

```

1 ! Created Thu Jul 18 17:48:22 2019
2 # hz S ri R 50
3 ! 1 Port Network Data from SP1.SP block
4 ! freq reS11 imS11
5 !
6         500000000      0.575038277      -0.213731181
7         510000000      0.573623239      -0.217856799
8         520000000      0.571501991      -0.221092293
9         530000000      0.569316098      -0.224901061
10        540000000      0.567396517      -0.228506282
11        550000000      0.564919798      -0.232050434
12        560000000      0.56266371      -0.235556189
13        570000000      0.560415079      -0.23867519
14        580000000      0.558518803      -0.242645481
15        590000000      0.555721089      -0.24638901
16        600000000      0.553306014      -0.250191051
17        610000000      0.550989516      -0.253835172
18        620000000      0.54832633      -0.257797782
19        630000000      0.546402712      -0.261133186
20        640000000      0.543713724      -0.264710365
21        650000000      0.541518551      -0.268269803
22        660000000      0.539244772      -0.271335308
23        670000000      0.536579397      -0.274750782
24        680000000      0.533879124      -0.278266388
25        690000000      0.530511101      -0.281719599
26        700000000      0.528210376      -0.285518979
27        710000000      0.52528358      -0.288909368
28        720000000      0.522852836      -0.292150657
29        730000000      0.520664258      -0.295340044
30        740000000      0.517748068      -0.298623798
31        750000000      0.513627504      -0.302135643
32        760000000      0.511131636      -0.305013444
33        770000000      0.507754335      -0.308564217
34        780000000      0.505362174      -0.312688522
35        790000000      0.502366204      -0.315428391
36        800000000      0.499368441      -0.319150057
37        810000000      0.49668963      -0.321560144
38        820000000      0.493370083      -0.324246334
39        830000000      0.490449419      -0.327748146
40        840000000      0.487172303      -0.330360607
41        850000000      0.483558998      -0.334105554
42        860000000      0.480346411      -0.336913283
43        870000000      0.478044624      -0.340625288
44        880000000      0.474993005      -0.342992783
45        890000000      0.471573893      -0.346125725
46        900000000      0.468266071      -0.348872299
47        910000000      0.464497064      -0.351520823
48        920000000      0.460733025      -0.354107019
49        930000000      0.45708991      -0.357157962
50        940000000      0.453469307      -0.360288664
51        950000000      0.450271924      -0.363214905
52        960000000      0.44691075      -0.365762202
53        970000000      0.443684422      -0.368248262
54        980000000      0.440554916      -0.371378772
55        990000000      0.437013451      -0.373537842
56        1e+09      0.433443829      -0.375318047
57        1.01e+09      0.429140239      -0.37834821
