PROTOCOL for v12_3DPC_KEY_data Project V1

Based on CCS831_IWR6843_ODS_ES2_SDK3303_I410_3DPC
v1 2019.11.25 1. basic

Abstract:

This document dedicated description for 3DPC (People Count) KEY Data Protocol based on mmWave Platform and UART baud as 912600/8/n/1

Description:

The Key Data Protocol structure definition as following,
<Structure> := h F FR OM OI X Y Z Vx Vy Vz Ax Ay Az S c t d (more detail see Appendix A1)

Appendix:

(A1) Protocol: total 49 bytes

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//* PROTOCOL for KeyData syntax :=  h F FR OM OI T X Y Z Vx Vy Vz Ax Ay Az S c t d
//* ------------------------------------------------------------------------------------------
//* Item    Abbr    Name        Location        Length      Type    Description
//* ------------------------------------------------------------------------------------------
//* 1       h       Header      0               1           U8      Header; or '{', or 0x7B
//* 2       F       FlowNum     1               1           U8      Flow Number; or '0'..'9'
//* 3       FR      FrameNum    2 3 4 5         4           U32     Frame Number; unsigned long
//* 4       OM      ObjMax      6               1           U8      Object Max; 0..255
//* 5       OI      ObjIdx      7               1           U8      Object Index; 0..255
//* 6       T       TID         8               1           U8      Track ID; 0..255
//* 7       X       X           9 10 11 12      4           F32     X position; unit: Meter
//* 8       Y       Y           13 14 15 16     4           F32     Y position; unit: Meter
//* 9       Z       Z           17 18 19 20     4           F32     Z position; unit: Meter
//* 10      Vx      Vx          21 22 23 24     4           F32     X velocity; unit: Meter / Sec
//* 11      Vy      Vy          25 26 27 28     4           F32     Y velocity; unit: Meter / Sec
//* 12      Vz      Vz          29 30 31 32     4           F32     Z velocity; unit: Meter / Sec
//* 13      Ax      Ax          33 34 35 36     4           F32     X accelaration; unit: Meter / Sec ^ 2
//* 14      Ay      Ay          37 38 39 40     4           F32     Y accelaration; unit: Meter / Sec ^ 2
//* 15      Az      Az          41 42 43 44     4           F32     Z accelaration; unit: Meter / Sec ^ 2
//* 16      S       State       45              1           U8      for State Machine
//* 17      c       cs          46              1           U8      CheckSum;'a'..'z'
//* 18      t       Tail        47              1           U8      Tail; or '}'; or 0x7D
//* 19      d       Delimiter   48              1           U8      on {End of Frame} use ';' else ','
//* Notes:
//*     1. PsudoCode for Flow Number := (FlowNum % 10) + '0';  for readable
//*     2. PsudoCode for CheckSum := (xor(Location0..Location46) % 26) + 'a'; for readable
//*     3. send out Key Data via TX1, baud rate 921600/8/n/1
//*     4. delimiter ',' or 0x2C for end of OBJECT
//*     5. delimiter ';' or 0x3B for end of FRAME
//* ------------------------------------------------------------------------------------------
```

(A2) Example: logged KEY data from module via Tx1 Baud 921600/8/n/1 by TeraTerm tool v4.104 in real case