简述

- pdu具体的参数定义，大小、位置和意义。

记录

- 地址域Address fields()：Each address field of the SM- TL consists of the following sub- fields: An Address- Length field of one octet, a Type- of- Address field of one octet, and one Address- Value field of variable length;
  - 地址类型格式

bits	7	6、5、4	3、2、1、0
内容	1	Type-of-number	Numbering-plan-identification

- UCS-2:2-byte Universal Character Set，而相对 UTF-8（变长编码）不同，它是一种定长的编码方式，UCS-2 仅仅简单的使用一个16位码元来表示码位，也就是说它可以表示 Unicode 编码从 u0000 到 uFFFF 码位范围内的所有字符。

tpdu参数定义

1. TP-Message-Type-Indicator (TP- MTI)

   - The TP-Message-Type-Indicator is a 2-bit field, located within **bits no 0 and 1 of the first octet** of all PDUs which can be given the following values

   -
bit1	bit0	Message type
0	0	SMS- DELIVER (in the direction SC to MS)
0	0	SMS-DELIVER REPORT (in the direction MS to sC)
1	0	SMS-STATUS-REPORT(in the direction SC to MS)
1	0	SMS-COMMAND (in the direction MS to sC)
0	1	SMS-SUBMIT (in the direction MS to SC)
0	1	SMs-SUBMIT-REPORT (in the direction SC to MS) Reserved
1	1	Reserved

2. TP- More- Messages- to- Send (TP- MMS)

   - The TP- More- Messages- to- Send is a 1- bit field, located within **bit no 2 of the first octet** of SMS- DELIVER and
     SMS- STATUS- REPORT

     - 0   More messages are waiting for the MS in this SC
     - 1   No more messages are waiting for the MS in this SC

3. TP- Validity- Period- Format (TP- VPF)

   - The TP- Validity- Period- Format is a 2- bit field, located within bit **no 3 and 4 of the first octet** of SMS- SUBMI

   - bit4 bit3

- 0   0   TP- VP field not present
- 1   0   TP- VP field present - relative format
- 0   1   TP-VP field present - enhanced format
- 1   1   TP- VP field present - absolute format

  - Any unsupported value may be rejected by the SC by returning the "TP-VPF not supported" TP-FCS value in the SMS
    Submit Report for RP-Error.

4. TP- Status- Report- Indication (TP- SRI)

  - The TP- Status- Report- Indication is a 1- bit field, located within **bit no. 5** of the first octet of SMS- DELIVER

    - 0   A status report shall not be returned to the SME
    - 1   A status report shall be returned to the SME

5. TP- Status- Report- Request (TP- SRR)

  - The TP- Status- Report- Request is a 1- bit field, located within **bit no. 5** of the first octet of SMS- SUBMIT and SMS- COMMAND

    - 0   A status report is not requested
    - 1   A status report is requested

6. TP- User- Data- Header- Indicator (TP- UDHI)

  - The TP- User- Data- Header- Indicator is a 1 bit field within **bit no 6** of the first octet of the following six PDUs

    - 0   The TP- UD field contains only the short message
    - 1   The beginning of the TP- UD field contains a Header in addition to the short message.

7. TP- Reply- Path (TP- RP)

  - The TP- Reply- Path is a 1- bit field, located within **bit no 7** of the first octet of both SMS- DELIVER and SMS- SUBMIT

8. TP- Message- Reference (TP- MR)

  - The TP- Message- Reference field gives an integer representation of a reference number of the SMS- SUBMIT or SMS- COMMAND submitted to the SC by the MS. The MS increments TP- Message- Reference by 1 for each SMS- SUBMIT or SMS- COMMAND being submitted.

9. TP- Originating- Address (TP- OA)

  - 遵循地址域规则

10. TP- Destination- Address (TP- DA)

  - 遵循地址域规则

11. TP- Protocol- Identifier (TP- PID)

12. TP- Data- Coding- Scheme (TP- DCS)

13. TP- Service- Centre- Time- Stamp (TP- SCTS)

  - The TP- Service- Centre- Time- Stamp field is given in semi- octet representation

  -
	Year:	Month:	Day:	Hour:	Minute:	Second:	Time zone

	Year:	Month:	Day:	Hour:	Minute:	Second:	Time zone
Digits: (Semi-octets)	2	2	2	2	2	2	2

14. TP- Validity- Period (TP-VP)

    - TP-VP (Relative format)

        - The TP- Validity- Period comprises 1 octet in integer representation, giving the length of the validity period, counted from when the SMS- SUBMIT is received by the SC.

