,	9,	2,	7,	6,
7,	7,	6,	3,	7,	5,	5,	4,	4,	4,	5,	3,	16,	-15,	9,	4,
4,	5,	16,	-42,	33,	1,	4,	4,	4,	3,	3,	3,	3,	3,	3,	3,
3,	3,	4,	0,	6,	2,	3,	2,	2,	2,	2,	-1,	15,	-19,	6,	2,
0,	0,	2,	-6,	2,	0,	-1,	-2,	-1,	-2,	-2,	-4,	-5,	-2,	-3,	-4,
-5,	-5,	-4,	-11,	-3,	-7,	-9,	-10,	-12,	-14,	-15,	-23,	-22,	-19,	-29,	-28,
-24,	39,	1490,	-5782,	3945,	-241,	10,	36,	38,	37,	33,	35,	23,	33,	25,	25

Output from complexToDecibelWithGain():

0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	32,	63,	63,	59,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |

45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

Test 5 - Hann window, linear output
Output from generateSample():

0,	9588,	15549,	15628,	9795,	257,	-9378,	-15466,	-15703,	-10001,	-515,	9166,	15379,	15775,	10203,	772,
-8952,	-15289,	-15842,	-10403,	-1029,	8735,	15194,	15906,	10601,	1285,	-8516,	-15096,	-15966,	-10796,	-1542,	8295,
14994,	16021,	10988,	1798,	-8072,	-14889,	-16073,	-11177,	-2053,	7847,	14780,	16121,	11364,	2308,	-7621,	-14667,
-16165,	-11548,	-2563,	7392,	14550,	16205,	11729,	2817,	-7161,	-14430,	-16241,	-11908,	-3070,	6929,	14307,	16272,
12083,	3323,	-6695,	-14179,	-16300,	-12255,	-3574,	6459,	14049,	16324,	12425,	3825,	-6221,	-13914,	-16344,	-12591,
-4075,	5983,	13777,	16360,	12754,	4324,	-5742,	-13636,	-16371,	-12914,	-4571,	5500,	13491,	16379,	13071,	4818,
-5257,	-13344,	-16383,	-13224,	-5064,	5013,	13193,	16382,	13375,	5308,	-4767,	-13039,	-16378,	-13522,	-5551,	4520,
12881,	16369,	13665,	5792,	-4272,	-12720,	-16357,	-13806,	-6032,	4023,	12557,	16340,	13943,	6271,	-3773,	-12390

Output from applyHannWindow():

0,	5,	37,	85,	95,	3,	-205,	-459,	-607,	-488,	-31,	661,	1315,	1575,	1175,	101,
-1331,	-2548,	-2939,	-2134,	-232,	2152,	4072,	4616,	3317,	431,	-3063,	-5790,	-6510,	-4666,	-705,	3993,
7589,	8505,	6104,	1042,	-4878,	-9356,	-10482,	-7550,	-1434,	5656,	10978,	12318,	8918,	1857,	-6280,	-12356,
-13903,	-10125,	-2288,	6707,	13403,	15135,	11092,	2694,	-6918,	-14061,	-15942,	-11761,	-3047,	6902,	14286,	16269,
12080,	3318,	-6670,	-14073,	-16099,	-12030,	-3483,	6239,	13436,	15438,	11605,	3523,	-5645,	-12419,	-14329,	-10829,
-3433,	4929,	11087,	12839,	9745,	3211,	-4140,	-9524,	-11059,	-8422,	-2873,	3323,	7825,	9099,	6939,	2438,
-2531,	-6095,	-7080,	-5392,	-1943,	1802,	4433,	5126,	3881,	1422,	-1175,	-2940,	-3359,	-2509,	-925,	671,
1693,	1885,	1364,	495,	-309,	-763,	-797,	-534,	-179,	87,	190,	158,	76,	15,	-3,	0

Output from fhtDitInt():

