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WirelessHART™ communication network and communication profile

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65C/506A/PAS	65C/513/RVD

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INTRODUCTION

This IEC/PAS 62591 provides the specification, definitions, and profile of a future standard covering additions to IEC 61158 and additions to IEC 61784-1.

IEC 61158-5-20 Ed. 1 and IEC 61158-6-20 Ed.1 contain the application layer. This document adds the following:

– data link layer protocol specification;

– data link layer service definitions;

– fieldbus profile addendum for the data link layer specifying the wireless physical layer.

This document does not provide the required structure of the IEC 61158 series (for example separation of DL-service definitions and DL-protocol specification) and of the IEC 61784-1 series. The required structure will be provided during the process of becoming an International Standard.

The Type 20 protocol supports two-way digital communications for process measurement and control devices. Applications include remote process variable interrogation, cyclical access to process data, parameter setting and diagnostics. This document defines the specification that comprises the Type 20 field communications protocol for wireless devices. Specification of the Type 20 protocol is based largely on the OSI 7-Layer Communication Model (see Figure 1).

OSI Layer	Function	WirelessHART
Application	Provides the User with Network Capable Application	Command Oriented, Predefined Data Types and Application Procedures
		Auto-Segmented transfer of large data sets
Presentation	Converts Application Data Between Network and Local Machine Formats	
Session	Connection Management Services for Applications	Secured Session between Network Devices
Transport	Provides Network Independent, Transparent Message Transfer	Reliable stream transport, Negotiated Segment Sizes
Network	End to End Routing of Packets. Resolving Network Addresses	Power-Optimized Redundant Path, Mesh to the edge Network
Data Link	Establishes Data Packet Structure, Framing, Error Detection, Bus Arbitration	Secure & Reliable, Time Synced, TDMA/CSMA, Frequency Agile with ARQ
Physical	Mechanical / Electrical Connection. Transmits RawBit Stream	2.4GHz Wireless, 802.15.4 based radios, 10dBm Tx Power

Figure 1 – OSI 7-Layer Communication Model mapped to Type 20

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