58        1.02e+09      0.425126879      -0.380981103
59        1.03e+09      0.420583088      -0.383417554
60        1.04e+09      0.417043693      -0.386156232
61        1.05e+09      0.41320244      -0.38864256
62        1.06e+09      0.409771993      -0.391401616
63        1.07e+09      0.406088122      -0.393462623
64        1.08e+09      0.402437552      -0.395197634
65        1.09e+09      0.398932056      -0.39714764
66        1.1e+09      0.394974071      -0.399332322
67        1.11e+09      0.389982481      -0.402085536
68        1.12e+09      0.385508092      -0.404198857
69        1.13e+09      0.381288473      -0.406479085

```

70	1.14e+09	0.37798778	-0.4093251
71	1.15e+09	0.373832023	-0.41070689
72	1.16e+09	0.370747384	-0.412462996
73	1.17e+09	0.365972898	-0.413430148
74	1.18e+09	0.361234866	-0.415094048
75	1.19e+09	0.355911558	-0.417073306
76	1.2e+09	0.351629001	-0.419424774
77	1.21e+09	0.346538195	-0.421871028
78	1.22e+09	0.343021448	-0.424184565
79	1.23e+09	0.338997552	-0.425393027
80	1.24e+09	0.334817963	-0.427056132
81	1.25e+09	0.330204826	-0.428140994
82	1.26e+09	0.325686587	-0.428573899
83	1.27e+09	0.319540133	-0.430008039
84	1.28e+09	0.314761278	-0.431857785
85	1.29e+09	0.309847331	-0.434029933
86	1.3e+09	0.305161673	-0.435851795
87	1.31e+09	0.301632315	-0.437708937
88	1.32e+09	0.297775188	-0.438504125
89	1.33e+09	0.293724981	-0.438787209
90	1.34e+09	0.288554674	-0.439422029
91	1.35e+09	0.28358914	-0.440257441
92	1.36e+09	0.277615147	-0.441546327
93	1.37e+09	0.271406439	-0.443551281
94	1.38e+09	0.266630623	-0.445569373
95	1.39e+09	0.262433896	-0.447083824
96	1.4e+09	0.25882478	-0.448365086
97	1.41e+09	0.254836528	-0.448696051
98	1.42e+09	0.249976122	-0.447942533
99	1.43e+09	0.245142604	-0.448140624
100	1.44e+09	0.238963999	-0.44871179
101	1.45e+09	0.232941685	-0.449854267
102	1.46e+09	0.227987274	-0.45074058
103	1.47e+09	0.222896986	-0.451734545
104	1.48e+09	0.218903477	-0.452451623
105	1.49e+09	0.214615791	-0.452441949
106	1.5e+09	0.209639387	-0.45133934
107	1.51e+09	0.204250909	-0.450855069
108	1.52e+09	0.198293858	-0.450933599
109	1.53e+09	0.191865572	-0.450990388
110	1.54e+09	0.18619362	-0.451862257
111	1.55e+09	0.182034339	-0.452936447
112	1.56e+09	0.178066731	-0.45334043
113	1.57e+09	0.174002836	-0.452626216
114	1.58e+09	0.16950926	-0.45176953
115	1.59e+09	0.163864479	-0.450767712
116	1.6e+09	0.157709287	-0.449647206
117	1.61e+09	0.150822907	-0.450396767
118	1.62e+09	0.145002244	-0.450366797
119	1.63e+09	0.140194338	-0.450268873
120	1.64e+09	0.135827392	-0.450353004
121	1.65e+09	0.132077198	-0.449407891
122	1.66e+09	0.127541203	-0.447710836
123	1.67e+09	0.122835578	-0.445804635
124	1.68e+09	0.117094405	-0.44493318
125	1.69e+09	0.111172044	-0.444456619
126	1.7e+09	0.105139473	-0.4439584
127	1.71e+09	0.0999351767	-0.443382945
128	1.72e+09	0.0953146232	-0.442589073
129	1.73e+09	0.0906284722	-0.441038093
130	1.74e+09	0.0854114512	-0.439015706
131	1.75e+09	0.0802396379	-0.436684062
132	1.76e+09	0.0740691489	-0.435375573