-3,	-5,	-4,	-2,	-4,	1,	-4,	-4,	-4,	-6,	-12,	-35,	227,	-186,	14,	-4,
-2,	-3,	3,	-21,	10,	-7,	-1,	-2,	-2,	-2,	-1,	-2,	2,	-4,	0,	-1,
0,	-1,	-1,	-3,	1,	-2,	-1,	-1,	0,	-2,	-1,	-3,	11,	-18,	5,	0,
-1,	0,	15,	-44,	29,	-4,	-1,	-1,	-1,	-2,	0,	-1,	-1,	0,	-1,	0,
0,	1,	2,	-2,	2,	1,	0,	0,	0,	0,	0,	-3,	15,	-18,	6,	0,
0,	1,	3,	-5,	2,	1,	-1,	0,	0,	0,	1,	-2,	-2,	2,	0,	-1,
0,	1,	3,	-3,	5,	2,	1,	1,	2,	2,	3,	-1,	1,	10,	7,	16,
41,	140,	1799,	-5410,	3965,	-404,	-81,	-29,	-15,	-6,	-4,	1,	-7,	6,	-1,	0

Output from complexToReal():

0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	2,	21,	29,	9,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |**
12 |*****
13 |*****
14 |*****
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |

46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

Test 6 - Hann window, decibel output with gain
Output from generateSample():

0,	9588,	15549,	15628,	9795,	257,	-9378,	-15466,	-15703,	-10001,	-515,	9166,	15379,	15775,	10203,	772,
-8952,	-15289,	-15842,	-10403,	-1029,	8735,	15194,	15906,	10601,	1285,	-8516,	-15096,	-15966,	-10796,	-1542,	8295,
14994,	16021,	10988,	1798,	-8072,	-14889,	-16073,	-11177,	-2053,	7847,	14780,	16121,	11364,	2308,	-7621,	-14667,
-16165,	-11548,	-2563,	7392,	14550,	16205,	11729,	2817,	-7161,	-14430,	-16241,	-11908,	-3070,	6929,	14307,	16272,
12083,	3323,	-6695,	-14179,	-16300,	-12255,	-3574,	6459,	14049,	16324,	12425,	3825,	-6221,	-13914,	-16344,	-12591,
-4075,	5983,	13777,	16360,	12754,	4324,	-5742,	-13636,	-16371,	-12914,	-4571,	5500,	13491,	16379,	13071,	4818,
-5257,	-13344,	-16383,	-13224,	-5064,	5013,	13193,	16382,	13375,	5308,	-4767,	-13039,	-16378,	-13522,	-5551,	4520,
12881,	16369,	13665,	5792,	-4272,	-12720,	-16357,	-13806,	-6032,	4023,	12557,	16340,	13943,	6271,	-3773,	-12390

Output from applyHannWindow():

0,	5,	37,	85,	95,	3,	-205,	-459,	-607,	-488,	-31,	661,	1315,	1575,	1175,	101,
-1331,	-2548,	-2939,	-2134,	-232,	2152,	4072,	4616,	3317,	431,	-3063,	-5790,	-6510,	-4666,	-705,	3993,
7589,	8505,	6104,	1042,	-4878,	-9356,	-10482,	-7550,	-1434,	5656,	10978,	12318,	8918,	1857,	-6280,	-12356,
-13903,	-10125,	-2288,	6707,	13403,	15135,	11092,	2694,	-6918,	-14061,	-15942,	-11761,	-3047,	6902,	14286,	16269,
12080,	3318,	-6670,	-14073,	-16099,	-12030,	-3483,	6239,	13436,	15438,	11605,	3523,	-5645,	-12419,	-14329,	-10829,
-3433,	4929,	11087,	12839,	9745,	3211,	-4140,	-9524,	-11059,	-8422,	-2873,	3323,	7825,	9099,	6939,	2438,
-2531,	-6095,	-7080,	-5392,	-1943,	1802,	4433,	5126,	3881,	1422,	-1175,	-2940,	-3359,	-2509,	-925,	671,
1693,	1885,	1364,	495,	-309,	-763,	-797,	-534,	-179,	87,	190,	158,	76,	15,	-3,	0

