

# V20 TMD PROTOCOL based on mmWave Platform v20.10

## Abstract:

This document dedicated description for TMD Protocol based on mmWave Platform

## Description:

This Protocol structure includes two sections as followings,  
 <Structure> := <TitleSection(22Bytes)> [<DataSection(22Bytes)>]  
 here [<DataSection>] is optional item depended by Target be found  
 TotalBytesNumber := 22 + (22 \* numberOfTargets)  
 FramePeriodTime := 100 ms  
 UART port Baud Rate : 921600/8/n/1

## Appendix:

(A1) <TitleSection>

/\*\* Syntax: h f F P T O t

Item	Abbre	Name	Location	Length	Type	Description
0	h	Header	0	1	'['	Header, 0x5B
1	f	"frame="	1	6	U8 Array	"frame="
2	F	FrameNumber	7 8 9 10	4	U32	FrameNumber
3	P	"target="	11..17	7	U8 Array	"target="
4	T	TotalTargetNumber	18	1	U8	TotalTargetNumber
5	O	ObjectNumber	19 20	2	U16	ObjectNumber
6	t	Tail	21	1	']'	Tail, 0x5D

(A2) <DataSection>

/\*\* Syntax: h i x y vx vy T I t

Item	Abbre	Name	Location	Length	Type	Description
0	h	Header	0	1	'<'	Header, 0x3C
1	i	Index	1	1	U8	index
2	x	Position x	2 3 4 5	4	F32	position x
3	y	Position y	6 7 8 9	4	F32	position y
4	vx	Velocity x	10 11 12 13	4	F32	velocity vx
5	vy	Velocity y	14 15 16 17	4	F32	velocity vy
6	T	TargetID	18	1	U8	TagrgetID
7	I	Intensity	19 20	2	U16	Intensity
8	t	Tail	21	1	'>'	Tail, 0x3E

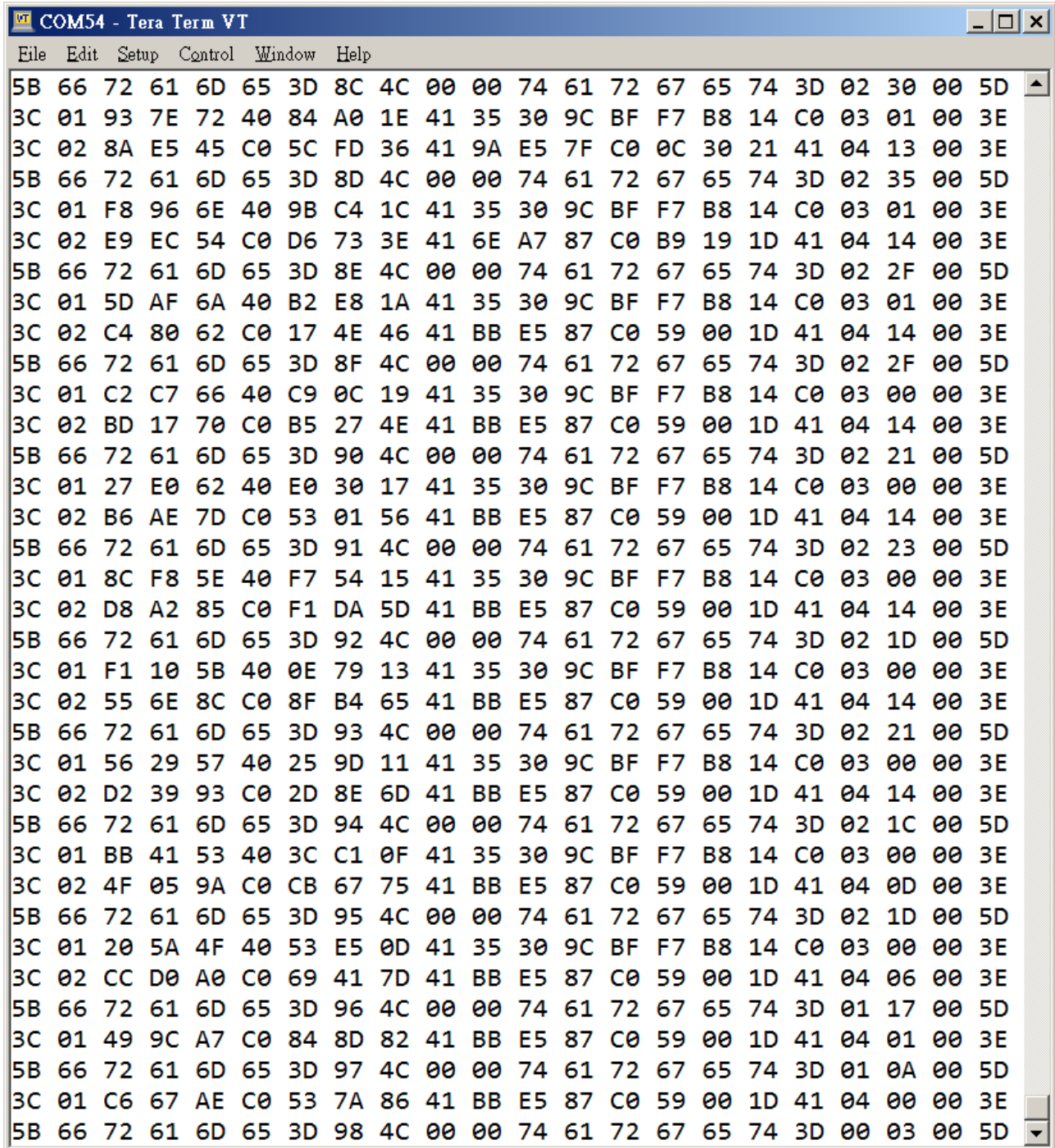
Alert: TargetID is assigned by program

Intensity is accumulated points by successive 10 frames in 2 meter radius circle

Notes: Type definition as followings,

U8 := unsigned char (1 bytes)  
 U16 := unsigned int (2 bytes in LittleEndian format)  
 U32 := unsigned long (4 bytes in LittleEndian format)  
 F32 := float (4 bytes in LittleEndian format)

