Specification Information Note

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for

Wireless Application Protocol
WAP-200-WDP-20000219-a

Wireless Datagram Protocol
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1. Scope

This document provides changes and corrections to the following document files:

- WAP-200-WDP-20000219-a
- WAP-200_002-WDP-20001213-a

It includes changes from the following change requests:

- CR-WDP-CDMAREF-20001212-MOTOROLA
- CR-WDP-20010130-Motorola-1a
- CR-WDP-20001113-Ericsson-1

2. Notation

In the subsections describing the changes new text is underlined. Removed text has ~~strikethrough~~ marks. The presented text is copied from the specification. Text that is not presented is not affected at all. The change descriptions may also include editor's notes similar to the one below. The notes are not part of the actual changes and must not be included in the changed text.

Editor's note: Framed notes like these only clarify where and how the changes shall be applied.

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3. Correct References to CDMA Specifications

3.1 Change Classification

Class 3 – Clerical Corrections

3.2 Change Summary

Many of the references to the CDMA standards in the specification are outdated and not represented correctly. The specification also refers to IS (Interim Standards) although the actual standards have now been published.

3.3 Change Description

Editor's note: Remove the following reference entries in section 3.1

~~[IS130] EIA/TIA IS-130~~
~~[IS135] EIA/TIA IS-135~~
~~[IS637] TIA/EIA/IS-637: Short Message Services for Wideband Spread Spectrum Cellular Systems~~
~~[IS-707] TIA/EIA/IS-707: Data Service Options for Wideband Spread Spectrum Systems~~
~~[IS732] EIA/TIA/IS-732 Cellular Digital Packet Data~~

Editor's note: Add the following reference entries in section 3.1 below the indicated existing reference

[TET SDSTL] ETSI Radio Equipment and System (RES); Terrestial Trunked Radio (TETRA); Voice plus Data (V+D); SDS Transport Layer

[TIAEIA-95] TIA/EIA-95-B: Mobile Station-Base Station Compatibility Standard for Wideband Spread Spectrum Cellular Systems

[TIAEIA-637] TIA/EIA-637-A: Short Message Service for Spread Spectrum Systems

[TIAEIA-707] TIA/EIA-707-A: Data Service Options for Spread Spectrum Systems

[TIAEIA-732] TIA/EIA/IS-732 series: Cellular Digital Packet Data

Editor's note: Remove the following reference entry in **section 3.2**

~~EIA/TIA/IS-95B Mobile Station – Base Station Compatibility Standard for Dual-Mode Spread Spectrum Systems~~

Editor's note: Modify the definitions on page 11

IS-637 SMS

IS-637 ~~specifies the transport and relay layers for~~ SMS [TIAEIA-637] provides a short message service in ~~over~~ IS-95 CDMA networks

IS-707 Circuit Switching Data

IS-707 Circuit Data Service [TIAEIA-707] provides a circuit data radio service in IS-95 CDMA networks

IS-707 Packet Data

IS-707 Packet Data [TIAEIA-707] provides a packet data radio service in IS-95 CDMA networks

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IS-95 CDMA

Wireless network technology defined in [TIAEIA-95]

Editor's note: Update the used reference tags to match the new reference entries.

5.4.4.1 CDMA Circuit-Switched Data Profile

Figure 5.15 illustrates the protocol profile for the WDP layer when operating over the CDMA Circuit-Switched Bearer Service. The Internet Service Provider (ISP) provides connectivity to the Internet network so that the mobile and WAP proxy server can address each other. The WAP proxy/server can terminate the WAE or serve as a proxy to other applications on the Internet. The CDMA Circuit-Switched Data protocol consists of TCP, IP, PPP & RLP layer as defined in [TIAEIA-707]~~IS-707 specification~~ over IS-95 air interface.

Editor's note: Skip over figure 5.15

The IS-707 Circuit Switching Data layer in Figure 5.15 includes a TCP/IP/PPP stack, which is used only between the mobile station and the IWF.