Output from fhtDitInt():

-3,	-5,	-4,	-2,	-4,	1,	-4,	-4,	-4,	-6,	-12,	-35,	227,	-186,	14,	-4,
-2,	-3,	3,	-21,	10,	-7,	-1,	-2,	-2,	-2,	-1,	-2,	2,	-4,	0,	-1,
0,	-1,	-1,	-3,	1,	-2,	-1,	-1,	0,	-2,	-1,	-3,	11,	-18,	5,	0,
-1,	0,	15,	-44,	29,	-4,	-1,	-1,	-1,	-2,	0,	-1,	-1,	0,	-1,	0,
0,	1,	2,	-2,	2,	1,	0,	0,	0,	0,	0,	-3,	15,	-18,	6,	0,
0,	1,	3,	-5,	2,	1,	0,	0,	0,	0,	1,	-2,	-2,	2,	0,	-1,
0,	1,	3,	-3,	5,	2,	1,	1,	2,	2,	3,	-1,	1,	10,	7,	16,
41,	140,	1799,	-5410,	3965,	-404,	-81,	-29,	-15,	-6,	-4,	1,	-7,	6,	-1,	0

Output from complexToDecibelWithGain():

0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	40,	63,	63,	62,	24,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |

47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

Tests completed...

WFF_FHT Test: Pure sine wave with frequency = 9490 Hz and amplitude of +-16383
FHT_LEN = 128, N_DB = 64

Test 1 - Rectangular window, linear output
Output from generateSample():

0,	2614,	-5160,	7575,	-9795,	11765,	-13433,	14757,	-15703,	16247,	-16375,	16083,	-15379,	14281,	-12818,	11026,
-8951,	6648,	-4174,	1593,	1029,	-3624,	6127,	-8472,	10601,	-12458,	13996,	-15175,	15966,	-16347,	16310,	-15855,
14994,	-13749,	12152,	-10244,	8073,	-5695,	3171,	-566,	-2053,	4620,	-7068,	9336,	-11364,	13101,	-14503,	15533,
-16165,	16383,	-16181,	15565,	-14550,	13162,	-11437,	9420,	-7160,	4718,	-2154,	-464,	3071,	-5599,	7984,	-10164,
12084,	-13694,	14953,	-15830,	16300,	-16354,	15988,	-15213,	14048,	-12523,	10677,	-8558,	6220,	-3722,	1129,	1493,
-4077,	6556,	-8868,	10952,	-12756,	14232,	-15345,	16064,	-16371,	16260,	-15732,	14800,	-13490,	11834,	-9874,	7663,
-5254,	2711,	-99,	-2517,	5067,	-7488,	9716,	-11697,	13377,	-14715,	15675,	-16234,	16378,	-16101,	15413,	-14329,
12878,	-11098,	9033,	-6737,	4267,	-1690,	-932,	3529,	-6037,	8389,	-10527,	12395,	-13945,	15138,	-15944,	16341

Output from fhtDitInt():

68,	63,	60,	45,	69,	64,	61,	58,	57,	54,	52,	48,	49,	51,	47,	45,
44,	42,	39,	33,	38,	37,	34,	31,	29,	27,	24,	20,	20,	25,	17,	15,
10,	10,	6,	-2,	4,	1,	-5,	-9,	-13,	-18,	-24,	-32,	-35,	-25,	-40,	-48,
-57,	-62,	-71,	-88,	-85,	-88,	-109,	-125,	-143,	-158,	-176,	-194,	-134,	-851,	-548,	-626,
-804,	-1161,	-2098,	-10191,	3723,	1596,	1035,	772,	621,	522,	452,	406,	363,	321,	301,	279,
262,	246,	233,	221,	208,	199,	190,	183,	177,	171,	164,	160,	154,	149,	145,	141,
139,	134,	130,	126,	124,	121,	117,	115,	113,	110,	106,	104,	103,	101,	98,	96,
95,	94,	91,	88,	89,	88,	85,	83,	81,	80,	78,	76,	74,	85,	74,	72

