APPENDIX A-1 : Documentation background

The following sub-chapters may be used directly or with minor modifications as supplementary documentation background for the ETSI/FCC test report documents.

A.1.1 Description of Test Item

Example of text:

The nRF24Z1-HPR1-ATX together with the nRF24Z1-HPR1-ARX is a complete system for one-way wireless digital audio transfer from an audio source to an audio recipient. A 3.5mm jack on the nRF24Z1-HPR1-ATX unit connects to an audio source like e.g. a CD player or MP3 player. A 3.5mm jack on the nRF24Z1-HPR1-ARX unit is used for connection to headphones or speakers. The nRF24Z1-HPR1-ATX and the nRF24Z1-HPR1-ARX units are the radio parts of the nRD24-02, nRF24Z1 Headphone Reference Design 1 from Nordic Semiconductor ASA.

Similar text describing the characteristics of the application must be provided by the application designers

A.1.2 Theory of Operation

The system is based on one-way wireless digital audio transfer from an audio source to an audio recipient. The application consists of an ATX (audio source) and an ARX (audio receiver). Figure 1 shows the application hardware and communication principle.

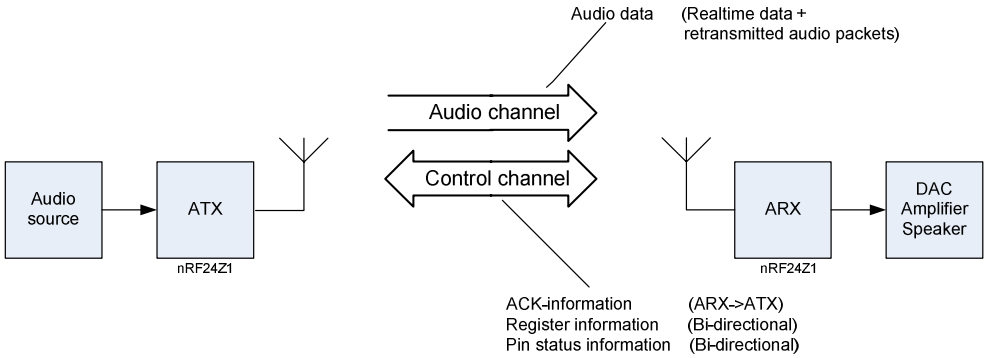

Figure A.1 - nRF24Z1 based audio streamer application

It is noted that communication between ATX and ARX are based on half-duplex transmission, where the following actions take place on a cyclic basis:

1. The ATX transmits audio and control data in a data frame to the ARX
(ATX-Transmit, ARX-Receive)
2. The ARX responds to the ATX with an ACK-packet
(ARX-Transmit, ATX-Receive)
3. ARX and ARX changes frequency according to AFH-algorithm
4. Step 1 thru 3 are repeated

If reception conditions are poor, the ARX requests retransmission of corrupt audio data packets (their sequence number and ID is relayed back to the ATX via the ACK-packet). These retransmitted packets are added to the nominal ATX dataframe illustrated in Figure A.2. The application is a FHSS system where only one dataframe is sent at a given frequency location before hopping to the next.

The cyclic period, t_p (hopping rate) is 2.91ms for the 44.1KHz sampling rate configuration setting (If using other configuration settings; refer to Figure A.2 or datasheet for values).

Please refer to Chapter 4 Architectural overview in the nRF24Z1 Product Specification for details.

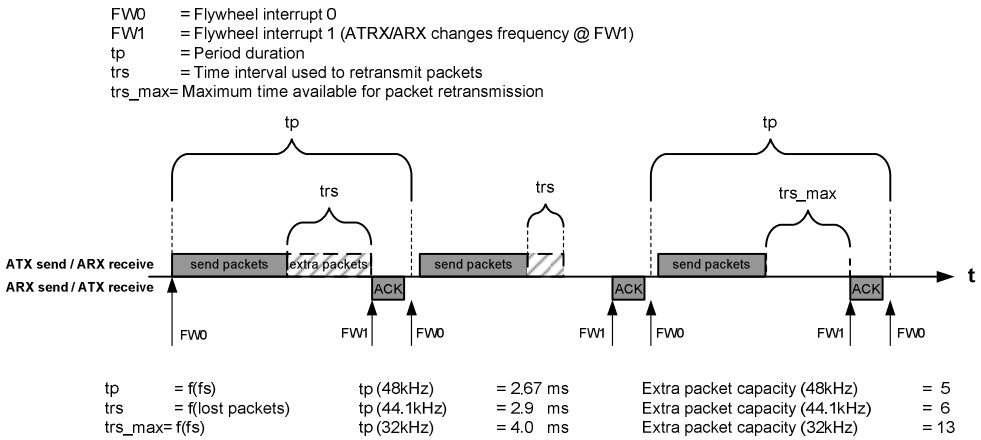

Figure A.2 - nRF24Z1 half duplex communication principle