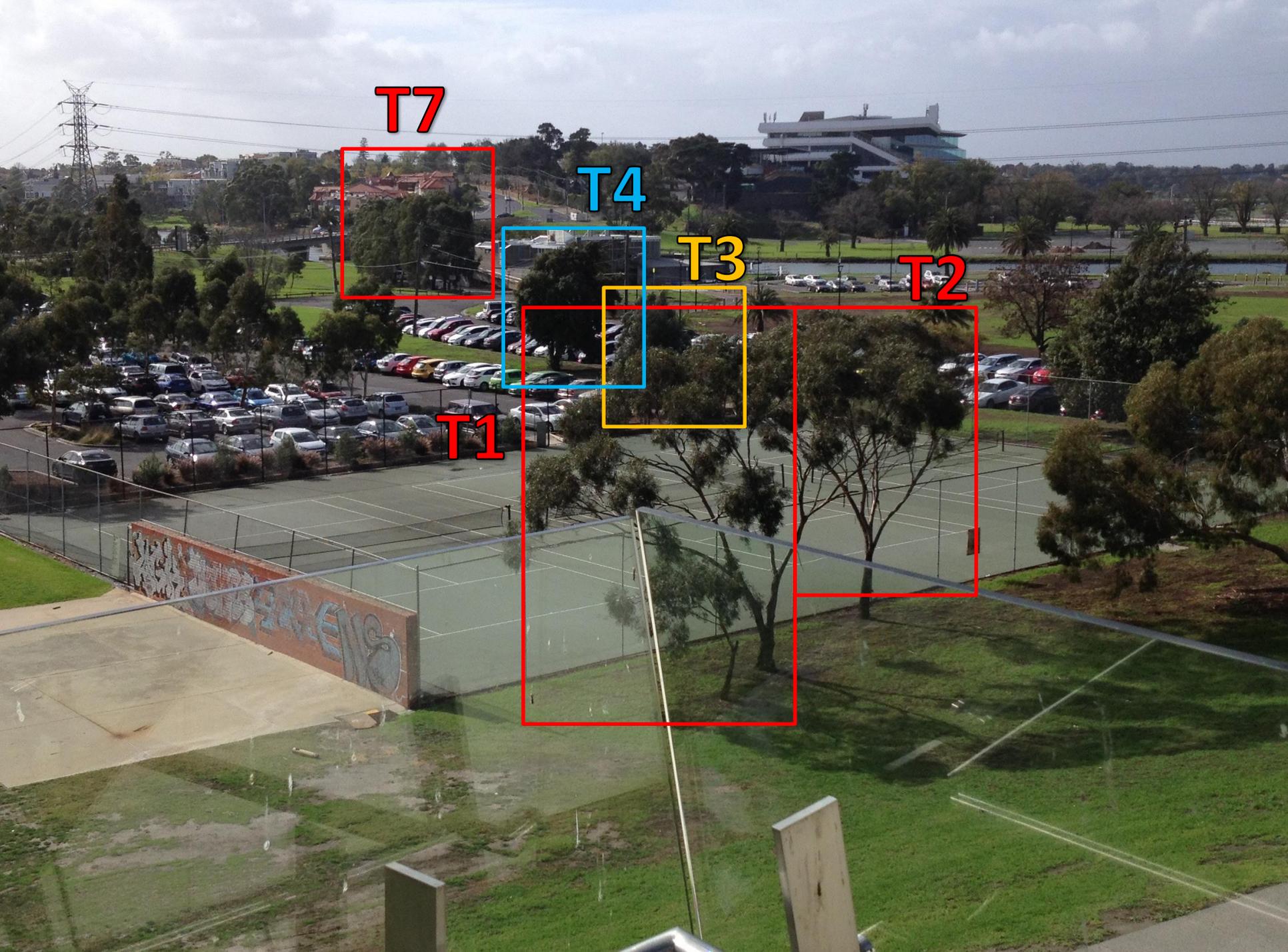


* No LoS obstruction created in any test position. Tree position ignored



T7

T4

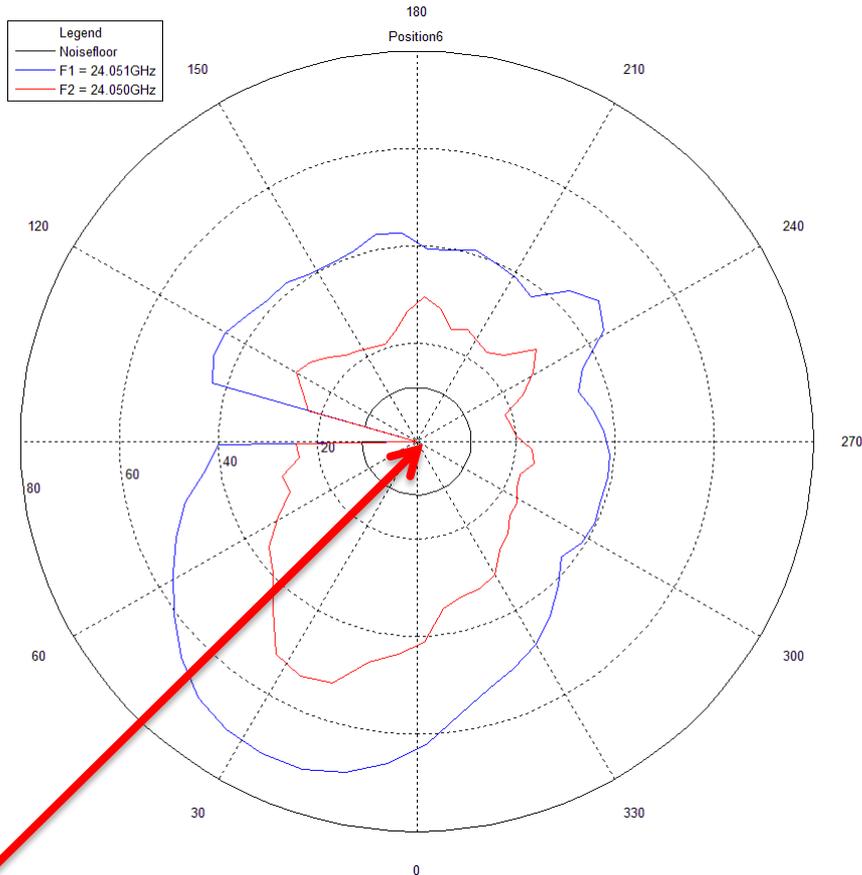
T3

T2

T1



Rowing Club Position 6 Located outdoors



Tx side: Building P balconies PB1 and PB2

Antenna Beamwidths $\pm 5^\circ$

$H_T(u) = 16.2\text{m}$, $P_T(u) = 5\text{dBm}$, $G_T(u) = 23.5\text{dB}$, $f_c = 24.051$, Blue

$H_T(l) = 11.8\text{m}$, $P_T(l) = 5\text{dBm}$, $G_T(l) = 23.5\text{dB}$, $f_c = 23.050\text{GHz}$, Red

Rx side: Footscray Rowing Club (Boat House)

Antenna Beamwidth $\pm 10^\circ$, 7° steps. 6 Averages

Position 6 (outdoors 1st floor, outside fire-escape balcony)

$H_R(l) = 6.1\text{m}$, $G_R(l) = 17\text{dB}$, Distance=240m, Beamwidth $\pm 10^\circ$