Output from complexToReal():

0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,
0,	0,	0,	0,	0,	0,	0,	0,	0,	1,	1,	1,	1,	1,	1,	1,
1,	1,	1,	1,	2,	2,	2,	2,	3,	4,	5,	8,	20,	56,	11,	7

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |*
42 |*
43 |*
44 |*
45 |*
46 |*
47 |*
48 |*
49 |*
50 |*
51 |*
52 |**
53 |**


```

54 | **
55 | ***
56 | ****
57 | *****
58 | *
59 | *
60 | *
61 | *
62 | *
63 | *

```

Test 2 - Rectangular window, decibel output
Output from generateSample():

```

0, 2614, -5160, 7575, -9795, 11765, -13433, 14757, -15703, 16247, -16375, 16083, -15379, 14281, -12818, 11026,
-8951, 6648, -4174, 1593, 1029, -3624, 6127, -8472, 10601, -12458, 13996, -15175, 15966, -16347, 16310, -15855,
14994, -13749, 12152, -10244, 8073, -5695, 3171, -566, -2053, 4620, -7068, 9336, -11364, 13101, -14503, 15533,
-16165, 16383, -16181, 15565, -14550, 13162, -11437, 9420, -7160, 4718, -2154, -464, 3071, -5599, 7984, -10164,
12084, -13694, 14953, -15830, 16300, -16354, 15988, -15213, 14048, -12523, 10677, -8558, 6220, -3722, 1129, 1493,
-4077, 6556, -8868, 10952, -12756, 14232, -15345, 16064, -16371, 16260, -15732, 14800, -13490, 11834, -9874, 7663,
-5254, 2711, -99, -2517, 5067, -7488, 9716, -11697, 13377, -14715, 15675, -16234, 16378, -16101, 15413, -14329,
12878, -11098, 9033, -6737, 4267, -1690, -932, 3529, -6037, 8389, -10527, 12395, -13945, 15138, -15944, 16341

```

Output from fhtDitInt():

```

68, 63, 60, 45, 69, 64, 61, 58, 57, 54, 52, 48, 49, 51, 47, 45,
44, 42, 39, 33, 38, 37, 34, 31, 29, 27, 24, 20, 20, 25, 17, 15,
10, 10, 6, -2, 4, 1, -5, -9, -13, -18, -24, -32, -35, -25, -40, -48,
-57, -62, -71, -88, -85, -88, -109, -125, -143, -158, -176, -194, -134, -851, -548, -626,
-804, -1161, -2098, -10191, 3723, 1596, 1035, 772, 621, 522, 452, 406, 363, 321, 301, 279,
262, 246, 233, 221, 208, 199, 190, 183, 177, 171, 164, 160, 154, 149, 145, 141,
139, 134, 130, 126, 124, 121, 117, 115, 113, 110, 106, 104, 103, 101, 98, 96,
95, 94, 91, 88, 89, 88, 85, 83, 81, 80, 78, 76, 74, 85, 74, 72

```

Output from complexToDecibel():

```

0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 4, 4, 4, 4, 7, 7, 7,
9, 9, 11, 12, 14, 16, 18, 19, 22, 25, 29, 35, 47, 62, 40, 33

```

```

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 | ****
42 | ****
43 | ****
44 | ****
45 | *
46 | *
47 | *
48 | *
49 | *
50 | *
51 | *
52 | *
53 | *
54 | *
55 | *
56 | *
57 | *
58 | *
59 | *
60 | *
61 | *
62 | *
63 | *

