#### 9.1.2.1 Type-1 HARQ-ACK codebook in physical uplink control channel

For a serving cell , an active DL BWP, and an active UL BWP, as described in Clause 12, the UE determines a set of  occasions for candidate PDSCH receptions for which the UE can transmit corresponding HARQ-ACK information in a PUCCH in slot . If serving cell  is deactivated, the UE uses as the active DL BWP for determining the set of  occasions for candidate PDSCH receptions a DL BWP provided by *firstActiveDownlinkBWP-Id*. The determination is based:

a) on a set of slot timing values  associated with the active UL BWP

a) If the UE is configured to monitor PDCCH for DCI format 1\_0 and is not configured to monitor PDCCH for DCI format 1\_1 on serving cell ,  is provided by the slot timing values {1, 2, 3, 4, 5, 6, 7, 8} for DCI format 1\_0

b) If the UE is configured to monitor PDCCH for DCI format 1\_1 for serving cell ,  is provided by *dl-DataToUL-ACK* for DCI format 1\_1

b) on a set of row indexes  of a table that is provided either by a first set of row indexes of a table that is provided by *pdsch-TimeDomainAllocationList* in *pdsch-ConfigCommon* or by Default PDSCH time domain resource allocation A [6, TS 38.214], or by the union of the first set of row indexes and a second set of row indexes, if provided by *pdsch-TimeDomainAllocationList* in *pdsch-Config*, associated with the active DL BWP and defining respective sets of slot offsets , start and length indicators *SLIV*, and PDSCH mapping types for PDSCH reception as described in [6, TS 38.214]

1. if the UE is configured with *ReferenceofSLIV-ForDCIFormat1\_2*, for each row index with slot offset *K0=0* and PDSCH mapping Type B in a set of row indexes of a table for DCI format 1\_2 as defined in [6, TS 38.214], for each PDCCH monitoring occasion among a PDCCH monitoring occasion set with different starting symbols within a slot associated with DCI format 1\_2 with starting symbol *S0>*0,if  for normal cyclic prefix and  for extended cyclic prefix, add a new row index in the set of row indexes of a table for DCI format 1\_2 by replacing the starting symbol *S* of the row index by 

c) on the ratio  between the downlink SCS configuration  and the uplink SCS configuration  provided by *subcarrierSpacing* in *BWP-Downlink* and *BWP-Uplink* for the active DL BWP and the active UL BWP, respectively

d) if provided, on *tdd-UL-DL-ConfigurationCommon* and *tdd-UL-DL-ConfigurationDedicated* as described in Clause 11.1

e) if *CA-slot-offset* is provided, on $N\_{slot,offset,c}^{DL} $and $μ\_{offset,DL,c}$ for serving cell $c$, or on$N\_{slot,offset}^{UL} $ and $μ\_{offsetUL}$for the cell of PUCCH transmission, as described in [4, TS 38.211].