133	1.77e+09	0.0681173001	-0.434613482
134	1.78e+09	0.0622363953	-0.433719047
135	1.79e+09	0.0577547688	-0.432492051
136	1.8e+09	0.0538151593	-0.430899052
137	1.81e+09	0.0484322673	-0.429035603
138	1.82e+09	0.0437636465	-0.426720342

139	1.83e+09	0.0375365823	-0.424161508
140	1.84e+09	0.0310001358	-0.421794795
141	1.85e+09	0.0250255725	-0.419903476
142	1.86e+09	0.0198895227	-0.418479898
143	1.87e+09	0.0146186033	-0.417349347
144	1.88e+09	0.0101157275	-0.415311136
145	1.89e+09	0.00632955619	-0.412285578
146	1.9e+09	0.00106246338	-0.409621093
147	1.91e+09	-0.00469992857	-0.407099997
148	1.92e+09	-0.0105166388	-0.404949428
149	1.93e+09	-0.0156500653	-0.402006351
150	1.94e+09	-0.0214462557	-0.400173699
151	1.95e+09	-0.025578245	-0.397973855
152	1.96e+09	-0.0294009345	-0.39481288
153	1.97e+09	-0.0337646285	-0.391069314
154	1.98e+09	-0.0388362536	-0.387756017
155	1.99e+09	-0.0444059537	-0.383334115
156	2e+09	-0.049177376	-0.38068473
157	2.01e+09	-0.0551090094	-0.378567944
158	2.02e+09	-0.0602931866	-0.376322425
159	2.03e+09	-0.0638286072	-0.373471102
160	2.04e+09	-0.0682737248	-0.370215053
161	2.05e+09	-0.0723016572	-0.365754912
162	2.06e+09	-0.0764300507	-0.361282465
163	2.07e+09	-0.0825562518	-0.357080571
164	2.08e+09	-0.0881196312	-0.353512268
165	2.09e+09	-0.0925083338	-0.350886677
166	2.1e+09	-0.0969591189	-0.347199194
167	2.11e+09	-0.0999892792	-0.344749596
168	2.12e+09	-0.103223388	-0.340768343
169	2.13e+09	-0.106388692	-0.335511432
170	2.14e+09	-0.110726354	-0.330786287
171	2.15e+09	-0.115964512	-0.326322552
172	2.16e+09	-0.120290669	-0.322303439
173	2.17e+09	-0.126201517	-0.318818614
174	2.18e+09	-0.130351889	-0.315443253
175	2.19e+09	-0.133003984	-0.311828342
176	2.2e+09	-0.136215191	-0.307780147
177	2.21e+09	-0.13965754	-0.301998029
178	2.22e+09	-0.143770323	-0.29564397
179	2.23e+09	-0.147929118	-0.29070914
180	2.24e+09	-0.153227079	-0.285655943
181	2.25e+09	-0.156974154	-0.281441421
182	2.26e+09	-0.160604546	-0.27776294
183	2.27e+09	-0.16315901	-0.273913593
184	2.28e+09	-0.165639879	-0.268939547
185	2.29e+09	-0.168594622	-0.262733073
186	2.3e+09	-0.171517007	-0.256297393
187	2.31e+09	-0.175646279	-0.25018095
188	2.32e+09	-0.179866975	-0.245347965
189	2.33e+09	-0.183930104	-0.240980781
190	2.34e+09	-0.186596543	-0.236703697
191	2.35e+09	-0.189266199	-0.232467186
192	2.36e+09	-0.190831101	-0.227884758
193	2.37e+09	-0.192905602	-0.22219806
194	2.38e+09	-0.195480983	-0.215932071
195	2.39e+09	-0.199288673	-0.209223905
196	2.4e+09	-0.203167334	-0.203761351
197	2.41e+09	-0.20582941	-0.199281964
198	2.42e+09	-0.208581936	-0.194215011
199	2.43e+09	-0.21031359	-0.189013998
200	2.44e+09	-0.211144835	-0.183642004
201	2.45e+09	-0.211606783	-0.177843883
202	2.46e+09	-0.213344944	-0.171488428
203	2.47e+09	-0.216498265	-0.165627425
204	2.48e+09	-0.218524257	-0.159962233
205	2.49e+09	-0.220306061	-0.155379958
206	2.5e+09	-0.221983442	-0.150602476
207	2.51e+09	-0.222979605	-0.145533839

208	2.52e+09	-0.223017783	-0.139747953
209	2.53e+09	-0.223833415	-0.133472527
