ANANKE 3.0
Quick User Manual

Ananke 3.0 is an audio evaluation set designed specifically for piezoelectric Ganymede MEMS speakers.

The evaluation board features two stereo amplifiers for driving a pair of USound earphones, Bluetooth controller, and digital signal processor (DSP). The DSP allows to implement USound acoustic filter settings.

Features

- Drives MEMS-based earphone with distinct sound performance
- Stereo amplifier for Ganymede MEMS speakers
- Bluetooth controller compliant to Bluetooth specification V4.2 (supports A2DP)
- Analog audio inputs
- DSP (programmable with analog devices programmer)

Package Content

- Ananke 3.0 evaluation board
- USound earphones
- 5 V power supply
- 3.5 mm stereo jack cable
- Ear tip in different sizes

Setting up the System

- Provide power to the Ananke 3.0 evaluation board using 5 V DC connector over the POWER plug

- Use the 3.5 mm stereo jack cable to connect an audio source (signal generator, phone, mp3 player) to the INPUT plug in the device

- Alternatively, any Bluetooth enable device such as a smartphone, can be connected to the Ananke 3.0 evaluation board via Bluetooth. Search for BC0xxxxx on the device and connect to stream audio to the Ananke evaluation board

- Connect the USound earphones to the OUTPUT (Tiny XLR connector).

This quick setup uses the self-boot option of the DSP. At startup, it loads a pre-configured set of parameters into the DSP that are stored in an EEPROM. The DSP is configured in a way that both input signals (analog and Bluetooth) are added in the DSP, therefore it is possible to play both sources simultaneously.

If one needs advanced settings or to do setting changes for DSP, contact your sales contact at USound for further information.

Technical Data

Parameter		Test Conditions	Min	Typ	Max	Unit
V_{CC}	Supply voltage			5		V
I_{DD}	Quiescent power supply current	V_{in} = 0V		62		mA
P	Power consumption	V_{in} = 400 mV, f_{in} = 1 kHz		65		mVA
Z_{load}	Load range for the amplifier	without earphones	20		100	nF
V_{in}	Input voltage range				400	mV
R_{in}	Input resistance			10		kOhm
V_{DC}	Speaker DC offset voltage			15		V
AV	Amplifier gain	f_{in} = 80 Hz		23		V/V
SPL	Sound pressure level	V_{in} = 400 mV, f_{in} = 1 kHz	102	105	108	dB
THD	Total harmonic distortion	V_{in} = 400 mV, f_{in} = 1 kHz		1.7	3	%
f_{Low}	Lower bandwidth limit	Lowest frequency where $SPL_{f\ low}$ = SPL@80 Hz - 3 dB		10	20	Hz