

Below is a list of proposed transmitter sites. None of these sites requires FAA determination of no hazard or FCC Registration because they do not extend more than 6 meters above an existing building.

101 California

Coordinates Latitude 37° 47' 35"
 Longitude 122° 26' 49"

Mt Tamalpais

Coordinates Latitude 37° 55' 44"
 Longitude 122° 35' 11"

San Bruno

Coordinates Latitude 37° 41' 1252"
 Longitude 122° 26' 04"

Grizzly Peak

Coordinates Latitude 37° 52' 16"
 Longitude 122° 13' 58"

Corporate Office (4410 El Camino Real, Los Altos Ca, 94608)

Coordinates Latitude 37° 24' 10" ,
 Longitude 122° 07' 00"

Hybrid Networks Corporate Office (6409 Guadalupe Mines Rd, San Jose, CA 95120)

Coordinates Latitude 37° 13' 12"
 Longitude 121° 54' 24"

Objectives

1. Measure extent of range improvement
2. Verify extent of non-line of sight improvement

Method

Create two simultaneous different links, operating on the same frequencies - both up and down links and research the necessary conditions required maintaining error free operation. Frequencies needed:

Downlink - a channel between 2620-2662MHz

Uplink - a channel between 2542-2584MHz

Procedure #1: Range comparison

1. Set up the apparatus depicted in Fig 1. Note: Only one link is used here.
2. Set up the CPE in the edge of the cell, or alternatively, anywhere.
3. Using current antennae, measure C/I in both down link and up link.
4. Switch over to WOL antennae, and repeat C/I measurement
5. Based on the results, calculate the estimated range difference.

Procedure #2: Non Line of sight behavior A

1. Set up the apparatus depicted in Fig 2. Note: One link is needed
2. Get a non-line of sight situation
3. Get link to a marginal performance, up link or down link or both
4. Go X dB below the margin, to collapse the link
5. Connect 2 WOL patch antennae with a WOL canceller, and try to restore the link
6. If so, determine what is X, what is the required separation between the patch antennas.

Procedure #3: Non Line of sight behavior B

1. Set up the apparatus depicted in Fig 3. Note: One link is needed
2. Get a non-line of sight situation
3. Get link to a marginal performance, up link or down link or both
4. Turn on the second co-frequency transmission. Crack it up, stir the second beams back and forth, trying to take the original link down
5. If that happens, switch to WOL patch antenna and canceller, and repeat previous correction test