210	2.54e+09	-0.225296808	-0.126171953
211	2.55e+09	-0.227103728	-0.119294542
212	2.56e+09	-0.229077224	-0.112578783
213	2.57e+09	-0.230508964	-0.106855794
214	2.58e+09	-0.231288512	-0.102057557
215	2.59e+09	-0.231094257	-0.0970522923
216	2.6e+09	-0.231770943	-0.0904938619
217	2.61e+09	-0.232335327	-0.0843295179
218	2.62e+09	-0.232568475	-0.0785292201
219	2.63e+09	-0.233947091	-0.0718116083
220	2.64e+09	-0.233818983	-0.0657451634
221	2.65e+09	-0.234339355	-0.0599257517
222	2.66e+09	-0.23452464	-0.0535877397
223	2.67e+09	-0.234525581	-0.0468443435
224	2.68e+09	-0.234037419	-0.0407450017
225	2.69e+09	-0.233404149	-0.034441535
226	2.7e+09	-0.23383678	-0.0286579867
227	2.71e+09	-0.233989899	-0.0225762657
228	2.72e+09	-0.234048395	-0.0170592096
229	2.73e+09	-0.232702717	-0.0102924194
230	2.74e+09	-0.231501374	-0.00395663939
231	2.75e+09	-0.229826337	0.00256680529
232	2.76e+09	-0.229962345	0.00990324835
233	2.77e+09	-0.227943744	0.0162223259
234	2.78e+09	-0.227909007	0.0226569838
235	2.79e+09	-0.226979903	0.0284331952
236	2.8e+09	-0.225897543	0.0336306396
237	2.81e+09	-0.224193728	0.0384021476
238	2.82e+09	-0.222175101	0.0440729609
239	2.83e+09	-0.220656458	0.0485933859
240	2.84e+09	-0.21970287	0.0547422656
241	2.85e+09	-0.218836499	0.0605990833
242	2.86e+09	-0.218228391	0.0657700327
243	2.87e+09	-0.216323029	0.0714079345
244	2.88e+09	-0.214550573	0.0757212743
245	2.89e+09	-0.211364177	0.0818387757
246	2.9e+09	-0.208628594	0.0889057253
247	2.91e+09	-0.20618368	0.0955056779
248	2.92e+09	-0.204148709	0.101870934
249	2.93e+09	-0.202814809	0.107001556
250	2.94e+09	-0.201770297	0.112099966
251	2.95e+09	-0.199300457	0.116527132
252	2.96e+09	-0.197191344	0.120437287
253	2.97e+09	-0.193924986	0.124731256
254	2.98e+09	-0.190853877	0.129654132
255	2.99e+09	-0.187451543	0.135742525
256	3e+09	-0.184512361	0.142583014
257	3.01e+09	-0.18257566	0.148825673
258	3.02e+09	-0.180060725	0.153386118
259	3.03e+09	-0.177311265	0.157780071
260	3.04e+09	-0.174086881	0.162229527
261	3.05e+09	-0.169864349	0.166569196
262	3.06e+09	-0.165772218	0.171952652
263	3.07e+09	-0.160914654	0.177300511
264	3.08e+09	-0.157422302	0.184152057
265	3.09e+09	-0.154548543	0.189424455
266	3.1e+09	-0.152116729	0.194676581
267	3.11e+09	-0.14829437	0.198184866
268	3.12e+09	-0.14445036	0.202208968
269	3.13e+09	-0.140172886	0.206845093
270	3.14e+09	-0.135201996	0.212117744
271	3.15e+09	-0.129926044	0.217879988
272	3.16e+09	-0.126464844	0.223677314
273	3.17e+09	-0.123557617	0.22816451
274	3.18e+09	-0.120263782	0.232403686
275	3.19e+09	-0.116750617	0.235519236
276	3.2e+09	-0.112693272	0.238919263

277	3.21e+09	-0.108029653	0.242249081
278	3.22e+09	-0.102550479	0.24747051
279	3.23e+09	-0.0977118304	0.252160162
280	3.24e+09	-0.0929159363	0.257402933
281	3.25e+09	-0.0892223288	0.261937828
282	3.26e+09	-0.0852132021	0.265233642
283	3.27e+09	-0.0805344419	0.268624819
284	3.28e+09	-0.0754878939	0.271492826
285	3.29e+09	-0.0701600319	0.274838866
286	3.3e+09	-0.0647939227	0.278435095
