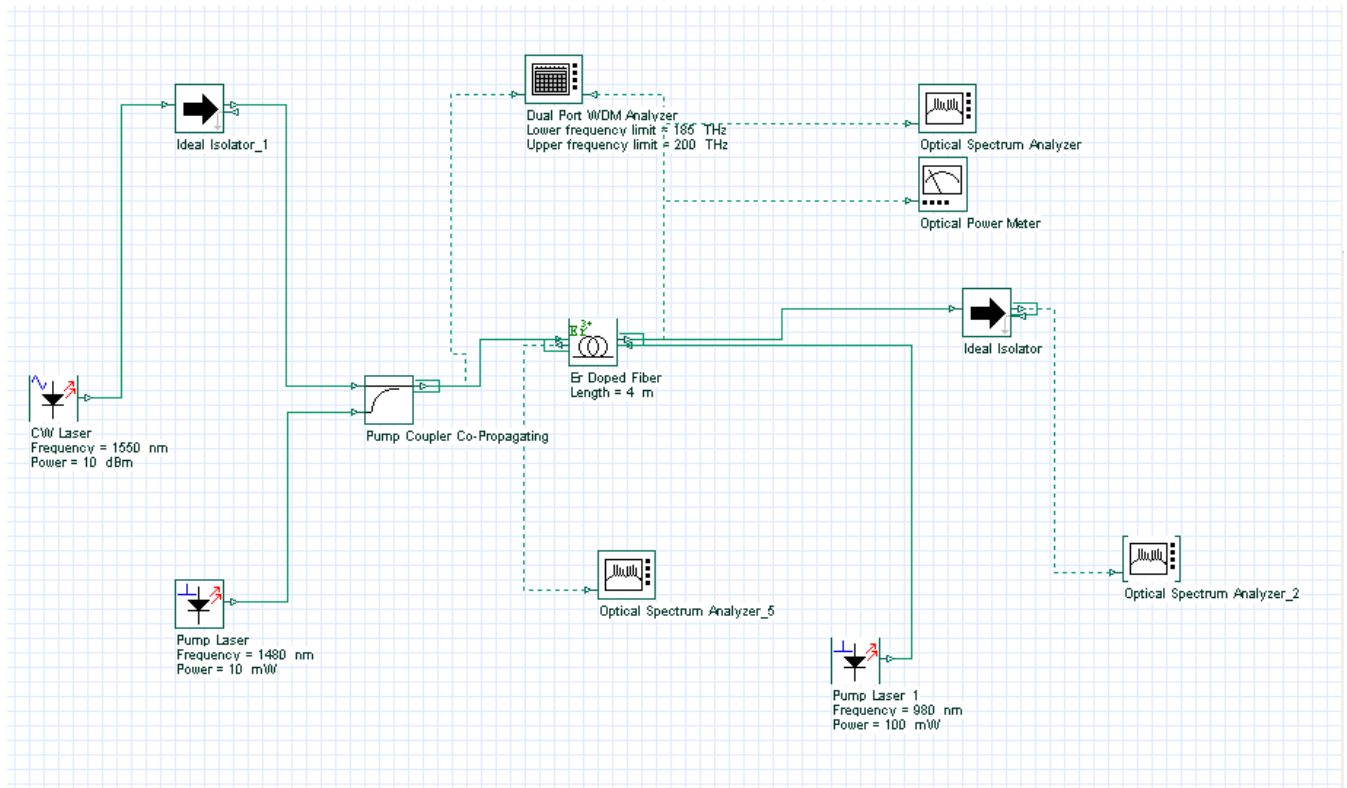


This diagram **did not have FBG**. It have 2 pump which are **pump 980 and 1480nm**. From parameter EDF the **length is 4m** and from CW Laser, the **frequency range is 1500nm to 1550nm** and the **power is -50dBm to 10dBm**.

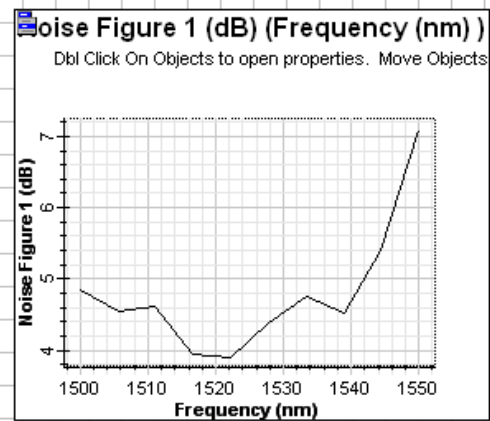
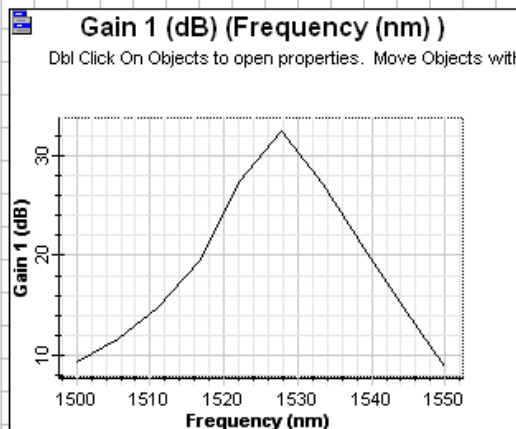


