Algorithm 4 DistancePruning(Position q, int k)

ObjectSet $O' \leftarrow \emptyset$;
Double $f \leftarrow +\infty$;
CellSet $seeds \leftarrow \emptyset$;
Initialize a min-heap $H\langle\langle d, v\rangle\rangle$;
if q is in the activation range of a device dev **then**
    $O' \leftarrow DHT[dev]$; $seeds \leftarrow G.\ell_E^{-1}(dev)$;
    for each cell c in $seeds$ **do**
        $O' \leftarrow O' \cup CDHT[c] \cup CNHT[c]$; $EnheapDoors(H, c)$;
else
    Room $r \leftarrow Rooms(q)$;
    Cell $c \leftarrow Cells^{-1}(r)$;
    $O' \leftarrow CDHT[c] \cup CNHT[c]$;
    Add c into $seeds$; $EnheapDoors(H, c)$;
if $|O'| \geq k$ **then**
    $f \leftarrow Bound(O')$;
while H is not empty **do**
    $e \leftarrow deheap(H)$;
    if $e.v > f$ **then**
        break;
    Set $e.d$ as visited;
    $dev \leftarrow PA2D^{-1}(e.d)$; $O' \leftarrow O' \cup DHT[dev]$;
    for each cell c in $G.\ell_E^{-1}(dev)$ **do**
        if $c \notin seeds$ **then**
            $O' \leftarrow O' \cup CDHT[c] \cup CNHT[c]$;
            for each dev in $G.\ell_E(\{c, c\})$ **do**
                if $(PR2D(dev, d) + e.v) \leq f$ **then**
                $O' \leftarrow O' \cup DHT[dev]$;
            Add c into $seeds$; $EnheapDoors(H, c)$;
    if $|O'| \geq k$ **then**
        $f \leftarrow Bound(O')$;