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| **Requirement** | **Description** | **Evidence** |
| 1 | Reset shall bring the VGA synchronization circuit to a known state with all outputs inactive | All the states are in a known state after the reset, because there are no X’s on  the test fixture |
| 2 | The VGA synchronization logic shall be updated at a 25MHz rate | h\_count updates every 25Mhz rate, which means the vga synchornization will update every 4 clock ticks. H\_count updates every 4 posedge clock ticks |
| 3 | The Horizontal Scan count shall be updated at 25 MHz rate | After 4 clock tick on the posedge of the clock the h\_count is updated. |
| 4 | The Horizontal Scan Count shall range from 0 to 799 | H\_count ranges from 0 to 799 and goes back to 0. |
| 5 | The Horizontal Sync signal shall be LOW ACTIVE and shall be active from Horizontal Scan Count 656 through 751 | Horizontal sync signal is low active so h\_sync signal is asserted until h\_count hits 656. After it hits it the h\_sync is deasserted until the h\_count hits 751. |
| 6 | The Horizontal Video On signal shall be High Active and shall be active from horizontal scan count 0 through 639 | video on is on until the h\_count is lessthan 639. It is high active, therefore it is asserted until 639 and deasserted at 640 |
| 7 | The vertical scan count shall be updated at a completion of a horizontal scan | Vertical count will be updtated after counting 799 of h\_count. V\_count changes value at the same posedge that h\_count is updated to 0. |
| 8 | The vertical scan count shall range from 0 to 524 | V\_count ranges from 0 to 524 and after the v\_count reaches 524, it goes back to 0. |
| 9 | The vertical sync signal shall be LOW ACTIVE and shall be active from vertical scan count 490 through 491 | Since the vertical sync is low active, the test fixture below shows that the v\_count 490-491 is the same timing as when the v\_sync is deasserted(low active). |
| 10 | The vertical video on signal shall be High Active and shall be active from vertical scan count 0 through 479 | As the test fixture on top of this text shows, the video\_on signal is deasserted right after the v\_count hits 479. |
| 11 | The video on signal shall be high active and shall be active when horizontal video on and vertical video on are active at the same time | Video on signal is only active when the v\_count and h\_count are active at the same time.  When h\_count is at 640, the h\_video\_on is deasserted, therefore the video\_on is deasserted. |
| 12 | The RGB signals shall be driven while the video on signal is active. When the video on signal is inactive the RGB signals shall be held at 0’s | The RGB signal only active when the video on is asserted. It is in a single line assign statement to assign color to the switches only when the video\_on is asserted |