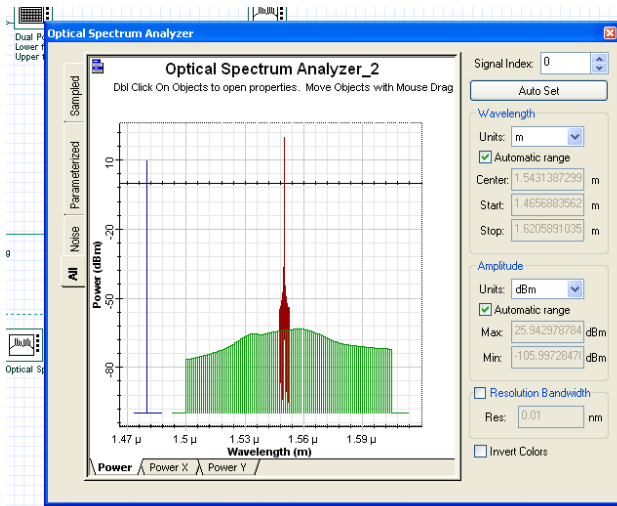
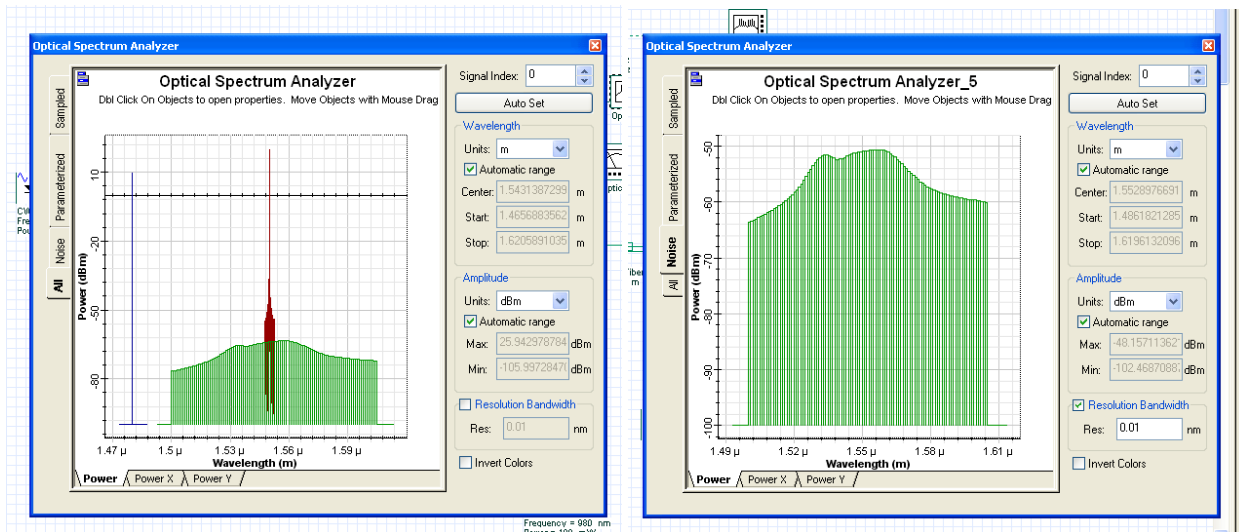
## Result

For 10mW pump power.

	Frequency	Gain 1 (dB)	Noise Figure	Input : Signal	Output :
1	1500	9.40051	4.84334	-50.0039	-40.6034
2	1505.56	11.688	4.54369	-43.3372	-31.6492
3	1511.11	14.8303	4.61082	-36.6705	-21.8402
4	1516.67	19.4312	3.94879	-30.0039	-10.5727
5	1522.22	27.5584	3.90552	-23.3372	4.22121
6	1527.78	32.5181	4.38974	-16.6705	15.8475
7	1533.33	27.2104	4.74745	-10.0039	17.2066
8	1538.89	20.7604	4.51242	-3.3372	17.4232
9	1544.44	14.714	5.40128	3.32947	18.0435
10	1550	8.7756	7.08157	9.99614	18.7717

	Power (dBm)	Gain 1 (dB)	Noise Figure	Input : Signal	Output :
1	-50	9.40051	4.84334	-50.0039	-40.6034
2	-43.3333	11.688	4.54369	-43.3372	-31.6492
3	-36.6667	14.8303	4.61082	-36.6705	-21.8402
4	-30	19.4312	3.94879	-30.0039	-10.5727
5	-23.3333	27.5584	3.90552	-23.3372	4.22121
6	-16.6667	32.5181	4.38974	-16.6705	15.8475
7	-10	27.2104	4.74745	-10.0039	17.2066
8	-3.33333	20.7604	4.51242	-3.3372	17.4232
9	3.33333	14.714	5.40128	3.32947	18.0435
10	10	8.7756	7.08157	9.99614	18.7717

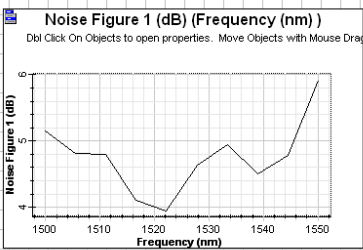
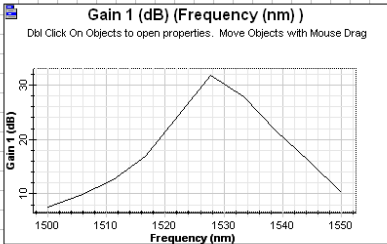