287	3.31e+09	-0.059853919	0.283298256
288	3.32e+09	-0.0557204288	0.287556025
289	3.33e+09	-0.052109419	0.291063029
290	3.34e+09	-0.0474095901	0.294095626
291	3.35e+09	-0.0430614528	0.296791818
292	3.36e+09	-0.0368239994	0.299364147
293	3.37e+09	-0.0311390999	0.302755335
294	3.38e+09	-0.0254170831	0.306889145
295	3.39e+09	-0.0202343597	0.311061143
296	3.4e+09	-0.0150577102	0.314342568
297	3.41e+09	-0.0104063755	0.317889248
298	3.42e+09	-0.00634071342	0.320112877
299	3.43e+09	-0.000226379124	0.32169719
300	3.44e+09	0.00556171627	0.324439214
301	3.45e+09	0.0119461693	0.327485263
302	3.46e+09	0.0181564852	0.331146191
303	3.47e+09	0.0234456353	0.33520949
304	3.48e+09	0.0282171704	0.338296978
305	3.49e+09	0.033103873	0.340869561
306	3.5e+09	0.0374385877	0.3425001
307	3.51e+09	0.0430738112	0.343528455
308	3.52e+09	0.0492562488	0.345457707
309	3.53e+09	0.056157397	0.347953056
310	3.54e+09	0.0624958308	0.350420582
311	3.55e+09	0.0681510681	0.353240733
312	3.56e+09	0.0735758484	0.355575105
313	3.57e+09	0.0785226756	0.357758592
314	3.58e+09	0.0845566736	0.358134745
315	3.59e+09	0.0911004592	0.359665942
316	3.6e+09	0.0985902294	0.360637082
317	3.61e+09	0.105427616	0.363160384
318	3.62e+09	0.111698831	0.366347256
319	3.63e+09	0.11706454	0.368336722
320	3.64e+09	0.121613546	0.370308645
321	3.65e+09	0.126181671	0.371151911
322	3.66e+09	0.131115419	0.371612853
323	3.67e+09	0.137674135	0.371305167
324	3.68e+09	0.144446742	0.37204137
325	3.69e+09	0.151729612	0.372750815
326	3.7e+09	0.158199272	0.375974053
327	3.71e+09	0.163822925	0.37713273
328	3.72e+09	0.169000017	0.379480885
329	3.73e+09	0.173931887	0.37919638
330	3.74e+09	0.178885695	0.379504203
331	3.75e+09	0.185217255	0.379130021
332	3.76e+09	0.191708927	0.379049571
333	3.77e+09	0.198335595	0.379831719
334	3.78e+09	0.204862787	0.38162076
335	3.79e+09	0.209759748	0.383093724
336	3.8e+09	0.214375673	0.384048275
337	3.81e+09	0.219217119	0.383181545
338	3.82e+09	0.225393121	0.382414441
339	3.83e+09	0.231555902	0.381573112
340	3.84e+09	0.238780127	0.380787427
341	3.85e+09	0.245839216	0.381817764
342	3.86e+09	0.252240339	0.382631477
343	3.87e+09	0.257633237	0.383577731
344	3.88e+09	0.262339029	0.383634686
345	3.89e+09	0.266826392	0.383185714

346	3.9e+09	0.272417411	0.381376163
347	3.91e+09	0.27912759	0.379785001
348	3.92e+09	0.285860361	0.378552975
349	3.93e+09	0.293114919	0.379040269
350	3.94e+09	0.299400484	0.379683446
351	3.95e+09	0.30388155	0.380355935
352	3.96e+09	0.308106282	0.38035428
353	3.97e+09	0.31201888	0.378913812
354	3.98e+09	0.317031075	0.37720253
355	3.99e+09	0.323111977	0.374846098
356	4e+09	0.329394162	0.373832385
357	4.01e+09	0.335632646	0.373909955
358	4.02e+09	0.341140781	0.373733953
359	4.03e+09	0.345739992	0.373681625
360	4.04e+09	0.350216584	0.372716431
361	4.05e+09	0.35437492	0.370988854
362	4.06e+09	0.359624838	0.368030425
363	4.07e+09	0.365592621	0.366098798
364	4.08e+09	0.371629065	0.364797488
365	4.09e+09	0.377178611	0.363470309
366	4.1e+09	0.381839016	0.362735735
367	4.11e+09	0.386168249	0.362736165