```

Test 3 - Hamming window, linear output

Output from generateSample():

```

0, 2614, -5160, 7575, -9795, 11765, -13433, 14757, -15703, 16247, -16375, 16083, -15379, 14281, -12818, 11026,
-8951, 6648, -4174, 1593, 1029, -3624, 6127, -8472, 10601, -12458, 13996, -15175, 15966, -16347, 16310, -15855,
14994, -13749, 12152, -10244, 8073, -5695, 3171, -566, -2053, 4620, -7068, 9336, -11364, 13101, -14503, 15533,
-16165, 16383, -16181, 15565, -14550, 13162, -11437, 9420, -7160, 4718, -2154, -464, 3071, -5599, 7984, -10164,
12084, -13694, 14953, -15830, 16300, -16354, 15988, -15213, 14048, -12523, 10677, -8558, 6220, -3722, 1129, 1493,
-4077, 6556, -8868, 10952, -12756, 14232, -15345, 16064, -16371, 16260, -15732, 14800, -13490, 11834, -9874, 7663,
-5254, 2711, -99, -2517, 5067, -7488, 9716, -11697, 13377, -14715, 15675, -16234, 16378, -16101, 15413, -14329,
12878, -11098, 9033, -6737, 4267, -1690, -932, 3529, -6037, 8389, -10527, 12395, -13945, 15138, -15944, 16341

```

Output from applyHammingWindow():

```

0, 210, -425, 644, -872, 1105, -1345, 1583, -1815, 2027, -2213, 2354, -2441, 2454, -2384, 2215,
-1941, 1550, -1047, 428, 295, -1112, 2001, -2940, 3899, -4849, 5750, -6569, 7266, -7808, 8157, -8291,
8181, -7816, 7182, -6286, 5134, -3748, 2156, -398, -1484, 3433, -5396, 7309, -9114, 10747, -12155, 13281,
-14084, 14525, -14582, 14238, -13495, 12362, -10866, 9042, -6936, 4606, -2118, -459, 3049, -5580, 7973, -10163,
12081, -13677, 14900, -15721, 16113, -16077, 15610, -14737, 13484, -11898, 10028, -7938, 5690, -3354, 1000, 1300,
-3487, 5494, -7276, 8783, -9988, 10864, -11405, 11606, -11484, 11055, -10353, 9412, -8278, 6994, -5613, 4181,
-2748, 1355, -48, -1146, 2193, -3077, 3781, -4303, 4641, -4806, 4807, -4665, 4400, -4036, 3595, -3106,
2587, -2064, 1552, -1070, 624, -229, -117, 407, -648, 839, -990, 1102, -1186, 1244, -1284, 1306

```

Output from fhtDitInt():

```

3, 1, 4, -7, 11, 2, 2, 3, 3, 2, 3, 1, 1, 4, 2, 3,
3, 1, 2, -1, 4, 3, 1, 2, 2, 0, 1, -1, -2, 3, 1, 0,
0, -1, 0, -4, 1, 0, -2, -2, -2, -2, -6, -8, 1, -5, -4,
-6, -7, -6, -13, -4, -4, -12, -12, -14, -17, -22, -51, 230, -269, -11, -36,
-29, 35, 1504, -5845, 3973, -252, 8, 33, 37, 34, 31, 31, 29, 20, 24, 21,
21, 19, 18, 17, 16, 15, 15, 14, 14, 14, 13, 13, 12, 11, 11, 12,
11, 11, 12, 10, 11, 10, 10, 10, 10, 10, 8, 8, 9, 9, 8,
8, 9, 8, 7, 10, 8, 8, 8, 8, 9, 8, 7, 4, 13, 7, 8

```

Output from complexToReal():

```

0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 21, 32, 8, 0

```

```

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 | *
60 | *****
61 | *****
62 | *****
63 |

