Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Interim Considerations arising from Simulations**
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Re:	Coexistence task group activities up to session # 18
Abstract	This document summarizes the status of the 42 identified simulation tasks, and proposes actions to complete the outstanding tasks
Purpose	To assist in producing a new draft coexistence recommended practice.
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Interim Considerations from Simulations

The following table summarizes the results so far obtained from the various simulations carried out by TG2. For those cases that are not completed, various actions are proposed.

	Scenario	Frequency	Area/ channel	Conclusion/ notes	Methodology
1	PMP BS to PP	Range 2	Adjacent area, same channel	- Remi Chayer will review RABC report (pfd limits). - PW will produce a sample calculation of minimum distance	Worst case analysis
2	PMP SS to PP	Range 2	Adjacent area, same channel	- Remi Chayer will review RABC report (pfd limits). - PW will produce a sample calculation of minimum distance	Worst case analysis
3	PP to PMP BS	Range 2	Adjacent area, same channel	- Remi Chayer will review RABC report (pfd limits). - PW will produce a sample calculation of minimum distance	Worst case analysis
4	PP to PMP SS	Range 2	Adjacent area, same channel	- Remi Chayer will review RABC report (pfd limits). - PW will produce a sample calculation of minimum distance	Worst case analysis/ Monte Carlo analysis
5	PMP BS to PP	Range 2	Same area, adjacent channel	- Barry Lewis to produce calculations using IEEE 802.16 parameters, by way of example. - Refer to useful definition of scenarios and qualitative conclusions in ETSI TR 101 853(scenarios B1 – B4)	Worst case analysis
6	PMP SS to PP	Range 2	Same area, adjacent channel	- Barry Lewis to produce calculations using IEEE 802.16 parameters, by way of example. - Refer to useful definition of scenarios and qualitative conclusions in ETSI TR 101 853(scenarios B1 – B4)	Worst case analysis
7	PP to PMP BS	Range 2	Same area, adjacent channel	- Barry Lewis to produce calculations using IEEE 802.16 parameters, by way of example. - Refer to useful definition of scenarios and qualitative conclusions in ETSI TR 101 853(scenarios B1 – B4)	Worst case analysis

8	PP to PMP SS	Range 2	Same area, adjacent channel	- Barry Lewis to produce calculations using IEEE 802.16 parameters, by way of example. - Refer to useful definition of scenarios and qualitative conclusions in ETSI TR 101 853(scenarios B1 – B4)	Worst case analysis
9	PMP BS to PP multi link	Range 2	Adjacent area, same channel	(pw will work on this during the meeting)	Worst case analysis
10	PMP SS to PP multi link	Range 2	Adjacent area, same channel	(pw will work on this during the meeting)	Worst case analysis
11	PP multi link to PMP BS	Range 2	Adjacent area, same channel	Spacing of 20 – 24 km is typically required, in the absence of co-ordination (final review required)	Monte Carlo simulation
12	PP multi link to PMP SS	Range 2	Adjacent area, same channel	Spacing is usually controlled by BS interference (see 11) unless the SS antennas are on unusually high structures, in which case, spacing may have to increase to 40 – 50km	Monte Carlo simulation
13	PMP BS to PP multi link	Range 2	Same area, adjacent channel	2 channel guard band is generally required	Worst case analysis
14	PMP SS to PP multi link	Range 2	Same area, adjacent channel	2 channel guard band is generally required	Worst case analysis
15	PP multi link to PMP BS	Range 2	Same area, adjacent channel	1 channel guard band is generally required	Monte Carlo simulation
16	PP multi link to PMP SS	Range 2	Same area, adjacent channel	1 channel guard band is generally required	Monte Carlo simulation
17	BS – BS	2.5 GHz	Adjacent area, same channel	No contributions	
18	BS – SS	2.5 GHz	Adjacent area, same channel	No contributions	
19	SS – BS	2.5 GHz	Adjacent area, same channel	No contributions	
20	SS – SS	2.5 GHz	Adjacent area, same channel	No contributions	
21	BS – BS	2.5 GHz	Same area, adjacent channel	No contributions	
22	BS – SS	2.5 GHz	Same area, adjacent channel	No contributions	

23	SS – BS	2.5 GHz	Same area, adjacent channel	No contributions	
24	SS – SS	2.5 GHz	Same area, adjacent channel	No contributions	
25	BS – BS	3.5 GHz	Adjacent area, same channel	Jack Garrison will contribute by meeting #19	Worst case analysis
26	BS – SS	3.5 GHz	Adjacent area, same channel	Jack Garrison will contribute by meeting #19	Worst case analysis
27	SS – BS	3.5 GHz	Adjacent area, same channel	Typically 60 – 80 km spacing needed	Monte Carlo analysis
28	SS– SS	3.5 GHz	Adjacent area, same channel	Low probability. Coordination needed for the bad cases.	N/A
29	BS – BS	3.5 GHz	Same area, adjacent channel	Combination of isolation (NFD etc) and physical spacing is required (typically 0.1 – 2km, dependent on available isolation)	Monte Carlo analysis
30	BS – SS	3.5 GHz	Same area, adjacent channel	Isolation needed (NFD etc) depends on modulation. In some cases it may be possible to operate in the adjacent channel.	Monte Carlo analysis
31	SS – BS	3.5 GHz	Same area, adjacent channel	Isolation needed (NFD etc) depends on modulation. In some cases it may be possible to operate in the adjacent channel.	Monte Carlo analysis
32	SS – SS	3.5 GHz	Same area, adjacent channel	Low/ medium probability Coordination needed for the bad cases. Jack Garrison will investigate whether the problem can be quantified	TBA
33	BS – BS	10.5 GHz	Adjacent area, same channel	Jack Garrison to review whether 3.5 GHz results can be simply extrapolated using a rain fade differential estimate	
34	BS– SS	10.5 GHz	Adjacent area, same channel	Jack Garrison to review whether 3.5 GHz results can be simply extrapolated using a rain fade differential estimate	
35	SS – BS	10.5 GHz	Adjacent area, same channel	Typically 60 – 80 km spacing required	Monte Carlo analysis
36	SS – SS	10.5 GHz	Adjacent area, same channel	Jack Garrison to review whether 3.5 GHz results can be simply extrapolated using a rain fade differential estimate	
37	BS – BS	10.5 GHz	Same area, adjacent	Jack Garrison to review whether 3.5 GHz results can be simply extrapolated using a rain fade differential estimate	

38	BS – SS	10.5 GHz	Same area, adjacent	Jack Garrison to review whether 3.5 GHz results can be simply extrapolated using a rain fade differential estimate	
39	SS – BS	10.5 GHz	Same area, adjacent	Jack Garrison to review whether 3.5 GHz results can be simply extrapolated using a rain fade differential estimate	
40	SS – SS	10.5 GHz	Same area, adjacent	Jack Garrison to review whether 3.5 GHz results can be simply extrapolated using a rain fade differential estimate	

The following additional simulations are being carried out to assess the affect of mitigation techniques Scenarios 41 and 42 are illustrations of methods by which interference may be reduced, rather than new scenarios

41	SS – BS, using adaptive BS antenna	3.5 GHz	Adjacent area same channel	(Reza's paper – in process of revision)	
42	BS – BS using adaptive antennas	3.5 GHz	Adjacent area same channel	(Reza's next paper – to be prepared by session #19)	

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