TP-VP value	Validity period value
o to 143	(TP-VP+1)x5 minutes (i.e.5 minutes intervals up to 12 hours)
144 to 167	12 hours +((TP-VP-143)x 30 minutes)
168 to 196	(TP-VP- 166)x 1 day
197 to 255	I(TP-VP-192)x 1 week

    - TP-VP (Absolute format)

        - The TP-Validity Period comprises 7 octets in semi octet representation giving the absolute time of the validity period termination.

    - TP-VP (Enhanced format)

        - The TP-Validity Period comprises 7 octets. The presence of all octets is mandatory although they may not all be used. The first octet indicates the way in which the following 6 octets are used.

15. TP- Discharge- Time (TP- DT)

    - The TP- Discharge- Time field indicates the time at which a previously submitted SMS-SUBMIT was successfully delivered to or attempted to deliver to the recipient SME or disposed of by the SC.

16. TP- Recipient- Address (TP- RA)

    - The TP- Recipient- Address field indicates the address of the SME that was the destination of the previously submitted mobile originated short message being subject to the status report.

17. The TP- Status field indicates the status of a previously submitted SMS- SUBMIT and certain SMS COMMANDS for which a Status - Report has been requested.

18. TP- User- Data- Length (TP- UDL)

19. TP- Message- Number (TP- MN)

    - The TP- Message- Number is an 8- bit field allowing an MS to refer uniquely to an SM in the SC which that MS has
      previously submitted. The TP- MN value is the TP- MR value of a previously submitted SM.

20. TP- Command- Type (TP- CT)

    - The TP- Command- Type is an 8- bit field specifying the type of operation that the SC is to perform. It has the following values

Value (bit 7 .. 0)	Command Description	Status Report Request Value
00000000	Enquiry relating to previously submitted short message	1
00000001	Cancel Status Report Request relating to previously submitted short message	0
00000010	Delete previously submitted Short Message	0
00000011	Enable Status Report Request relating to previously submitted short message	0
00000100..00011111	Reserved	unspecified
11100000..11111111	Values specific for each SC	1 or 0

21. TP- Command- Data- Length (TP- CDL)

   - The TP- Command- Data- Length field is used to indicate the number of octets contained within the TP- Command- Data- field. If this field is set to zero, the TP- Command- Data field shall not be present.

22. TP- Command- Data (TP- CD)

   - The TP- Command- Data field contains data relating to the operation requested by the MS which is to be performed at the SC. The maximum length of this field is 157 octets. The usage and provision of the optional TP- Command- Data field shall be determined by the function selected by the TP- Command- Type field.

23. **TP- Failure- Cause (TP- FCS)**

   - The TP- Failure- Cause field is used to report the reason for failure to transfer or process a short message. a single octet

TP-FCS Value(Hex)	Meaning	When used	
		MO	*MT*
00 - 7F	Reserved		
80 - 8F	TP-PID errors		
80	Telematic interworking not supported	x	
81	Short message Type 0 not supported	x	x
82	Cannot replace short message	x	x
83 - 8E	Reserved		
8F	Unspecified TP-PID error	x	x

TP-FCS Value(Hex)	Meaning	When used	
90 - 9F	TP-DCS errors		
90	Data coding scheme (alphabet) not supported	x	
91	Message class not supported		x
92 - 9E	Reserved		
9F	Unspecified TP-DCS error	x	x
A0 - AF	TP-Command Errors		
A0	Command cannot be actioned	x	
A1	Command unsupported	x	
A2 - AE	Reserved		
AF	Unspecified TP-Command error	x	
B0	TPDU not supported	x	x
B1 - BF	Reserved		
C0	SC busy	x	
C1	No SC subscription	x	
C2	SC system failure	x	
C3	Invalid SME address	x	
C4	Destination SME barred	x	
C5	SM Rejected-Duplicate SM	x	
C6	TP-VPF not supported	X	
C7	TP-VP not supported	X	
C8 - CF	Reserved		
D0	(U)SIM SMS storage full		x
D1	No SMS storage capability in (U)SIM		x

TP-FCS Value(Hex)	Meaning	When used	
D2	Error in MS		x
D3	Memory Capacity Exceeded		X
D4	(U)SIM Application Toolkit Busy		x
D5	(U)SIM data download error		x
D6 - DF	Reserved		
E0 - FE	Values specific to an application	x	x
FF	Unspecified error cause	x	x

- TP-User Data (TP-UD)