

DTMW

RF Specification

FCCID:NTAXMETER21

Rev V2

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1. Introduction

The following document describes the technical specification of the Water Meter transceiver board (called DTMW) for the USA market.

The DTMW is actually a water odometer, offering Automatic Meter Reading – AMR. The DTMW is 2-Way RF communicator built-in water meter. The RF capabilities enable the transmission of the meter reading and some extra information to a Collecting unit. In addition specific parameters can be programmed via the RF link.

1.1. Definitions, Abbreviation and Acronyms

RFD : RF Dialog

1.2. Associated FCC ID Devices

- FCC ID: NTADMMR1 – Rx & Tx from / to DTMW
- FCC ID: NTAMMR1 - Rx & Tx from / to DTMW
- FCC ID: NTAMMR2 – Rx from DTMW
- FCC ID: NTAMMR3 - Rx from DTMW
- FCC ID: NTAEMMR1 - Rx & Tx from / to DTMW
- FCC ID: NTALCRSA - Rx from DTMW

2. DTMW Description

2.1. Block Diagram

A block diagram of the DTMW is described below.

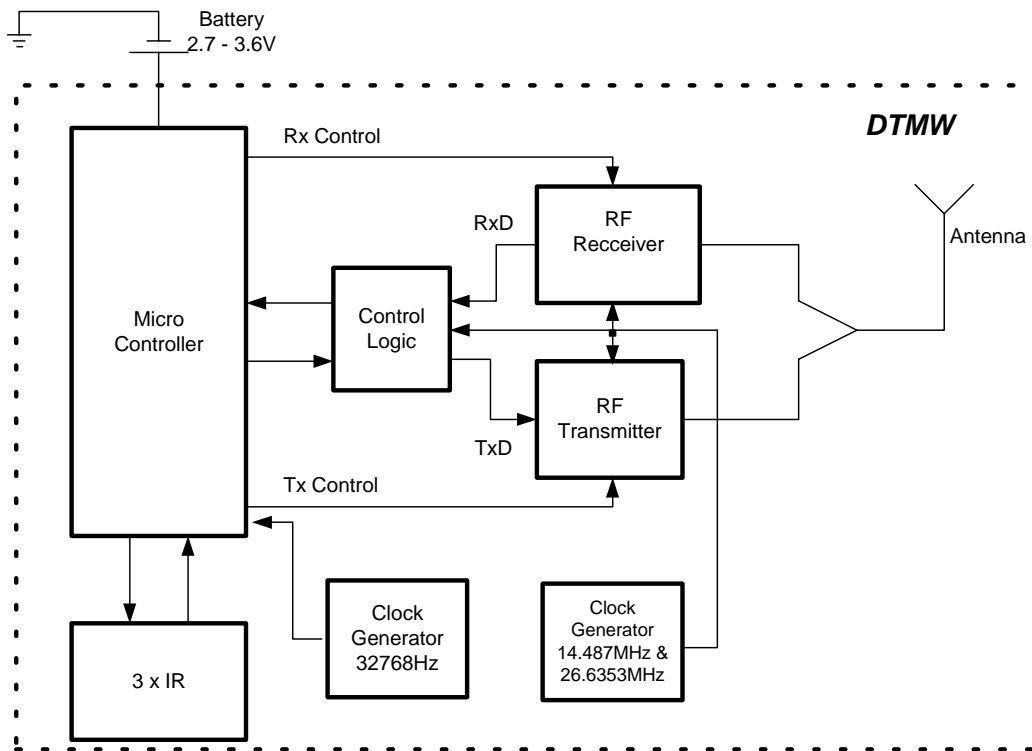


Figure 1: DTMW Block Diagram

2.2. Board Dimension

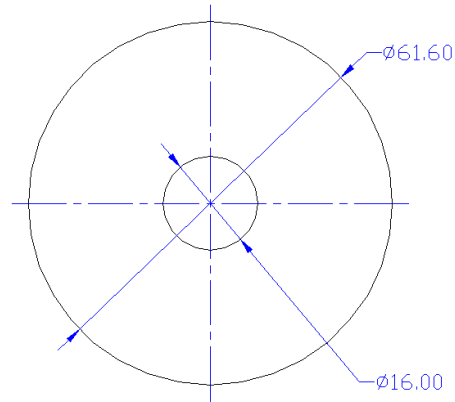


Figure 2: Board Dimension

3. Electrical Performance

3.1. Transmit Unit

The DTMW board has two transmit modes that are controlled by the software:

- FSK mode (see table 1)
- PSKmode (see table 2)

3.1.1. FSK Mode

Table 1 – FSK Transmit Parameters	
Parameter	Value
Transmit Frequency	Programmable in the range 905.43 MHz - 923.55 MHz
Modulation	Digital Modulation – Wide Band BFSK
Modulation Coding	Manchester
Bit rate (net data rate)	~60 kbps
Frequency deviation	±190 kHz
Bandwidth (@6dB)	550kHz – 900kHz
Frequency stability (including initial stability, temperature and aging)	<20 ppm
Peak Output power (without Antenna)	<18.5 dBm
Peak Output power spectral density (without Antenna)	<8dBm in any 3kHz
Harmonics	< - 54dBm
Tx Pulse duration	~4ms
Transmission rate	Programmable.

3.1.2. PSK Mode

Table 2 – PSK Transmit Parameters	
Parameter	Value
Transmit Frequency	Programmable in the range 905.43 MHz - 923.55 MHz
Modulation	DSSS BPSK
Bit rate	~60 kbps
Chip rate	~900 kChip/sec
Bandwidth (@6dB)	700 kHz – 1400kHz
Frequency stability (including initial stability, temperature and aging)	<20 ppm
Peak Output power (without Antenna)	<19.5 dBm
Peak Output power spectral density (without Antenna)	<8dBm in any 3kHz
Harmonics	< - 54dBm
Tx Pulse duration	~4ms
Transmission rate	Programmable.

3.2. Receive Unit

3.2.1. Receive Parameters

Parameter	Value
Receive frequency	916.468 MHz
Sensitivity (BER 1E-3)	-90 dBm
Modulation	FSK
Frequency deviation	± 190 kHz
Bit rate	41.156 kbps
Coding	Manchester

3.3. Antenna

The DTMW has an integral Antenna (kind of Inverted Antenna).

The Antenna is Omni Directional in horizontal plane. The max gain is 0 dBi.

3.4. Power Source

The DTMW is operated by a battery

- Battery rated voltage 3.6V.
- Operating voltage: 2.7-3.6V

3.5. Environmental Conditions

Operating Temperature: -40° C to + 85° C

Storage Temperature: : -40° C to +85° C

Humidity: Up to 95%