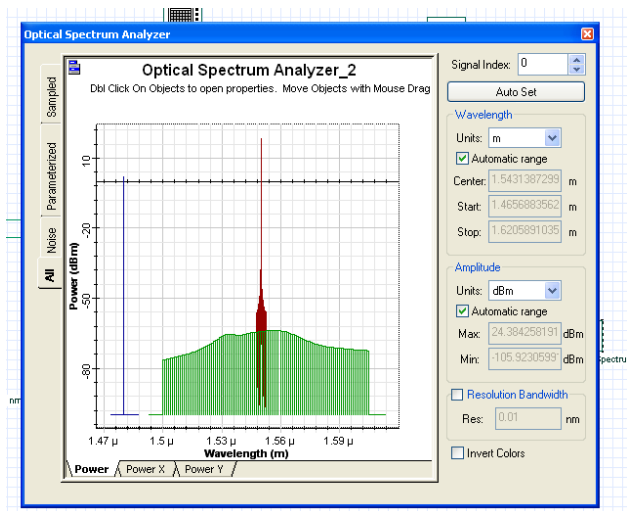
For 50mW pump power

	Frequency	Gain 1 (dB)	Noise Figure	Input Signal	Output
1	1500	7.60117	5.15345	-50.0039	-42.4027
2	1505.56	9.73348	4.81334	-43.3372	-33.6037
3	1511.11	12.6358	4.79368	-36.6705	-24.0347
4	1516.67	16.8583	4.10042	-30.0039	-13.1456
5	1522.22	24.3633	3.94762	-23.3372	1.02606
6	1527.78	31.7532	4.64117	-16.6705	15.0826
7	1533.33	27.8506	4.94204	-10.0039	17.8467
8	1538.89	21.5765	4.5025	-3.3372	18.2393
9	1544.44	16.0723	4.78328	3.32947	19.4017
10	1550	10.2601	5.91363	9.99614	20.2562

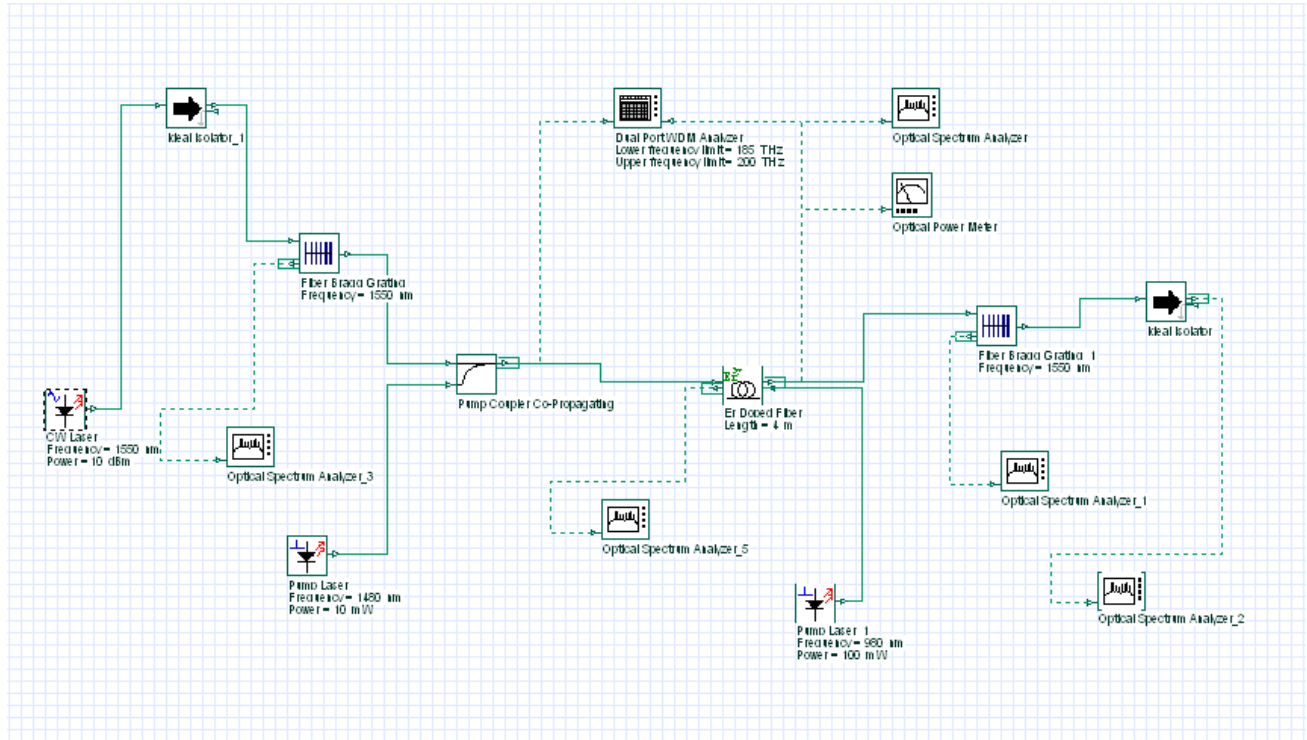
	Power (dBm)	Gain 1 (dB)	Noise Figure	Input Signal	Output
1	-50	7.60117	5.15345	-50.0039	-42.4027
2	-43.3333	9.73348	4.81334	-43.3372	-33.6037
3	-36.6667	12.6358	4.79368	-36.6705	-24.0347
4	-30	16.8583	4.10042	-30.0039	-13.1456
5	-23.3333	24.3633	3.94762	-23.3372	1.02606
6	-16.6667	31.7532	4.64117	-16.6705	15.0826
7	-10	27.8506	4.94204	-10.0039	17.8467
8	-3.33333	21.5765	4.5025	-3.3372	18.2393
9	3.33333	16.0723	4.78328	3.32947	19.4017
10	10	10.2601	5.91363	9.99614	20.2562