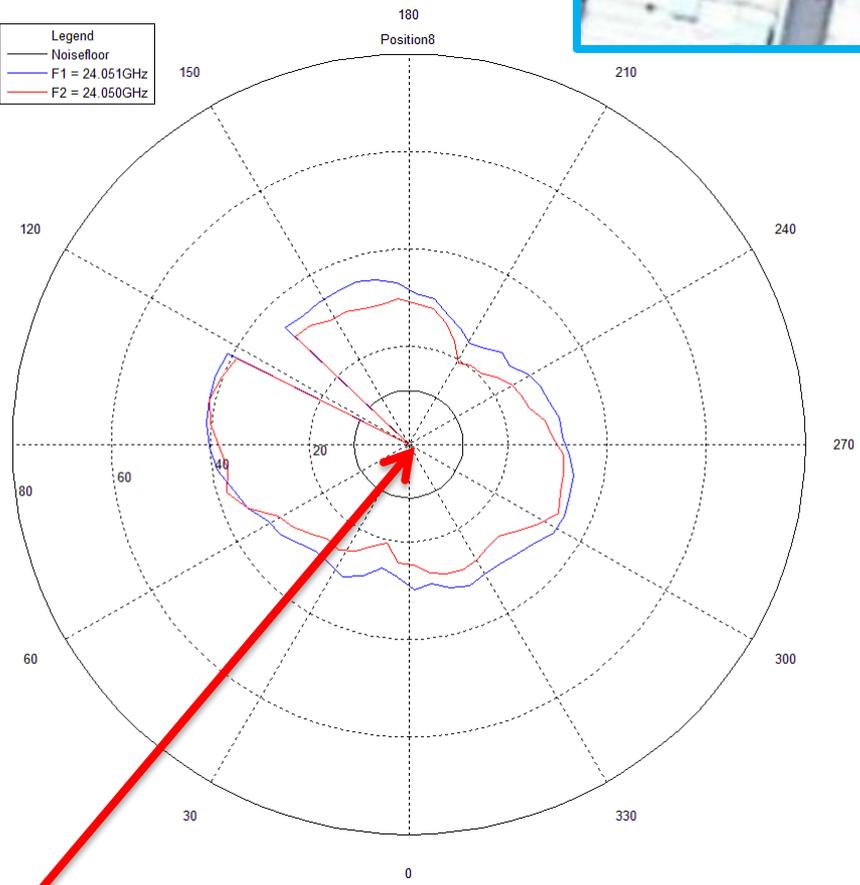
Notes: LOS +light trees.

- Receiver located outside fire door exit balcony ramp. Elevation of receiver equates to 1 floor above ground level.
- F1 = 24.051GHz (Blue)
 - Higher Tx position (16.2m) & direct LoS
 - Marginal scattering of signal caused by edge of T4 – higher received signal readings at all angles
- F2 = 24.050GHz (Red)
 - Lower Tx position (11.8m) & LoS obstructed by Eucalypt trees
 - Noticeable scattering of Tx signal observed across all angled readings. Scattering caused by T1, T3, and the edge of T4.
- Large difference (18dB+) between F1 and F2 amplitudes consistent throughout all test angle readings indicating local scattering. Elevation of receiver aided in generating LoS to F1, however, F2 was still obstructed by foliage.

Rowing Club Position 8 Located outdoors



Legend
 --- Noisefloor
 --- F1 = 24.051GHz
 --- F2 = 24.050GHz



Tx side: Building P balconies PB1 and PB2
 Antenna Beamwidths +/- 5°
 $H_T(u) = 16.2m$, $P_T(u) = 5dBm$, $G_T(u) = 23.5dB$, $f_c=24.051$, Blue
 $H_T(l) = 11.8m$, $P_T(l) = 5dBm$, $G_T(l) = 23.5dB$, $f_c=23.050GHz$, Red

Rx side: Footscray Rowing Club (Boat House)
 Antenna Beamwidth +/-10°, 7° steps. 6 Averages

Position 8(outdoors 1st floor, entrance terrace)
 $H_R(l) = 6.1m$, $G_R(l) = 17dB$, Distance=264m , Beamwidth +/-10°

Notes: NLOS scattering off trees or road crash barriers.

- Receiver located on ramp leading from Rowing Club main entry and North West car park. Elevation of receiver equates to 1 floor above ground level.
- F1 = 24.051GHz (Blue)
- Higher Tx position (16.2m) & LoS blocked by Rowing Club building. Peak signals received from scattering of signal at T7
- F2 = 24.050GHz (Red)
- Lower Tx position (11.8m) & LoS blocked by Rowing Club building. Peak signals received from scattering of signal at T7.
- Direct LoS for both F1 and F2 towards T7 trees. Scattering off T7 is therefore the same.