(A3) Example on data logged in Real case  
Software Tool : Tera Term V4.104



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COM54 - Tera Term VT
File Edit Setup Control Window Help
5B 66 72 61 6D 65 3D 8C 4C 00 00 74 61 72 67 65 74 3D 02 30 00 5D
3C 01 93 7E 72 40 84 A0 1E 41 35 30 9C BF F7 B8 14 C0 03 01 00 3E
3C 02 8A E5 45 C0 5C FD 36 41 9A E5 7F C0 0C 30 21 41 04 13 00 3E
5B 66 72 61 6D 65 3D 8D 4C 00 00 74 61 72 67 65 74 3D 02 35 00 5D
3C 01 F8 96 6E 40 9B C4 1C 41 35 30 9C BF F7 B8 14 C0 03 01 00 3E
3C 02 E9 EC 54 C0 D6 73 3E 41 6E A7 87 C0 B9 19 1D 41 04 14 00 3E
5B 66 72 61 6D 65 3D 8E 4C 00 00 74 61 72 67 65 74 3D 02 2F 00 5D
3C 01 5D AF 6A 40 B2 E8 1A 41 35 30 9C BF F7 B8 14 C0 03 01 00 3E
3C 02 C4 80 62 C0 17 4E 46 41 BB E5 87 C0 59 00 1D 41 04 14 00 3E
5B 66 72 61 6D 65 3D 8F 4C 00 00 74 61 72 67 65 74 3D 02 2F 00 5D
3C 01 C2 C7 66 40 C9 0C 19 41 35 30 9C BF F7 B8 14 C0 03 00 00 3E
3C 02 BD 17 70 C0 B5 27 4E 41 BB E5 87 C0 59 00 1D 41 04 14 00 3E
5B 66 72 61 6D 65 3D 90 4C 00 00 74 61 72 67 65 74 3D 02 21 00 5D
3C 01 27 E0 62 40 E0 30 17 41 35 30 9C BF F7 B8 14 C0 03 00 00 3E
3C 02 B6 AE 7D C0 53 01 56 41 BB E5 87 C0 59 00 1D 41 04 14 00 3E
5B 66 72 61 6D 65 3D 91 4C 00 00 74 61 72 67 65 74 3D 02 23 00 5D
3C 01 8C F8 5E 40 F7 54 15 41 35 30 9C BF F7 B8 14 C0 03 00 00 3E
3C 02 D8 A2 85 C0 F1 DA 5D 41 BB E5 87 C0 59 00 1D 41 04 14 00 3E
5B 66 72 61 6D 65 3D 92 4C 00 00 74 61 72 67 65 74 3D 02 1D 00 5D
3C 01 F1 10 5B 40 0E 79 13 41 35 30 9C BF F7 B8 14 C0 03 00 00 3E
3C 02 55 6E 8C C0 8F B4 65 41 BB E5 87 C0 59 00 1D 41 04 14 00 3E
5B 66 72 61 6D 65 3D 93 4C 00 00 74 61 72 67 65 74 3D 02 21 00 5D
3C 01 56 29 57 40 25 9D 11 41 35 30 9C BF F7 B8 14 C0 03 00 00 3E
3C 02 D2 39 93 C0 2D 8E 6D 41 BB E5 87 C0 59 00 1D 41 04 14 00 3E
5B 66 72 61 6D 65 3D 94 4C 00 00 74 61 72 67 65 74 3D 02 1C 00 5D
3C 01 BB 41 53 40 3C C1 0F 41 35 30 9C BF F7 B8 14 C0 03 00 00 3E
3C 02 4F 05 9A C0 CB 67 75 41 BB E5 87 C0 59 00 1D 41 04 0D 00 3E
5B 66 72 61 6D 65 3D 95 4C 00 00 74 61 72 67 65 74 3D 02 1D 00 5D
3C 01 20 5A 4F 40 53 E5 0D 41 35 30 9C BF F7 B8 14 C0 03 00 00 3E
3C 02 CC D0 A0 C0 69 41 7D 41 BB E5 87 C0 59 00 1D 41 04 06 00 3E
5B 66 72 61 6D 65 3D 96 4C 00 00 74 61 72 67 65 74 3D 01 17 00 5D
3C 01 49 9C A7 C0 84 8D 82 41 BB E5 87 C0 59 00 1D 41 04 01 00 3E
5B 66 72 61 6D 65 3D 97 4C 00 00 74 61 72 67 65 74 3D 01 0A 00 5D
3C 01 C6 67 AE C0 53 7A 86 41 BB E5 87 C0 59 00 1D 41 04 00 00 3E
5B 66 72 61 6D 65 3D 98 4C 00 00 74 61 72 67 65 74 3D 00 03 00 5D
  
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