368	4.12e+09	0.390234947	0.36141299
369	4.13e+09	0.394143411	0.358512346
370	4.14e+09	0.399205147	0.355928624
371	4.15e+09	0.405329792	0.353941064
372	4.16e+09	0.412049191	0.35242295
373	4.17e+09	0.417208962	0.351550206
374	4.18e+09	0.421351909	0.351271199
375	4.19e+09	0.425022761	0.350384286
376	4.2e+09	0.429002503	0.347932573
377	4.21e+09	0.433257	0.344544741
378	4.22e+09	0.43865766	0.341140327
379	4.23e+09	0.444259321	0.338294275
380	4.24e+09	0.450506128	0.336672595
381	4.25e+09	0.455575955	0.335577797
382	4.26e+09	0.459925995	0.335051314
383	4.27e+09	0.46296344	0.332934734
384	4.28e+09	0.466493301	0.331121013
385	4.29e+09	0.470473636	0.327715084
386	4.3e+09	0.475354181	0.324919301
387	4.31e+09	0.480208227	0.322084752
388	4.32e+09	0.485473361	0.320281515
389	4.33e+09	0.489490674	0.318479788
390	4.34e+09	0.492566307	0.316499373
391	4.35e+09	0.49628415	0.314513272
392	4.36e+09	0.499553101	0.311173974
393	4.37e+09	0.503921171	0.307372889
394	4.38e+09	0.508685043	0.303804776
395	4.39e+09	0.513917123	0.300921749
396	4.4e+09	0.518688992	0.299104101
397	4.41e+09	0.521997392	0.297095808
398	4.42e+09	0.525342835	0.295457141
399	4.43e+09	0.52801954	0.292643564
400	4.44e+09	0.531639387	0.288470317
401	4.45e+09	0.536047792	0.284653565
402	4.46e+09	0.540861662	0.281125804
403	4.47e+09	0.545709469	0.278474563
404	4.48e+09	0.550288676	0.276863696
405	4.49e+09	0.55355434	0.275410318
406	4.5e+09	0.556227595	0.274021447
407	4.51e+09	0.55864004	0.271271342
408	4.52e+09	0.561719053	0.267469518
409	4.53e+09	0.56532054	0.26335565
410	4.54e+09	0.569740541	0.259406057
411	4.55e+09	0.574362565	0.256082008
412	4.56e+09	0.578055812	0.253965341
413	4.57e+09	0.581152505	0.251800836
414	4.58e+09	0.583807771	0.24930414

415	4.59e+09	0.58635457	0.246150346
416	4.6e+09	0.589108427	0.242101736
417	4.61e+09	0.593024643	0.237894262
418	4.62e+09	0.59707344	0.234315928
419	4.63e+09	0.601163704	0.231428645
420	4.64e+09	0.604638807	0.229487812
421	4.65e+09	0.607078999	0.226913981
422	4.66e+09	0.609745315	0.224211831
423	4.67e+09	0.61180433	0.220803487
424	4.68e+09	0.614968951	0.216367808
425	4.69e+09	0.618738657	0.211764958
426	4.7e+09	0.622742836	0.207703984
427	4.71e+09	0.626763478	0.205035323
428	4.72e+09	0.629924541	0.202776404
429	4.73e+09	0.632450918	0.200929286
430	4.74e+09	0.634533042	0.198091254
431	4.75e+09	0.636446976	0.194481262
432	4.76e+09	0.639430553	0.18985153
433	4.77e+09	0.642952049	0.185468998
434	4.78e+09	0.646630035	0.181721122
435	4.79e+09	0.650026186	0.178958681
436	4.8e+09	0.653157693	0.177001259
437	4.81e+09	0.654958324	0.174636483
438	4.82e+09	0.656555217	0.171666891
439	4.83e+09	0.658770895	0.167302999
440	4.84e+09	0.661700698	0.162610381
441	4.85e+09	0.665104129	0.158075687
442	4.86e+09	0.668972856	0.154672008
443	4.87e+09	0.672042379	0.151965579
444	4.88e+09	0.674485201	0.150200559
445	4.89e+09	0.676126469	0.147757821
446	4.9e+09	0.677080962	0.144078078
447	4.91e+09	0.678749791	0.13944786
448	4.92e+09	0.681350695	0.134222917