T14

T15

T10

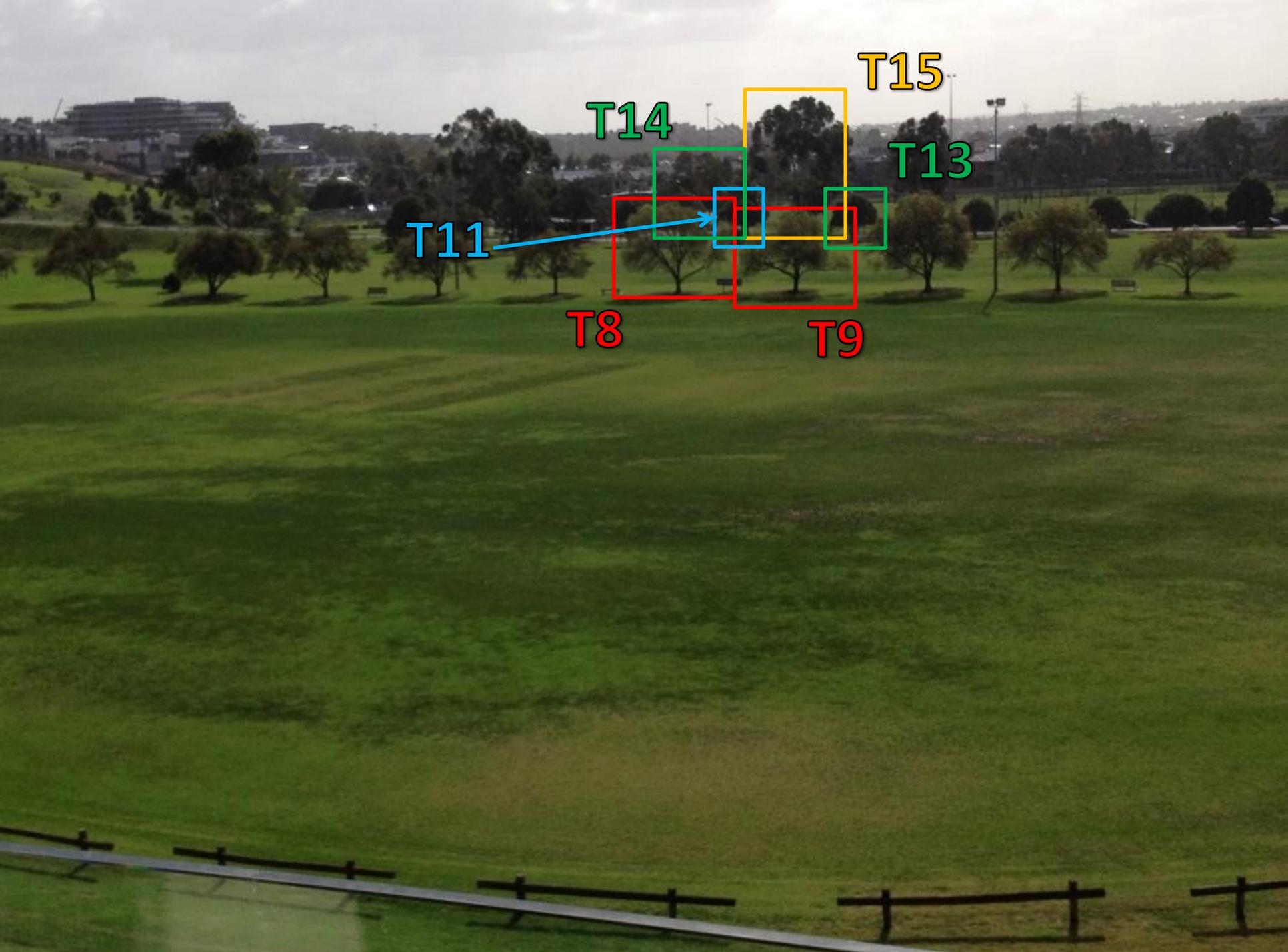
T13

T11

T12

T8

T9



T11

T8

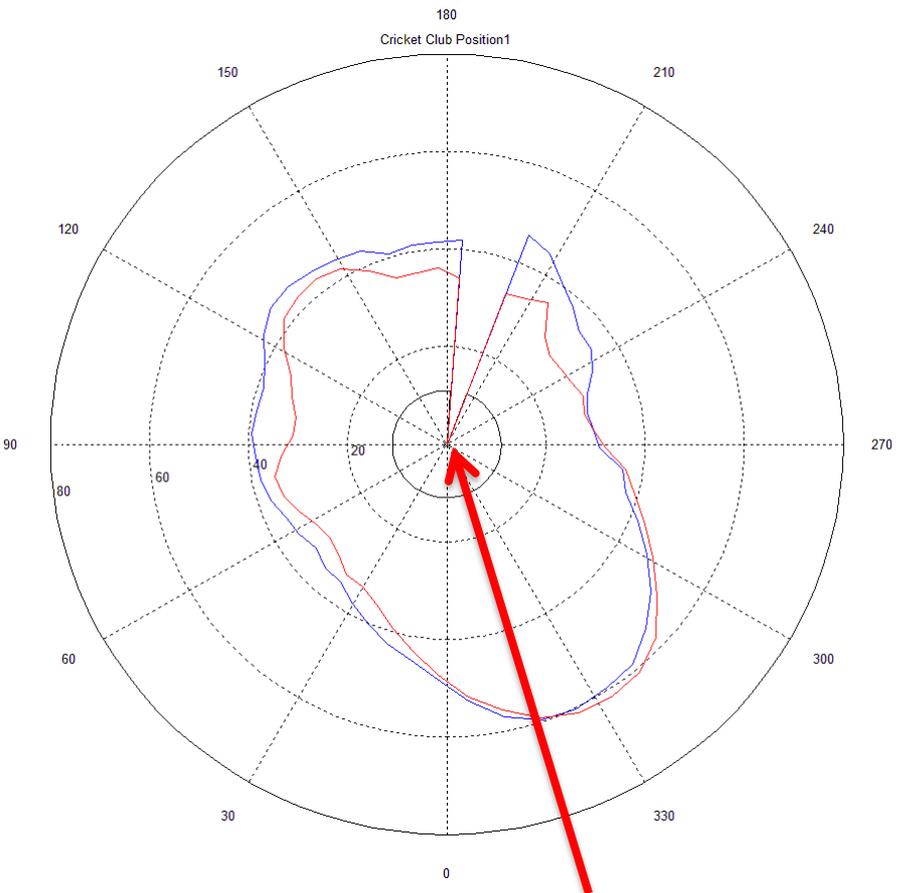
T14

T9

T15

T13

Cricket Club Position 1



Tx side: Building P balconies PB1 and PB2
 Antenna Beamwidths +/- 5°
 $H_T(u) = 16.2m$, $P_T(u) = 5dBm$, $G_T(u) = 23.5dB$, $f_c=24.051$, Blue
 $H_T(l) = 11.8m$, $P_T(l) = 5dBm$, $G_T(l) = 23.5dB$, $f_c=23.050GHz$, Red

Rx side: Footscray Cricket Club
 Antenna Beamwidth +/-10°, 7° steps. 12 Averages over 2 heights (1.5m and 1.7m)

Position C1 (outdoors)
 $H_R = 5.25m$, $G_R = 17dB$, Distance=365m , Beamwidth +/-10°

Notes: Near LOS slight, small(low-density) tree blockage.

- Receiver located outside North East corner of Cricket Club.
- F1 = 24.051GHz (Blue)
- Higher Tx position (16.2m) & minimal LoS caused by slight scattering from T8, T9, T14, & T15. Signal passes directly over T11 due to highly elevated Tx position and the small height of T11.
- F2 = 24.050GHz (Red)
- Lower Tx position (11.8m) & minimal LoS caused by slight scattering from T8, T9, T14, & T15. Signal passes directly over T11 due to elevated Tx position and the small height of T11. Received signals are slightly lower than F1 due to lower Tx height allowing for a greater effect by foliage.
- Signal levels are large in LoS angles due to minimal scattering caused by previously mentioned trees. Rx location allows LoS to not pass through any tree directly which displays the similar F1 and F2 readings. Reflected F1 signal from North East caused by elevated buildings. F2 reflection is weaker due to lower Tx height, this allows for greater scattering effects from foliage.