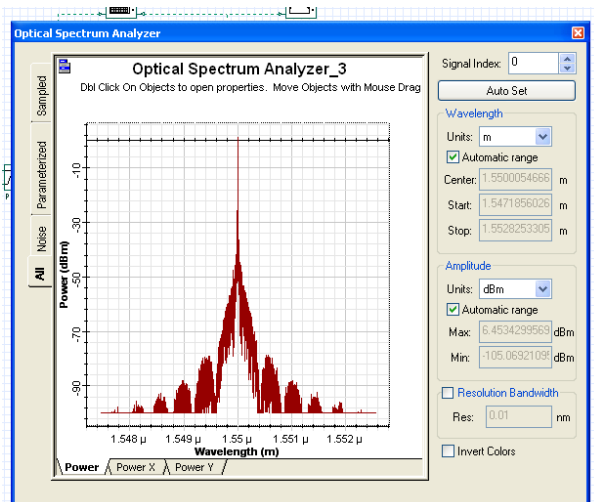
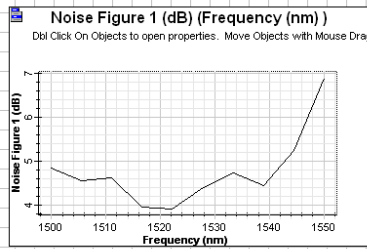
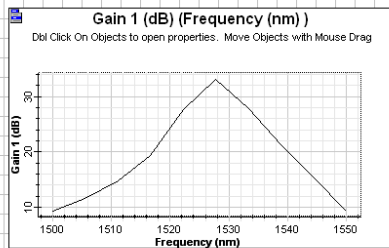
This diagram **have FBG**. It have 2 pump which are **pump 980 and 1480nm**. From parameter EDF the **length is 4m** and from CW Laser, the **frequency range is 1500nm to 1550nm** and the **power is -50dBm to 10dBm**.



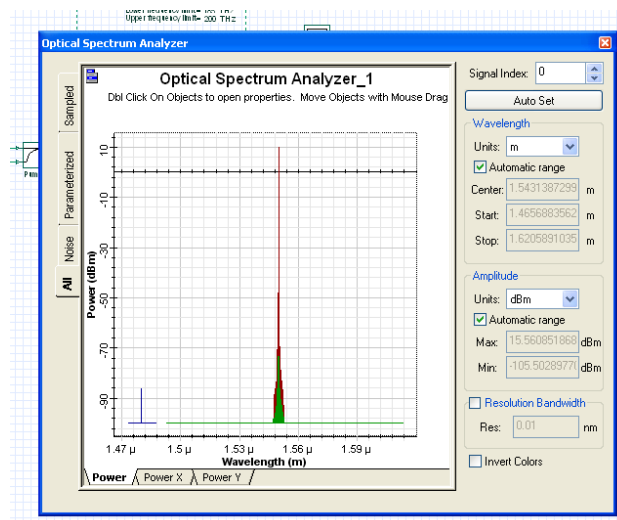
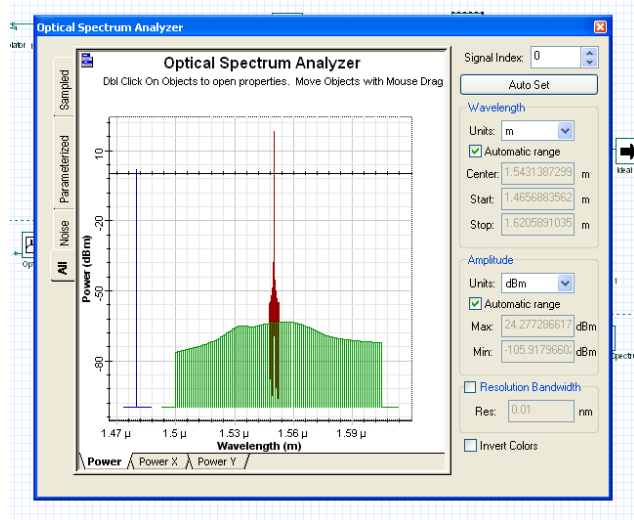
## For 10mW pump power

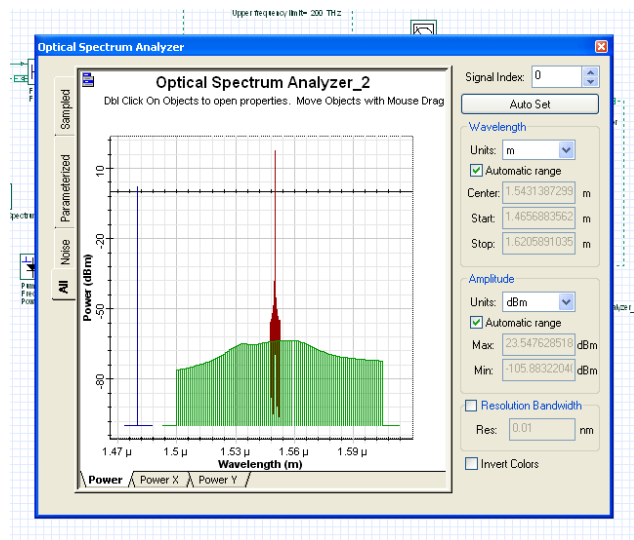
	Frequency	Gain 1 (dB)	Noise Figure	Input : Signal	Output :
1	1500	9.40051	4.84334	-50.7446	-41.344
2	1505.56	11.688	4.5437	-44.0726	-32.3846
3	1511.11	14.8304	4.61082	-37.4007	-22.5703
4	1516.67	19.4321	3.94888	-30.7288	-11.2967
5	1522.22	27.5962	3.90893	-24.057	3.53917
6	1527.78	33.0695	4.39895	-17.3852	15.6843
7	1533.33	27.8541	4.72845	-10.7135	17.1406
8	1538.89	21.3913	4.43929	-4.04189	17.3495
9	1544.44	15.3599	5.23878	2.62971	17.9896
10	1550	9.36864	6.87666	9.30125	18.6699