```

Test 4 - Hamming window, decibel output with gain
Output from generateSample():

```

0, 2614, -5160, 7575, -9795, 11765, -13433, 14757, -15703, 16247, -16375, 16083, -15379, 14281, -12818, 11026,
-8951, 6648, -4174, 1593, 1029, -3624, 6127, -8472, 10601, -12458, 13996, -15175, 15966, -16347, 16310, -15855,
14994, -13749, 12152, -10244, 8073, -5695, 3171, -566, -2053, 4620, -7068, 9336, -11364, 13101, -14503, 15533,
-16165, 16383, -16181, 15565, -14550, 13162, -11437, 9420, -7160, 4718, -2154, -464, 3071, -5599, 7984, -10164,
12084, -13694, 14953, -15830, 16300, -16354, 15988, -15213, 14048, -12523, 10677, -8558, 6220, -3722, 1129, 1493,
-4077, 6556, -8868, 10952, -12756, 14232, -15345, 16064, -16371, 16260, -15732, 14800, -13490, 11834, -9874, 7663,
-5254, 2711, -99, -2517, 5067, -7488, 9716, -11697, 13377, -14715, 15675, -16234, 16378, -16101, 15413, -14329,
12878, -11098, 9033, -6737, 4267, -1690, -932, 3529, -6037, 8389, -10527, 12395, -13945, 15138, -15944, 16341

```

Output from applyHammingWindow():

```

0, 210, -425, 644, -872, 1105, -1345, 1583, -1815, 2027, -2213, 2354, -2441, 2454, -2384, 2215,
-1941, 1550, -1047, 428, 295, -1112, 2001, -2940, 3899, -4849, 5750, -6569, 7266, -7808, 8157, -8291,
8181, -7816, 7182, -6286, 5134, -3748, 2156, -398, -1484, 3433, -5396, 7309, -9114, 10747, -12155, 13281,
-14084, 14525, -14582, 14238, -13495, 12362, -10866, 9042, -6936, 4606, -2118, -459, 3049, -5580, 7973, -10163,
12081, -13677, 14900, -15721, 16113, -16077, 15610, -14737, 13484, -11898, 10028, -7938, 5690, -3354, 1000, 1300,
-3487, 5494, -7276, 8783, -9988, 10864, -11405, 11606, -11484, 11055, -10353, 9412, -8278, 6994, -5613, 4181,
-2748, 1355, -48, -1146, 2193, -3077, 3781, -4303, 4641, -4806, 4807, -4665, 4400, -4036, 3595, -3106,
2587, -2064, 1552, -1070, 624, -229, -117, 407, -648, 839, -990, 1102, -1186, 1244, -1284, 1306

```

Output from fhtDitInt():

```

3, 1, 4, -7, 11, 2, 2, 3, 3, 2, 3, 1, 1, 4, 2, 3,
3, 1, 2, -1, 4, 3, 1, 2, 2, 0, 1, -1, -2, 3, 1, 0,
0, -1, 0, -4, 1, 0, -2, -2, -2, -2, -2, -6, -8, 1, -5, -4,
-6, -7, -6, -13, -4, -4, -12, -12, -14, -17, -22, -51, 230, -269, -11, -36,
-29, 35, 1504, -5845, 3973, -252, 8, 33, 37, 34, 31, 31, 29, 20, 24, 21,
21, 19, 18, 17, 16, 15, 15, 14, 14, 14, 13, 13, 12, 11, 11, 12,
11, 11, 12, 10, 11, 10, 10, 10, 10, 10, 10, 8, 8, 9, 9, 8,
8, 9, 8, 7, 10, 8, 8, 8, 8, 9, 8, 7, 4, 13, 7, 8

```

Output from complexToDecibelWithGain():

```

0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 34, 63, 63, 59, 0

