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Title:

Co-existence of MP-MP and P-MP Systems

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802.16.2 Session #4, Coexistence Task Group, Kauai, 8-11 November 1999.

Base Document:

802.16cp-99/31
<http://grouper.ieee.org/groups/802/16/coexistence/contrib/80216cc-99_31.pdf>

Purpose:

Illustrates paper 80216cc-99 31.pdf on coexistence of different types of MP systems, contributed to session #4

Notice:

Release:

IEEE Patent Policy:

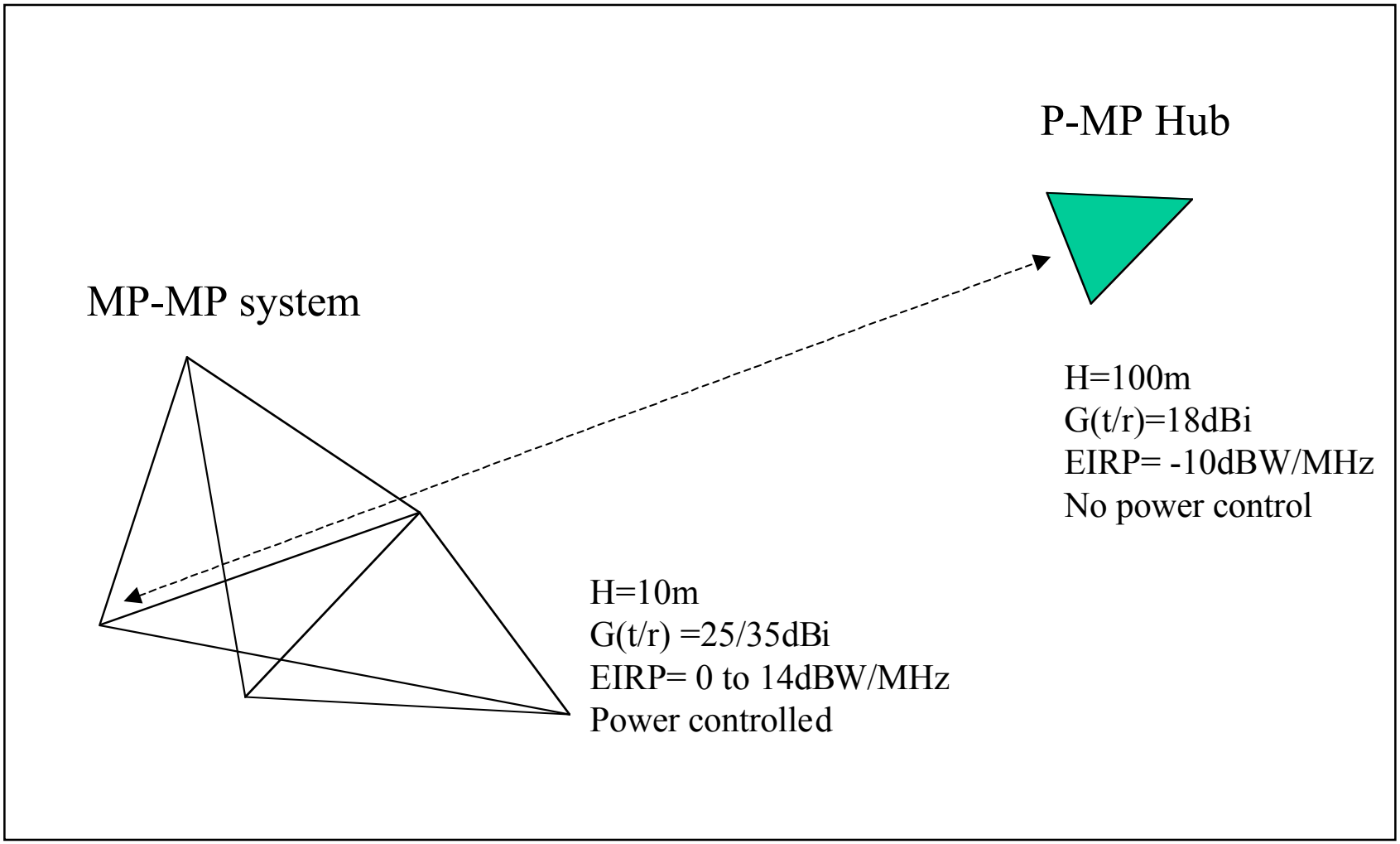
Rationale for MP-MP systems

- Excellent coverage at low levels of customer penetration (easy to exceed 90%)
- Very high spectral efficiency
- Low initial costs – improves operator payback time.
- Good interference characteristics (can co-exist well with other types of system)

MP – MP systems

- Most link paths are short range (<1km), with low antennas
- A few link paths may be longer (up to 5km)
- Frequency etiquette deployed to allow high level of frequency re-use
- Terrain clutter can be used to advantage, to improve frequency re-use, whilst still achieving high coverage (>90%)

Hub to/from MP-MP Interference



MP-MP System parameters

- Antenna Gain 25-35dBi
- Tx Power = 16-20dBm
- Typical antenna height = 10m
- Typical path length = 1km
- Channel bandwidth = 28MHz
- Power control in both directions
- Rx noise bandwidth 18MHz

Interference Mechanisms between MP-MP and P-MP Systems

Interferer	Horizon distance (km)	Victim	Horizon distance (km)	Power Turn-down	Severity	Approximate Co-Channel Spacing (km)	Comment
MP-MP sub.	11	P-MP hub	36	yes	high	horizon limited (50km)	low probability
P-MP hub	36	MP-MP sub	11	no	high	horizon limited (50km)	
hub	36	hub	36		n/a	n/a	
MP-MP sub.	11	P-MP sub	25	yes	moderate	horizon limited (35km)	
Multiple MP-MP subs	11	P-MP hub	36	yes	moderate	horizon limited (20km)	
MP-MP sub (no etiquette)	11	MP-MP sub	11	yes	moderate	horizon limited (20km)	
MP-MP sub (with etiquette)	11	MP-MP sub	11	yes	low	<5km	possible 1ch system

Conclusions

- Most co-existence scenarios are similar to those for P-MP systems
- Co-channel system spacings can be the same as or less than P-MP alone
- Co – channel spacing for multiple MP-MP systems can be greatly reduced.