	Power (dBm)	Gain 1 (dB)	Noise Figure	Input : Signal	Output :
1	-50	9.40051	4.84334	-50.7446	-41.344
2	-43.3333	11.688	4.5437	-44.0726	-32.3846
3	-36.6667	14.8304	4.61082	-37.4007	-22.5703
4	-30	19.4321	3.94888	-30.7288	-11.2967
5	-23.3333	27.5962	3.90893	-24.057	3.53917
6	-16.6667	33.0695	4.39895	-17.3852	15.6843
7	-10	27.8541	4.72845	-10.7135	17.1406
8	-3.33333	21.3913	4.43929	-4.04189	17.3495
9	3.33333	15.3599	5.23878	2.62971	17.9896
10	10	9.36864	6.87666	9.30125	18.6699





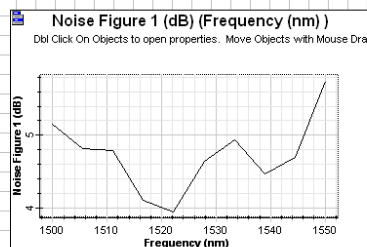
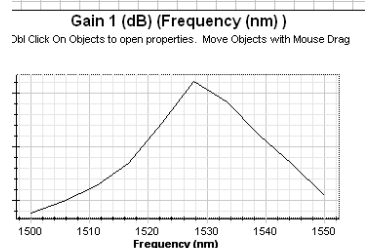


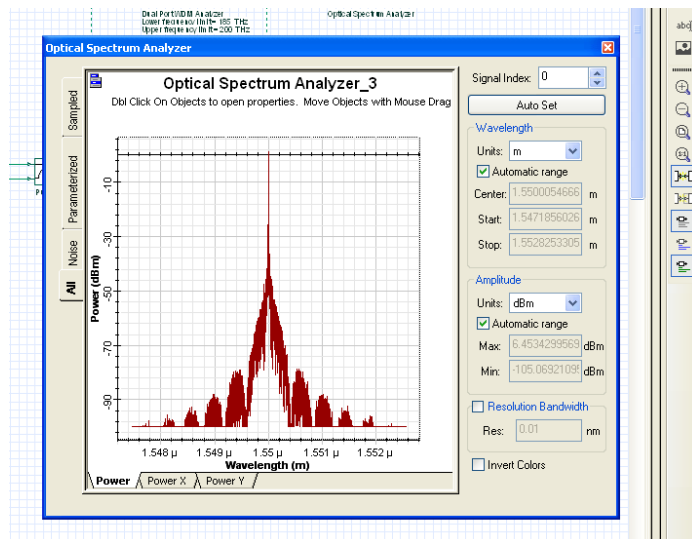
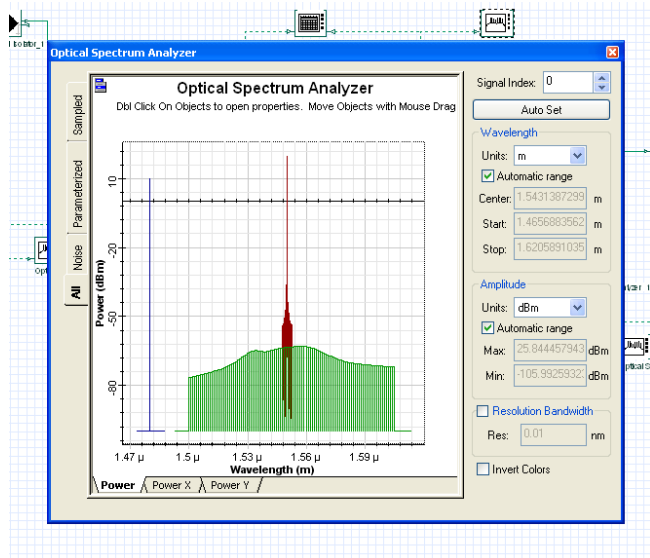


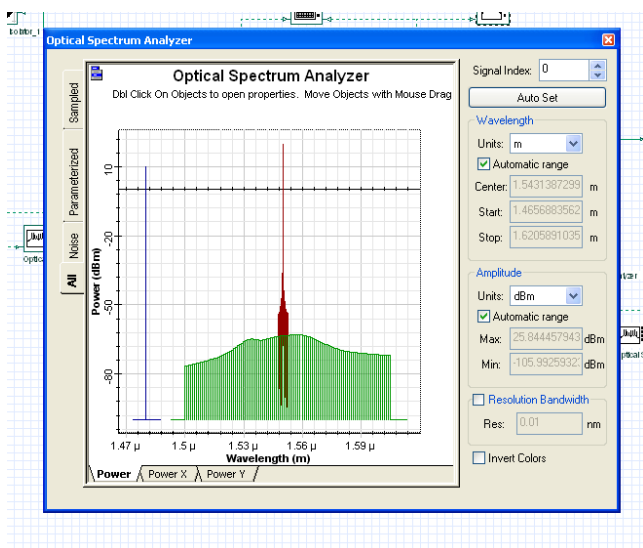
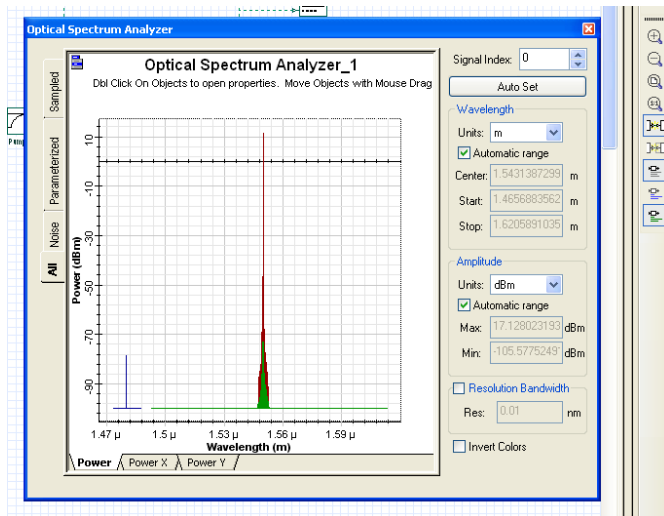
## For 50mW pump power