```

```

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |

```

```

*****
*****
*****
*****

```

Test 5 - Hann window, linear output
Output from generateSample():

```

0, 2614, -5160, 7575, -9795, 11765, -13433, 14757, -15703, 16247, -16375, 16083, -15379, 14281, -12818, 11026,
-8951, 6648, -4174, 1593, 1029, -3624, 6127, -8472, 10601, -12458, 13996, -15175, 15966, -16347, 16310, -15855,
14994, -13749, 12152, -10244, 8073, -5695, 3171, -566, -2053, 4620, -7068, 9336, -11364, 13101, -14503, 15533,
-16165, 16383, -16181, 15565, -14550, 13162, -11437, 9420, -7160, 4718, -2154, -464, 3071, -5599, 7984, -10164,
12084, -13694, 14953, -15830, 16300, -16354, 15988, -15213, 14048, -12523, 10677, -8558, 6220, -3722, 1129, 1493,
-4077, 6556, -8868, 10952, -12756, 14232, -15345, 16064, -16371, 16260, -15732, 14800, -13490, 11834, -9874, 7663,
-5254, 2711, -99, -2517, 5067, -7488, 9716, -11697, 13377, -14715, 15675, -16234, 16378, -16101, 15413, -14329,
12878, -11098, 9033, -6737, 4267, -1690, -932, 3529, -6037, 8389, -10527, 12395, -13945, 15138, -15944, 16341

```

Output from applyHannWindow():

```

0, 1, -13, 41, -96, 178, -294, 437, -607, 791, -982, 1161, -1316, 1426, -1477, 1449,
-1331, 1107, -775, 326, 231, -893, 1642, -2459, 3317, -4187, 5033, -5821, 6509, -7065, 7449, -7634,
7589, -7300, 6750, -5942, 4878, -3579, 2067, -383, -1434, 3330, -5251, 7133, -8919, 10543, -11951, 13085,
-13903, 14363, -14442, 14122, -13404, 12293, -10817, 9009, -6917, 4597, -2115, -459, 3047, -5578, 7972, -10163,
12081, -13675, 14895, -15712, 16098, -16053, 15578, -14695, 13435, -11844, 9972, -7884, 5643, -3322, 989, 1284,
-3435, 5401, -7137, 8595, -9747, 10571, -11062, 11219, -11059, 10603, -9886, 8943, -7825, 6574, -5242, 3878,
-2530, 1238, -43, -1027, 1943, -2693, 3265, -3661, 3882, -3944, 3862, -3660, 3358, -2987, 2568, -2130,
1693, -1279, 901, -577, 308, -102, -46, 136, -180, 183, -160, 120, -77, 36, -10, 0

```

Output from fhtDitInt():

```

-2, -4, -2, -11, 7, -3, -3, -2, -2, -2, -2, -3, -3, -1, -2, -1,
-1, -1, -1, -4, 1, -1, -2, -1, -2, -2, -1, -2, -4, 1, -1, -2,
0, -1, 0, -4, 2, 0, -2, -1, -1, -1, -1, -2, -7, 3, -2, -1,
-1, -2, -1, -5, 3, 4, -3, -3, -2, -4, -8, -39, 262, -219, 35, 15,
39, 140, 1818, -5467, 3995, -413, -81, -30, -14, -8, -6, -1, 1, -5, -2, -1,
-1, -1, -1, 0, -1, -1, 0, -1, 0, 1, 0, 0, 0, -1, -1, 0,
0, 1, 0, 0, 2, 0, 0, 1, 1, 1, 1, 0, 1, 1, 0, 1,
1, 2, 1, 1, 3, 2, 1, 1, 0, 2, 2, 1, -2, 7, 1, 1

```

Output from complexToReal():

```

0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 2, 22, 30, 10, 0

```

```

0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 | **
60 | *****
61 | *****
62 | *****
63 |

```

Test 6 - Hann window, decibel output with gain

Output from generateSample():

```

0, 2614, -5160, 7575, -9795, 11765, -13433, 14757, -15703, 16247, -16375, 16083, -15379, 14281, -12818, 11026,

