

WiMOD GlobalLink24 EndNode Modem HCI Specification

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Aim of this Document

This document describes the WiMOD GlobalLink24 EndNode Modem Host Controller Interface (HCI) protocol which is part of the WiMOD GlobalLink24 EndNode Modem firmware. This firmware can be used in combination with the WiMOD LoRa radio module family (e.g. iM282A).

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1. Introduction

1.1 Overview

The WiMOD GlobalLink24 EndNode Modem firmware emulates a LoRaWAN^{®1} firmware at 2.4GHz. Therefore this document is an extension to the WiMOD LoRaWAN EndNode Modem HCI document [1], covering the changes included in the WiMOD GlobalLink24 EndNode Modem firmware for the 2400 MHz ISM Band.

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¹ LoRa is a registered trademark of Semtech Corporation. LoRaWAN is a registered trademark of the LoRa Alliance.

2. Known Limitations

This chapter lists the additional known limitations related to the WiMOD GlobalLink24 EndNode Modem firmware for the 2.4 GHz ISM band:

- No modification of data rate is done automatically, e.g. during the retransmissions of reliable data

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3. Appendix

3.1 Multi Band Support

3.1.1 Radio Band Indices

Index	Band Description	Comments
48	WW 2.4 GHz – World Wide	Default setting
176	WW 2.4 GHz – World Wide (RX2: 2.422 GHz)	

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3.1.2 World Wide 2.4 GHz Band

3.1.2.1 Data Rate Indices

Index	Data Rate / Spreading Factor	Bandwidth	Indicative physical bit rate [bit/s]	Comments
0	LoRa / SF12	812 kHz	1200	Default setting
1	LoRa / SF11	812kHz	2100	
2	LoRa / SF10	812kHz	3900	
3	LoRa / SF9	812kHz	7100	
4	LoRa / SF8	812kHz	12700	
5	LoRa / SF7	812kHz	22200	
6	LoRa / SF6	812kHz	38000	
7	LoRa / SF5	812kHz	63000	

3.1.2.2 Channel Indices

Index	Frequency Channel	Comments
0	2 403 000 000 Hz	Data uplinks: Data Rates 0 – 7 Join Request: Data Rates 0 – 5
1	2 425 000 000 Hz	Data uplinks: Data Rates 0 – 7 Join Request: Data Rates 0 – 5
2	2 479 000 000 Hz	Data uplinks: Data Rates 0 – 7 Join Request: Data Rates 0 – 5
128	2 423 000 000 Hz	Default Frequency for Rx2 Default Data Rate: 0

3.1.3 World Wide 2.4 GHz (RX2: 2.422 GHz) Band

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128	2 422 000 000 Hz	Default Frequency for Rx2 Default Data Rate: 0

3.2 List of Abbreviations

FW	Firmware
HCI	Host Controller Interface
LR	Long Range
LoRa	Long Range
RAM	Random Access Memory
RF	Radio Frequency
RSSI	Received Signal Strength Indicator
RTC	Real Time Clock
SLIP	Serial Line Internet Protocol
SNR	Signal to Noise Ratio
UART	Universal Asynchronous Receiver/Transmitter
WiMOD	Wireless Module by IMST

3.3 List of References

[1] WiMOD_LoRaWAN_EndNode_Modem_HCI_Spec.pdf.

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4. Regulatory Compliance Information

The use of radio frequencies is limited by national regulations. The applicable regulation requirements are subject to change. IMST GmbH does not take any responsibility for the correctness and accuracy of the aforementioned information. National laws and regulations, as well as their interpretation can vary with the country. In case of uncertainty, it is recommended to contact either IMST's accredited Test Center or to consult the local authorities of the relevant countries.

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5. Important Notice

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