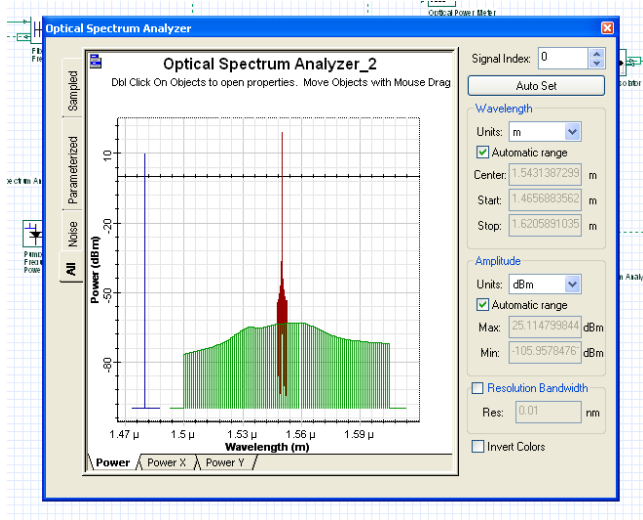
	Frequency	Gain 1 (dB)	Noise Figure	Input: Signal	Output:
1	1500	7.60117	5.15345	-50.7446	-43.1434
2	1505.56	9.73348	4.81334	-44.0726	-34.3391
3	1511.11	12.6358	4.79367	-37.4007	-24.7648
4	1516.67	16.8588	4.10038	-30.7288	-13.87
5	1522.22	24.3806	3.94708	-24.057	0.323601
6	1527.78	32.1589	4.6375	-17.3852	14.7737
7	1533.33	26.4246	4.93949	-10.7135	17.711
8	1538.89	22.1315	4.4697	-4.04189	18.0896
9	1544.44	16.6841	4.69761	2.62971	19.3138
10	1550	10.8612	5.74023	9.30125	20.1624

	Power (dBm)	Gain 1 (dB)	Noise Figure	Input: Signal	Output:
1	-50	7.60117	5.15345	-50.7446	-43.1434
2	-43.3333	9.73348	4.81334	-44.0726	-34.3391
3	-36.6667	12.6358	4.79367	-37.4007	-24.7648
4	-30	16.8588	4.10038	-30.7288	-13.87
5	-23.3333	24.3806	3.94708	-24.057	0.323601
6	-16.6667	32.1589	4.6375	-17.3852	14.7737
7	-10	26.4246	4.93949	-10.7135	17.711
8	-3.33333	22.1315	4.4697	-4.04189	18.0896
9	3.33333	16.6841	4.69761	2.62971	19.3138
10	10	10.8612	5.74023	9.30125	20.1624