```

```
-8951, 6648, -4174, 1593, 1029, -3624, 6127, -8472, 10601, -12458, 13996, -15175, 15966, -16347, 16310, -15855,
14994, -13749, 12152, -10244, 8073, -5695, 3171, -566, -2053, 4620, -7068, 9336, -11364, 13101, -14503, 15533,
-16165, 16383, -16181, 15565, -14550, 13162, -11437, 9420, -7160, 4718, -2154, -464, 3071, -5599, 7984, -10164,
12084, -13694, 14953, -15830, 16300, -16354, 15988, -15213, 14048, -12523, 10677, -8558, 6220, -3722, 1129, 1493,
-4077, 6556, -8868, 10952, -12756, 14232, -15345, 16064, -16371, 16260, -15732, 14800, -13490, 11834, -9874, 7663,
-5254, 2711, -99, -2517, 5067, -7488, 9716, -11697, 13377, -14715, 15675, -16234, 16378, -16101, 15413, -14329,
12878, -11098, 9033, -6737, 4267, -1690, -932, 3529, -6037, 8389, -10527, 12395, -13945, 15138, -15944, 16341
```

Output from applyHannWindow():

```
0, 1, -13, 41, -96, 178, -294, 437, -607, 791, -982, 1161, -1316, 1426, -1477, 1449,
-1331, 1107, -775, 326, 231, -893, 1642, -2459, 3317, -4187, 5033, -5821, 6509, -7065, 7449, -7634,
7589, -7300, 6750, -5942, 4878, -3579, 2067, -383, -1434, 3330, -5251, 7133, -8919, 10543, -11951, 13085,
-13903, 14363, -14442, 14122, -13404, 12293, -10817, 9009, -6917, 4597, -2115, -459, 3047, -5578, 7972, -10163,
12081, -13675, 14895, -15712, 16098, -16053, 15578, -14695, 13435, -11844, 9972, -7884, 5643, -3322, 989, 1284,
-3435, 5401, -7137, 8595, -9747, 10571, -11062, 11219, -11059, 10603, -9886, 8943, -7825, 6574, -5242, 3878,
-2530, 1238, -43, -1027, 1943, -2693, 3265, -3661, 3882, -3944, 3862, -3660, 3358, -2987, 2568, -2130,
1693, -1279, 901, -577, 308, -102, -46, 136, -180, 183, -160, 120, -77, 36, -10, 0
```

Output from fhtDitInt():

```
-2, -4, -2, -11, 7, -3, -3, -2, -2, -2, -2, -3, -3, -1, -2, -1,
-1, -1, -1, -4, 1, -1, -2, -1, -2, -2, -1, -2, -4, 1, -1, -2,
0, -1, 0, -4, 2, 0, -2, -1, -1, -1, -1, -2, -7, 3, -2, -1,
-1, -2, -1, -5, 3, 4, -3, -3, -2, -4, -8, -39, 262, -219, 35, 15,
39, 140, 1818, -5467, 3995, -413, -81, -30, -14, -8, -6, -1, 1, -5, -2, -1,
-1, -1, -1, 0, -1, -1, 0, -1, 0, 0, 1, 0, -1, -1, 0,
0, 1, 0, 0, 2, 0, 0, 1, 1, 1, 0, 1, 1, 0, 1,
1, 2, 1, 1, 3, 2, 1, 1, 0, 2, 2, 1, -2, 7, 1, 1
```

Output from complexToDecibelWithGain():

```
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 40, 63, 63, 62, 24
```

```
0 |
1 |
2 |
3 |
4 |
5 |
6 |
7 |
8 |
9 |
10 |
11 |
12 |
13 |
14 |
15 |
16 |
17 |
18 |
19 |
20 |
21 |
22 |
23 |
24 |
25 |
26 |
27 |
28 |
29 |
30 |
31 |
32 |
33 |
34 |
35 |
36 |
37 |
38 |
39 |
40 |
41 |
42 |
43 |
44 |
45 |
46 |
47 |
48 |
49 |
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |
58 |
59 |
60 |
61 |
62 |
63 |
```

```
*****
*****
*****
*****
*****
```

Tests completed...