One node acts as a simplified LTE base station (eNode-B). It generates the primary and secondary synchronization sequence (PSS and SSS) as well as the physical broadcast channel (PBCH). Another three close-by CORNET nodes act as LTE user equipment (UE). UE 1 (middle left terminal) is the closest to the eNode-B. UE 2 (middle right terminal) is a farther away from the eNode-B UE 3 (lower terminal) is farthest away from the eNode-B.

UE1 and UE2 sense the spectrum around the LTE carrier frequency, which was chosen as 440 MHz. The signal appears stronger at UE1, due to its closer proximity and less power loss due to propagation.

UE3 executes the UE side waveform, which first synchronizes to the base station (finding the PSS and SSS) for time alignment and frequency offset correction. Then the broadcast channel can be located and decoded, containing the system frame number—10 bit number, incremented every 10 ms—, among others. The decoding of the broadcast channel involves channel equalization via pilot or reference signals. The constellation diagram shows the QPSK symbols after equalization.

Next, we stop the spectrum sensing at UE2 and execute the receiver waveform—the same waveform as UE3. Note how the symbols are closer, because of higher SNR due to proximity of UE2. Nevertheless, all bits are correctly decoded for UE3 (see lower terminal.)

Finally UE2 stops sensing ad starts its receiver processing chain. It synchronizes and correctly decodes the information on the broadcast channel.

UE1 and UE3 momentarily fall out of sync, but resynchronize again.