average power calculator **436** continues to sample signal strengths **438** from signal strength module **402**. For example, suppose a relatively weak burst from a first mobile station **15** is identified in a first uplink beam and that beam is selected as fast decision beam selection **440** in the beginning of a time slot. Fast decision algorithm **430** may continue to search for a stronger burst from a second mobile station **15** arriving at smart antenna apparatus **16** via a second uplink beam later in the time slot. If the burst identified in the second beam station is sufficiently stronger than the burst identified in the first beam, fast decision beam selection module **408** may switch fast decision beam selection **440** from the first beam to the second beam.

[**0178**] As buffer **480** continues to update the average power **484** of each uplink beam **130**, fast decision algorithm **430** may determine whether the average power **484** of the current strongest uplink beam **130** exceeds that of the current fast decision beam selection **440** by an amount greater than improvement threshold **434**. If fast decision algorithm **430** determines that current strongest uplink beam **130** does exceed that of the current fast decision beam selection **440** by an amount greater than improvement threshold **434**, fast decision beam selection module **408** may switch fast decision beam selection **440** to the current strongest uplink beam **130**. If fast decision algorithm **430** determines that current strongest uplink beam **130** does not exceed that of the current fast decision beam selection **440** by an amount greater than improvement threshold **434**, fast decision beam selection module **408** may maintain the most recently selected fast decision beam selection **440**.

[**0179**] Fast decision algorithm **430** may continue to determine whether the average power **484** of the current strongest uplink beam **130** exceeds that of the currently current fast decision beam selection **440** by an amount greater than the improvement threshold **434**, and fast decision beam selection module **408** may continue to switch the selected fast decision beam selection **440** accordingly. In some embodiments, fast decision beam selection module **408** continues switching or updating fast decision beam selection **440** as described above until a certain time is reached. For example, in a GSM environment, fast decision beam selection module **408** may continue switching fast decision beam selection **440** until the last point in the time slot in which a random access channel (RACH) signal could be received by smart antenna apparatus **16**. In particular, fast decision beam selection module **408** continues switching fast decision beam selection **440** until the approximate middle of the time slot is reached. In one embodiment, fast decision beam selection module **408** continues switching until the 61st GSM bit in the time slot is reached.

[**0180**] In another embodiment, fast decision beam selection module **408** continues switching or updating fast decision beam selection **440** as described above until the same uplink beam **130** remains the selected uplink beam **130** for a defined time period. When the same uplink beam **130** remains selected as fast decision beam selection **440** for a defined time period, that uplink beam **130** may be locked in and fast decision beam selection module **408** may refuse to switch to any other uplink beam **130**, regardless of whether the average power **484** of the current strongest uplink beam **130** exceeds the locked-in uplink beam **130** by the improvement threshold **434**. For example, in one embodiment, fast decision beam selection module **408** continues switching fast decision beam selection **440** until the same uplink beam **130** is selected as fast decision beam selection **440** for a period of time equal to approximately three GSM bits. In this embodiment, when the same uplink beam **130** remains the fast decision beam selection **440** for approximately three GSM bits, that uplink beam **130** is locked in and fast decision beam selection module **408** will not switch to any other uplink beam **130**.

[**0181**] Fast decision beam selection module **408** may be operable to determine, or switch, fast decision beam selection **440** substantially in real time. For example, average power calculator **436** may determine the average power **484** of each uplink beam **130** during based on signals received via each uplink beam **130** in a first portion of a first time slot of a first frame. Fast decision algorithm **430** may then select the uplink beam **130** based at least in part on the average power **484** of each uplink beam **130**. Receiving beam switch **127** may then switch to the selected uplink beam **130** such that signals received via the selected uplink beam **130** in a second portion of the first time slot of the first frame may be communicated to the base station transceiver in real time.

[**0182**] In some embodiments, fast decision beam selection module **408** is operable to determine, or switch, fast decision beam selection **440** to the appropriate uplink beam **130** each time average power calculator **436** calculates or updates the average power **484** of each uplink beam **130**. To provide further illustration, suppose mobile station **15** communicates a RACH burst, such as a call initiation request or an access request, which is received by processing system **102** via a particular uplink beam **130**. Fast decision beam selection module **408** may identify the RACH burst and select the uplink beam **130** as fast decision beam selection **440** before the end of the pre-message, tail, or guard portion of the burst. In one embodiment in a GSM environment, beam selection module **408** is operable to select fast decision beam selection **440** during the 3 GSM bit tail portion at the beginning of a burst.

[**0183**] Fast decision beam selection module **408** may be used in variety of circumstances. For example, beam selection decisions made by fast decision beam selection module **408** may be used during the initiation of a call by a mobile station **15** or in some situations in which the location of a mobile station **15** is unknown by smart antenna system **14**. In particular, fast decision beam selection module **408** may be used to make beam selection determinations regarding a communication initiation signal, such as a random access channel (RACH) signal, received from a mobile station **15**, as described above. In addition, in some embodiments, beam selection determinations made by fast decision beam selection module **408** are used initially after mobile station **15** has switched to a particular traffic channel according to base station control signals.

[**0184**] Fast decision beam selection module **408** provides the ability to switch beams in real time for communications about which smart antenna apparatus **16** has little or no previous information. In particular, fast decision beam selection module **408** may be operable to select and switch beams for call initiation signals received from mobile stations **15**. Thus, since beam selection generally decreases interference and increases the coverage or range of an antenna system, smart antenna system **14** has a increased range for identifying initial signals, such as access requests or call initiation