Fig 1: Range
comparison

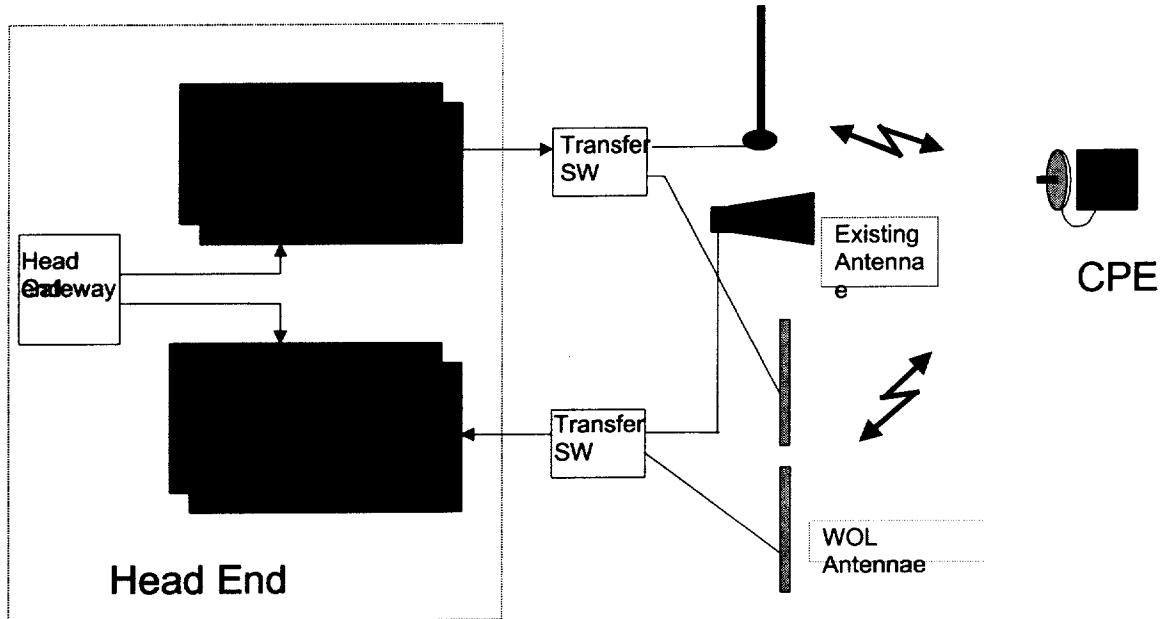


Fig 2: Non-Line of sight A

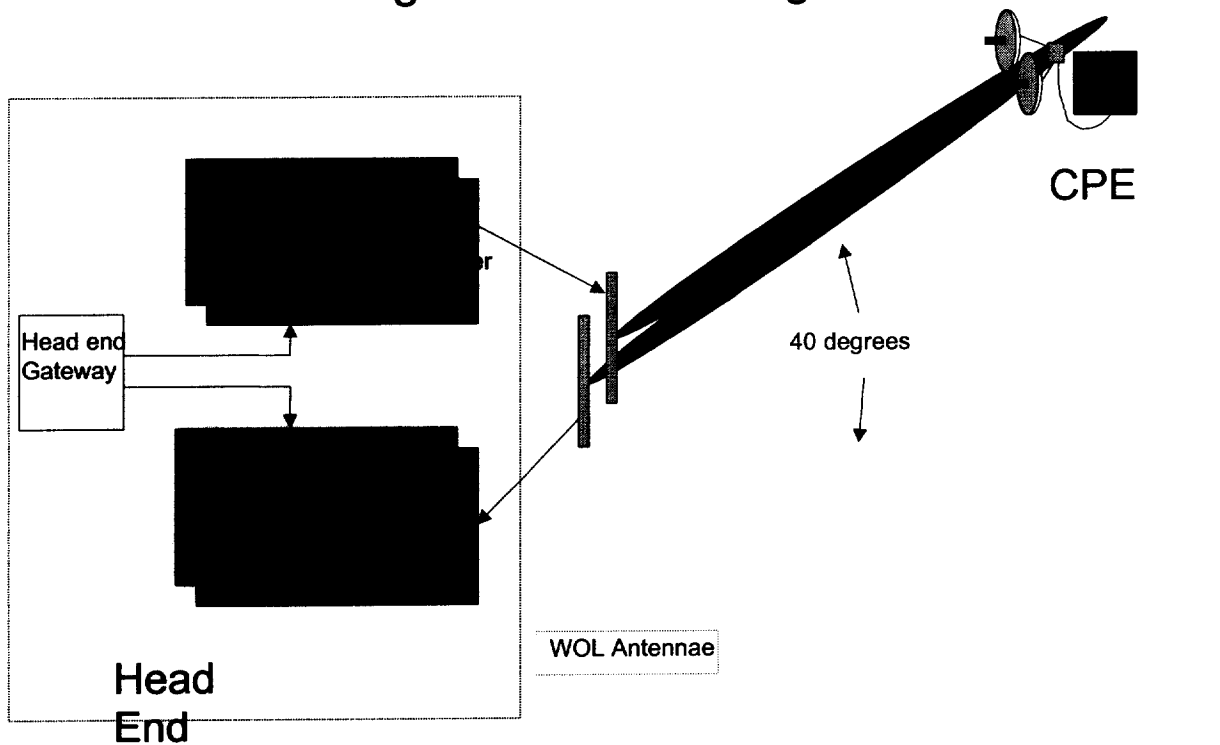
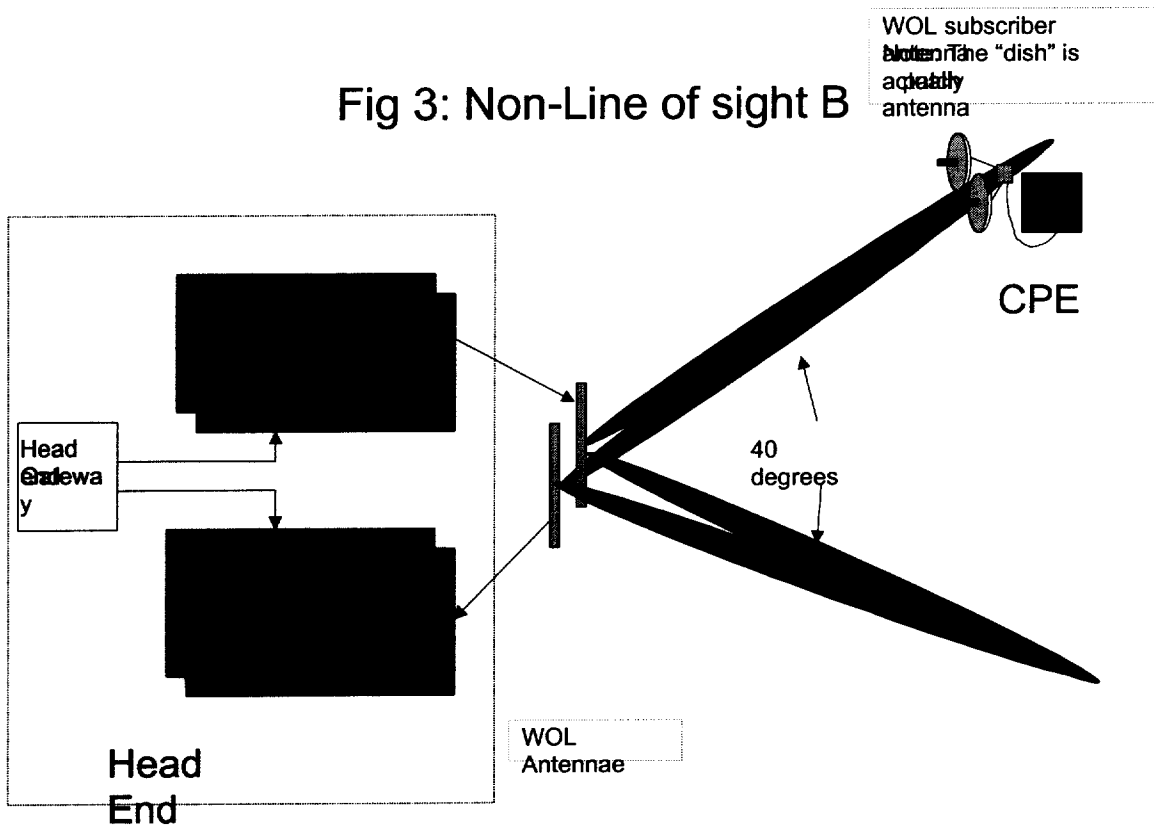


Fig 3: Non-Line of sight B



Link Budget**Downstream (Headend side)**

	Model #	Manufacturer	Gain/Power
Antenna	WOL2527AB	Wireless Online	17dBi
Transmitter	SD1500	Comwave	15W
CMD (modem)	CMD-2000	Hybrid	N/A

Upstream (CPE)

	Model	Manufacturer	Gain/Power
Antenna	QD-2450	Conifer	15dBi
Transceiver	TR-2278	Conifer	20dB
WBR	N-231	Hybrid	N/A