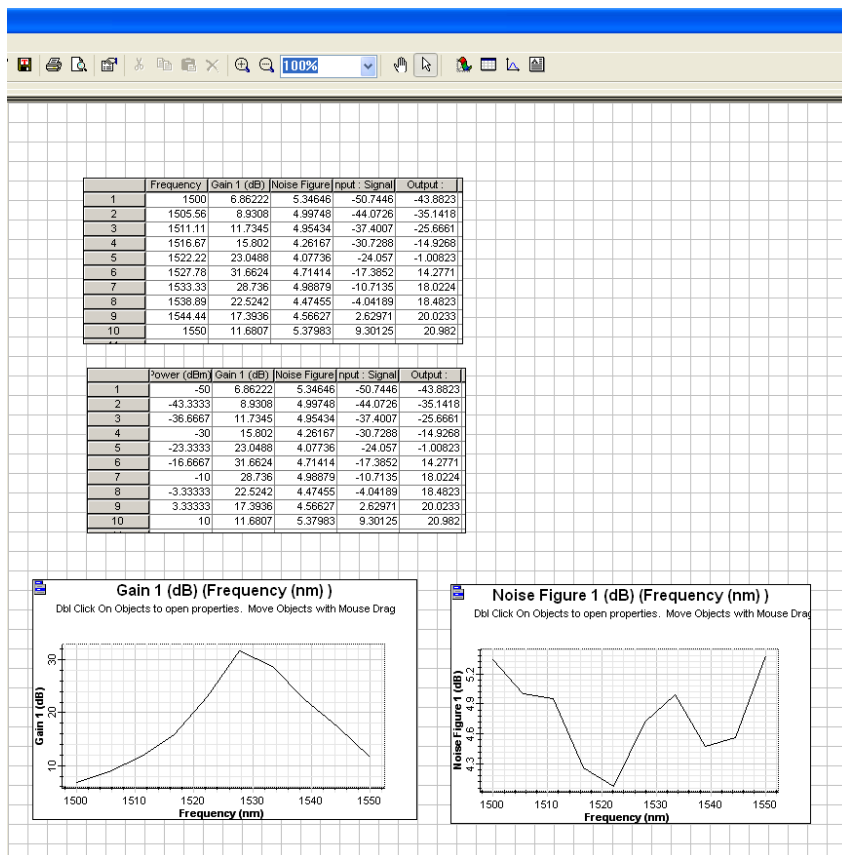


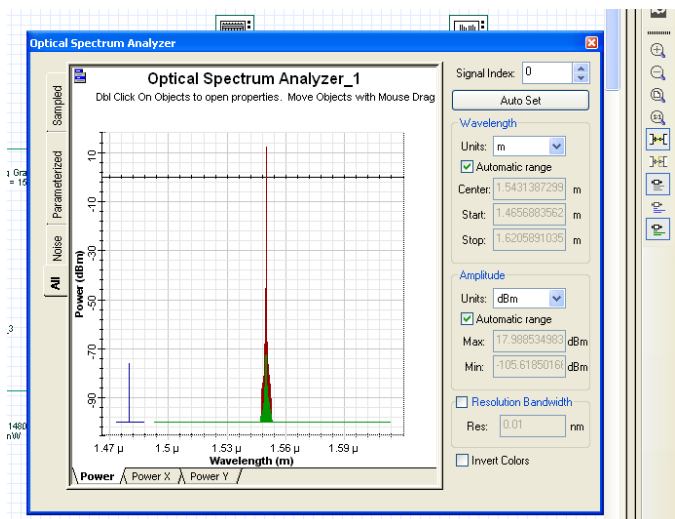
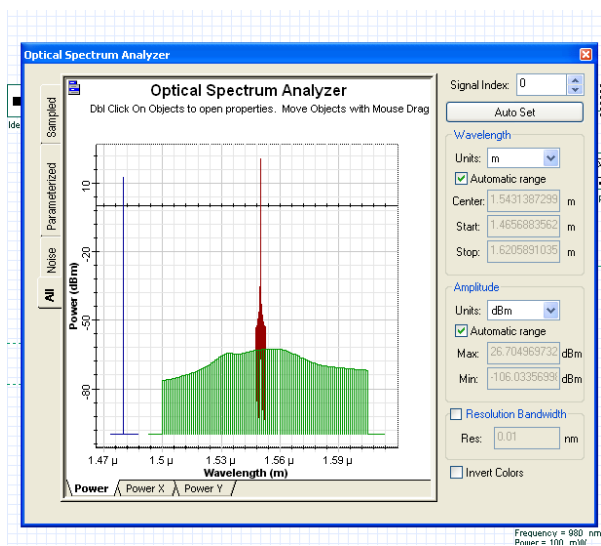
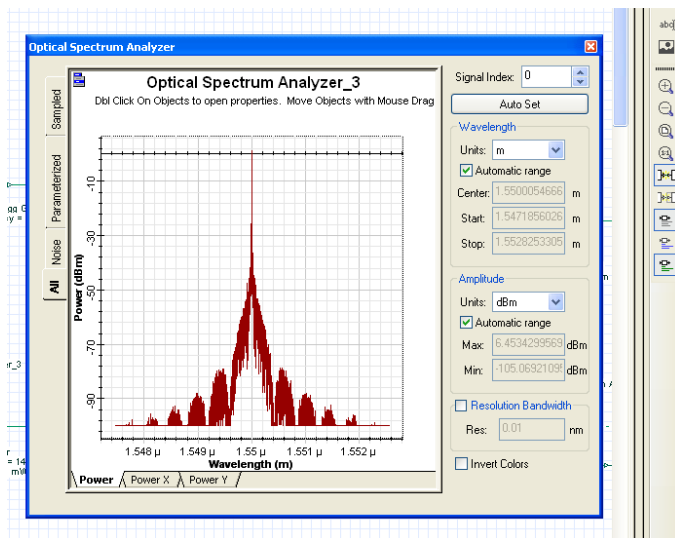






For 80mW pump power





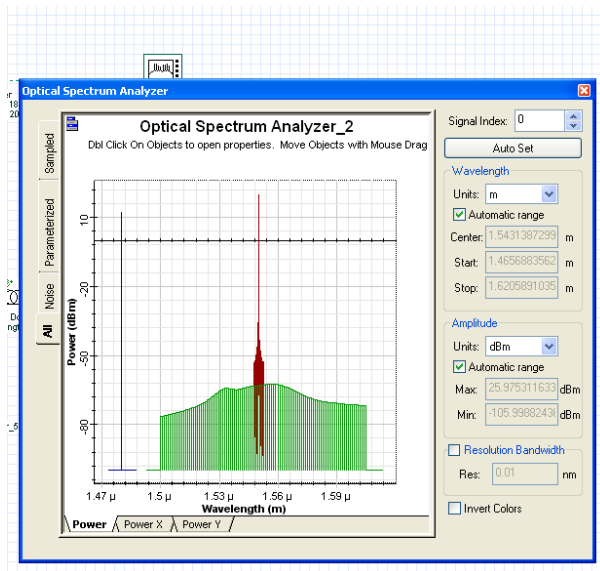
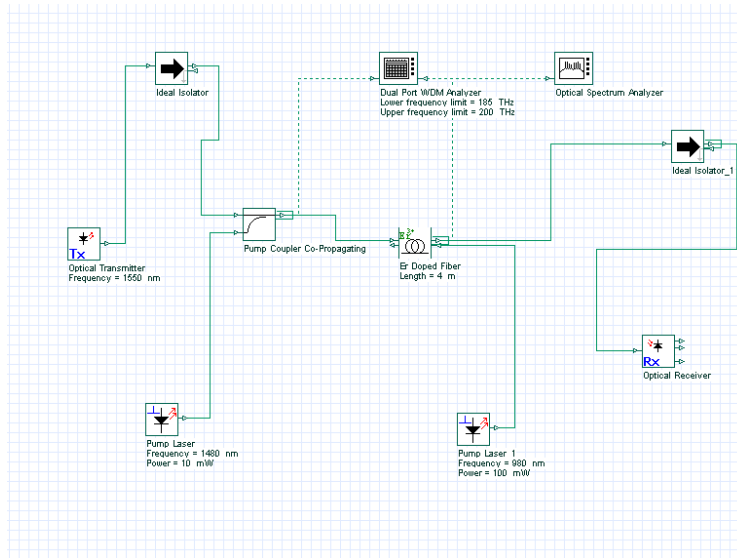


Diagram below have **no FBG**. It has **transmitter and receiver**.