449	4.93e+09	0.684513608	0.129191133
450	4.94e+09	0.688005953	0.125413179
451	4.95e+09	0.69096298	0.122757719
452	4.96e+09	0.693041743	0.120834685
453	4.97e+09	0.694270784	0.118444767
454	4.98e+09	0.695826612	0.114670212
455	4.99e+09	0.697694988	0.110489029
456	5e+09	0.700696963	0.105759803
457	5.01e+09	0.703967536	0.101640156
458	5.02e+09	0.70730137	0.0989074168
459	5.03e+09	0.710290134	0.0968165391
460	5.04e+09	0.712275187	0.0947792587
461	5.05e+09	0.713793477	0.0919918991
462	5.06e+09	0.715589226	0.0876117186
463	5.07e+09	0.718395025	0.0819957493
464	5.08e+09	0.721338889	0.0764000095
465	5.09e+09	0.725553675	0.0714830334
466	5.1e+09	0.72926061	0.0683141196
467	5.11e+09	0.732138299	0.0656175064
468	5.12e+09	0.733643739	0.062712317
469	5.13e+09	0.734743724	0.0583354756
470	5.14e+09	0.736050903	0.0525962588
471	5.15e+09	0.737626814	0.0456882511
472	5.16e+09	0.74050944	0.0385964012
473	5.17e+09	0.743605169	0.0322085001
474	5.18e+09	0.746560856	0.0275009272
475	5.19e+09	0.748960428	0.0239850164
476	5.2e+09	0.749497394	0.0203290382
477	5.21e+09	0.748976385	0.0160333492
478	5.22e+09	0.748688846	0.0102638186
479	5.23e+09	0.749111698	0.00395875726
480	5.24e+09	0.750293851	-0.00250649544
481	5.25e+09	0.752329326	-0.00747291809
482	5.26e+09	0.754217328	-0.0116185666
483	5.27e+09	0.755235829	-0.0145847492

484	5.28e+09	0.755666243	-0.0177520008
485	5.29e+09	0.755047785	-0.0219319352
486	5.3e+09	0.754923423	-0.0272521452
487	5.31e+09	0.755855667	-0.0331553824
488	5.32e+09	0.757395693	-0.0384032018
489	5.33e+09	0.758942295	-0.0423241329
490	5.34e+09	0.760379838	-0.0446700471
491	5.35e+09	0.760396357	-0.0471532725
492	5.36e+09	0.759400938	-0.049877541
493	5.37e+09	0.7581713	-0.0541911243
494	5.38e+09	0.757129334	-0.0599603617
495	5.39e+09	0.757315241	-0.0669048236
496	5.4e+09	0.758340479	-0.0728812762
497	5.41e+09	0.760519469	-0.0776386873
498	5.42e+09	0.761691355	-0.0801217232
499	5.43e+09	0.762336913	-0.0825252486
500	5.44e+09	0.761561075	-0.0849305219
501	5.45e+09	0.760075974	-0.0892050923
502	5.46e+09	0.758544753	-0.0944727779
503	5.47e+09	0.757565586	-0.100773784
504	5.48e+09	0.758904619	-0.106700069
505	5.49e+09	0.759696577	-0.111395259
506	5.5e+09	0.760431608	-0.114716743
507	5.51e+09	0.76025985	-0.11663292
508	5.52e+09	0.759245495	-0.119488658
509	5.53e+09	0.757978949	-0.123957865
510	5.54e+09	0.756775239	-0.128549147
511	5.55e+09	0.756599936	-0.133994756
512	5.56e+09	0.75736456	-0.137536315
513	5.57e+09	0.757704169	-0.140603983
514	5.58e+09	0.757938381	-0.141751841
515	5.59e+09	0.756890329	-0.142882844
516	5.6e+09	0.75440577	-0.144494952
517	5.61e+09	0.752315555	-0.148089995
518	5.62e+09	0.751113463	-0.152734124
519	5.63e+09	0.751464591	-0.157078566
520	5.64e+09	0.752474044	-0.159511853
521	5.65e+09	0.756127862	-0.159801607
522	5.66e+09	0.756292108	-0.159384036
523	5.67e+09	0.757755384	-0.158861744
524	5.68e+09	0.757973749	-0.158629882
525	5.69e+09	0.757913046	-0.161093383
526	5.7e+09	0.758696096	-0.165583097
527	5.71e+09	0.761611342	-0.170746148