The profile defined here does not preclude the use of other non-standard data services that modify IS-707 ~~circuit data~~Circuit Switching Data to provide a direct connection from the IWF to the Internet. Such a service may provide a way to route IP packets between the mobile station and the WAP gateway via the Internet, without using the PSTN, and it may be used at the discretion of the mobile station manufacturer and network operator. The WAP stack is not affected by this change in the bearer service, as WDP will still use UDP datagrams to communicate with its peer.

Editor's note: In section **5.4.4.3 CDMA SMS** update reference tags

Figure 5.17 illustrates the protocol profile for the WDP layer when operating over the IS-637 SMS bearer service. The WAP Proxy/Server is Terminal Equipment, as defined in the reference model in [TIAEIA-637] ~~IS-637,~~ section 1.4.

Editor's note: In section **7.5 Mapping of WDP to CDMA SMS** update references.

Because some datagrams may be too long to fit in one SMS message, a datagram can be segmented, sent in several SMS messages, and reassembled at the destination. [TIAEIA-637]~~IS-637~~ does not define segmentation and reassembly procedures, so they are defined in this document.

SMS messages containing WDP datagrams MUST use the WAP teleservice, which ~~will be~~ is defined in [TIAEIA-637]~~an upcoming version of IS-637~~.

Editor's note: Remove unnecessary references to the name of the interim standard in section 7.5.3

7.5.3 Use of~~IS-637~~ MESSAGE_ID Field

Editor's note: Skip to table of address types on page 78.

IS_637_MSISDN	~~IS-637~~[TIAEIA-637]	IS-637 address format
ANSI_136_MSISDN	ANSI-136	ANSI-136 address format
GSM_MSISDN	GSM 03.40	GSM SMS address format
CDMA_MSISDN	~~IS-637~~[TIAEIA-637]	CDMA SMS address format

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4. New SCR Entries for Registered Port Numbers

4.1 Change Classification

Class 2 – Bug Fixes

4.2 Change Summary

As a result of resolving the WAP conformance testing problem report PR 2241 it has been concluded that support for the registered port number for a service is mandatory for an implementation claiming to support that service. This will be documented using the SCR tables. The SCR table in the WDP specification needs to have entries for the registered port numbers. The SCR in a specification defining a particular service will then list the applicable ones of these entries in the requirement column.

4.3 Change Description

Editor's note: Update the new format SCR table introduced in WAP-200_002-WDP. Add new rows to the SCR table between the rows for WDP-NA-009 and WDP-CDMA-C-000.

WDP-RP-C-001	Port 2948 for Push Connectionless Session Service	Appendix B	O	
WDP-RP-C-002	Port 2949 for Push Secure Connectionless Session Service	Appendix B	O	
WDP-RP-C-003	Port 9204 for vCard Datagram Service	Appendix B	O	
WDP-RP-C-004	Port 9205 for vCal Datagram Service	Appendix B	O	
WDP-RP-C-005	Port 9206 for vCard Secure Datagram Service	Appendix B	O	
WDP-RP-C-006	Port 9207 for vCal Secure Datagram Service	Appendix B	O	
WDP-RP-S-001	Port 2805 for WTA Secure Connectionless Session Service	Appendix B	O	
WDP-RP-S-002	Port 2923 for WTA Secure Session Service	Appendix B	O	
WDP-RP-S-003	Port 9200 for WAP Connectionless Session Service	Appendix B	O	
WDP-RP-S-004	Port 9201 for WAP Session Service	Appendix B	O	
WDP-RP-S-005	Port 9202 for WAP Secure Connectionless Session Service	Appendix B	O	
WDP-RP-S-006	Port 9203 for WAP Secure Session Service	Appendix B	O	
WDP-RP-S-007	Port 9204 for vCard Datagram Service	Appendix B	O	
WDP-RP-S-008	Port 9205 for vCal Datagram Service	Appendix B	O	
WDP-RP-S-009	Port 9206 for vCard Secure Datagram Service	Appendix B	O	
WDP-RP-S-010	Port 9207 for vCal Secure Datagram Service	Appendix B	O	