**10mW pump power**

	Gain 1 (dB)	Noise Figure	Output :	input : Signal
1	33.3953	4.12958	-19.3815	-52.7769
2	33.392	4.12928	-12.7183	-46.1102
3	33.3763	4.12791	-6.06729	-39.4436
4	33.304	4.1216	0.527107	-32.7769
5	32.9813	4.09446	6.87103	-26.1102
6	31.7176	4.00362	12.274	-19.4436
7	26.3648	3.86549	15.5879	-12.7769
8	23.1579	4.02737	17.0477	-6.11022
9	17.1804	4.73712	17.7369	0.556448
10	11.0874	6.30225	18.3105	7.22311

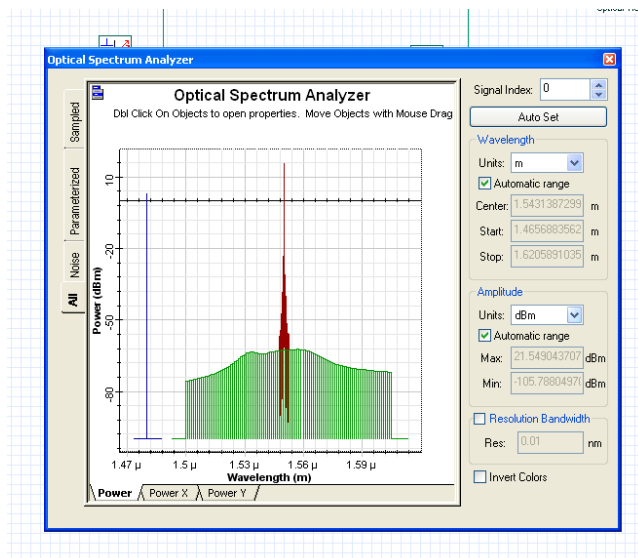
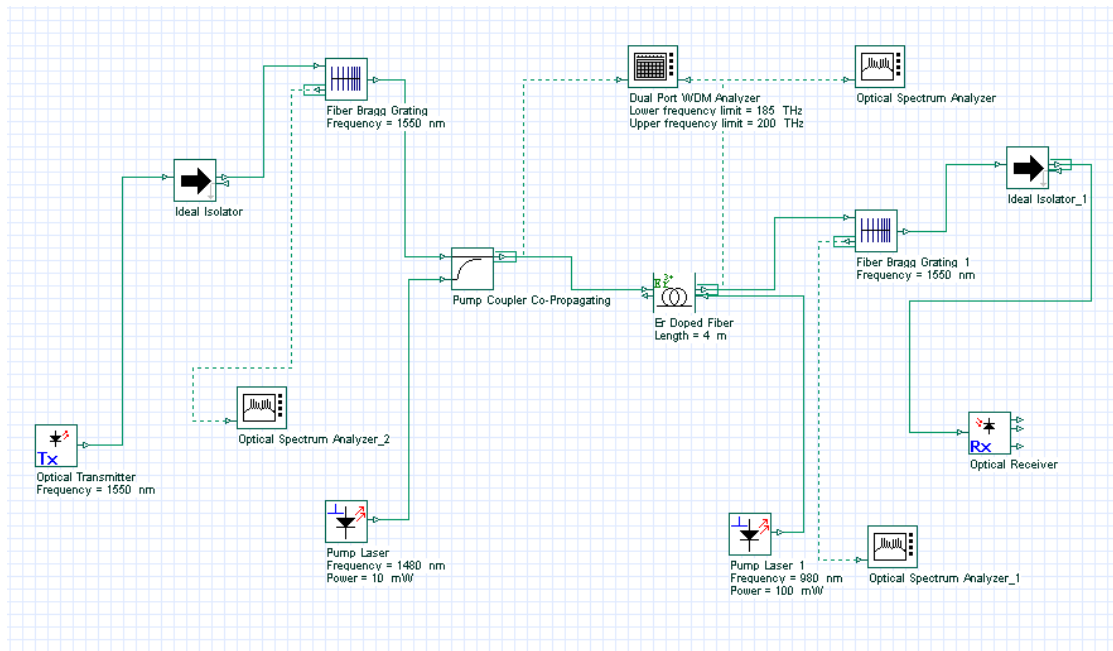




Diagram below have **FBG**. It has **transmitter and receiver**.



**10mW pump power**

	Gain 1 (dB)	Noise Figure	Input : Signal	Output :
1	9.40014	4.84371	-52.7769	-43.3767
2	11.6877	4.54405	-46.1102	-34.4226
3	14.8301	4.6112	-39.4436	-24.6134
4	19.4336	3.94939	-32.7769	-13.3433
5	27.672	3.9163	-26.1102	1.56176
6	34.4971	4.43803	-19.4436	15.0535
7	29.5926	4.70041	-12.7769	16.8157
8	23.1084	4.27975	-6.11022	16.9982
9	17.1589	4.84358	0.556054	17.715
10	11.7046	6.10631	6.5295	18.2341