528	5.72e+09	0.765386724	-0.175449197
529	5.73e+09	0.770019827	-0.179894152
530	5.74e+09	0.774183737	-0.182872813
531	5.75e+09	0.776520702	-0.186174498
532	5.76e+09	0.777326968	-0.190561223
533	5.77e+09	0.777665212	-0.19628455
534	5.78e+09	0.778070456	-0.202568081
535	5.79e+09	0.778748273	-0.209169342
536	5.8e+09	0.780211628	-0.214883458
537	5.81e+09	0.781596013	-0.219910622
538	5.82e+09	0.781786641	-0.223634991
539	5.83e+09	0.781763874	-0.227768994
540	5.84e+09	0.78053552	-0.233118862
541	5.85e+09	0.779373332	-0.238811826
542	5.86e+09	0.778578343	-0.245701619
543	5.87e+09	0.778910301	-0.251839121
544	5.88e+09	0.780083445	-0.256285653
545	5.89e+09	0.780707193	-0.259453098
546	5.9e+09	0.780626191	-0.262480833
547	5.91e+09	0.780067494	-0.265797791
548	5.92e+09	0.778408365	-0.270548774
549	5.93e+09	0.776762739	-0.275770227
550	5.94e+09	0.775684432	-0.281359521
551	5.95e+09	0.775985029	-0.286967762
552	5.96e+09	0.77599245	-0.290923253

553	5.97e+09	0.776849583	-0.294168365
554	5.98e+09	0.775944702	-0.297342529
555	5.99e+09	0.77421105	-0.301018121
556	6e+09	0.772425925	-0.306131256
557	6.01e+09	0.771184505	-0.311670233
558	6.02e+09	0.770387746	-0.317443873
559	6.03e+09	0.771026942	-0.322730896
560	6.04e+09	0.771772597	-0.326615495
561	6.05e+09	0.771566681	-0.32952307
562	6.06e+09	0.770224331	-0.333380518
563	6.07e+09	0.767668262	-0.337992115
564	6.08e+09	0.765518244	-0.343643447
565	6.09e+09	0.763827918	-0.350330783
566	6.1e+09	0.76380793	-0.356419665
567	6.11e+09	0.765147283	-0.360901482
568	6.12e+09	0.766293939	-0.362985005
569	6.13e+09	0.766187594	-0.364179269
570	6.14e+09	0.76483075	-0.366192149
571	6.15e+09	0.761653646	-0.369233205
572	6.16e+09	0.758468522	-0.375383573
573	6.17e+09	0.755777035	-0.382368673
574	6.18e+09	0.7555378	-0.389324829
575	6.19e+09	0.755800909	-0.39399766
576	6.2e+09	0.757037874	-0.397633166
577	6.21e+09	0.756883709	-0.399555659
578	6.22e+09	0.755621313	-0.402590975
579	6.23e+09	0.752328982	-0.405574497
580	6.24e+09	0.74956181	-0.411327431
581	6.25e+09	0.747216658	-0.417714434
582	6.26e+09	0.746475997	-0.423017864
583	6.27e+09	0.746890593	-0.427526564
584	6.28e+09	0.74724388	-0.429889706
585	6.29e+09	0.746664495	-0.431584881
586	6.3e+09	0.743927545	-0.434500032
587	6.31e+09	0.739646336	-0.438797175
588	6.32e+09	0.736194411	-0.445379994
589	6.33e+09	0.734176021	-0.452113449
590	6.34e+09	0.733092088	-0.458714788
591	6.35e+09	0.734508978	-0.463473642
592	6.36e+09	0.735406527	-0.465510246
593	6.37e+09	0.734944099	-0.467203694
594	6.38e+09	0.732592551	-0.46927168
595	6.39e+09	0.727973655	-0.474025338
596	6.4e+09	0.724194439	-0.480401558
597	6.41e+09	0.721749102	-0.486883818
598	6.42e+09	0.722388719	-0.493152706
599	6.43e+09	0.722436869	-0.496604405
600	6.44e+09	0.723428288	-0.497797409
601	6.45e+09	0.722773475	-0.498743423
602	6.46e+09	0.720583186	-0.499895593
603	6.47e+09	0.715624563	-0.503574582
604	6.48e+09	0.710987322	-0.509509677
605	6.49e+09	0.707858499	-0.5157273
606	6.5e+09	0.706589678	-0.521248339
607			