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5. Handling of MESSAGE_ID in CDMA SMS

5.1 Change Classification

Class 2 – Bug Fixes

5.2 Change Summary

The CDMA SMS adaptation specification stipulates that the WDP end point is responsible for assigning appropriate values on the MESSAGE_ID. However this is only feasible when the CDMA SMS protocol stack and WDP protocol is terminated in the same end point. This is natural from a mobile client perspective but not necessarily for a WAP Gateway/Proxy. For example, the CDMA SMS protocol stack could be terminated in a Short Message Service Centre (SMSC), and the WAP Gateway/Proxy is using "WDP and WCMP Wireless Data Gateway Adaptation" to connect to the SMSC. In this configuration the CDMA SMS protocol stack is terminated in the SMSC but the WDP protocol stack is terminated in the WAP Gateway/Proxy. Consequently there is no way for the WAP Gateway/Proxy to control how the "MESSAGE_ID" is assigned. "WDP and WCMP Wireless Data Gateway Adaptation" provides a sar_msg_ref_num parameter for this purpose, but it can be used only when the WAP Gateway/Proxy performs segmentation. As a result, it has to be stated that the WAP Gateway/Proxy may use the sar_msg_ref_num, but the SMSC is responsible for setting the value of the MESSAGE_ID, if no reference number is provided.

5.3 Change Description

Editor's note: In section **3.2 Informative References** add a new entry to the end of the list

[WDPWCMPAdapt] "WDP and WCMP Wireless Data Gateway Adaptation. WAP Forum™. WAP-159-WDPWCMPAdapt. URL:http://www.wapforum.org/.

Editor's note: On page 55 do the following changes.

TOTAL_SEGMENTS Total Number of Segments

The ~~WDP end point issuing this SMS message~~entity performing segmentation for the IS-637 SMS bearer shall set this field to the total number of segments that make up the datagram being delivered. This field shall not be set to '00000000'.

SEGMENT_NUMBER Segment Number

The ~~WDP end point issuing this SMS message~~entity performing segmentation for the IS-637 SMS bearer shall set this field to the segment number for this segment of the datagram. In the first segment of a datagram this field shall be set to '00000000'. In each subsequent segment, SEGMENT_NUMBER shall increase by 1.

DATAGRAM Datagram bytes

The ~~WDP end point issuing this SMS message~~entity performing segmentation for the IS-637 SMS bearer shall fill this field with the datagram bytes in this segment of the datagram. The NUM_FIELDS field of the User Data subparameter shall be set to the number of datagram bytes in the segment plus 3. If SEGMENT_NUMBER is not '00000000', the number of datagram bytes in this segment of the message shall not be greater than the number of bytes in the preceding segment.

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Editor's note: In section 7.5.3

When sending a WDP datagram in an IS-637 SMS message, the ~~WDP~~IS-637 SMS endpoint MUST set the MESSAGE_ID field of the Message Identifier subparameter as follows:

- If this SMS message contains the first segment of the first WDP datagram sent after ~~powering up~~the IS-637 SMS endpoint has restarted, the endpoint MUST set MESSAGE_ID equal to a random number in the range 0 through 65535.
- Otherwise, if this SMS message contains the first segment of a WDP datagram, the endpoint MUST increment the MESSAGE_ID value from the last WDP datagram sent, modulo 65536, to generate the MESSAGE_ID field for the SMS message.
- A message centre terminating the IS-637 SMS protocol MAY use as MESSAGE_ID a message reference number provided via a short message entity interface protocol. A suitable reference number is, for example, the 'sar_msg_ref_num' in [WDPWCMPAdapt]. However, if no reference number is provided, the message centre MUST set the value of MESSAGE_ID according to the rules described in this section.
- If the SMS message does not contain the first segment of a WDP datagram, the endpoint MUST set the MESSAGE_ID field equal to the MESSAGE_ID field from the SMS message containing the first segment of the WDP datagram.

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