General Product Specification

Project Code: DM03

Product Description: 2.1 Wireless Anywhere Speaker System

1. Introduction

Saitek introduces the new Wireless Anywhere Speaker – a mini speaker specially designed for portable use at home. Wirelessly linked with your PC, Mac or laptop, the Wireless Anywhere Speaker plays stereo sound no matter where you are in the house. It's ideal for use in the garage, garden, or kitchen, even while you take a bath, without having separate systems in every room. The Anywhere Speaker can also act as amplified speaker for an MP3 player, through an Audio line-in connection on the speaker unit.

The product consists of a dongle transmitter and a wireless speaker receiver unit. The receiving stereo speaker unit can be plugged into the mains for recharging, but can also operate on battery power for greater flexibility in positioning. The left and right speakers separate from the sub-woofer base unit via retractable speaker cables.

2 General Feature Description (2 versions)

2.1 DM03 Product Specific Description

- 2 Power Supply Input possibilities:

a) Mains AC/DC Power Adapter

b) Standard battery powered, compatible with all AA size battery types, including Alkaline, Zinc and Re-chargable (target 4 x AA).

- Battery Compartment suitable for 4 x AA batteries on board Speaker.

2.2 DM03 Product Generic Feature Description

22.1 Sound Connection and Compatibility

Able to play wirelessly from PC/Laptop or Wired via 3.5mm Headphone jack input as follows:-

2.2.1.1 Wireless Sound Operation

- Wireless plays any PC based media format, including MP3, WMA, AAC, WAV, MP4 (audio) held on PC/Laptop, and transmits sound wirelessly to a 2.1 Speaker System via a USB Dongle Transmitter (USB1.1 / 2.0 compatible)

- Uses Bluetooth Bluecore 3 Multi Media 2.4Ghz wireless streaming technology. Should have crystal clear, interference free, high quality sound.
- Automatic Frequency Hop on Power Up for Optimum reception, and automatic Cross Channel selection. Auto Tuning on Receiver (Speaker) for best signal reception
- 30m plus signal transmission range without Signal or Sound Quality degredation

2.2.1.2 Wired

- Stereo sound signal connection from source to Product is achieved via a 3.5mm Mini Stereo Jack, as follows:

a) Cable Assembly: Male to Male Stereo Mini Jack Cable (one end to have 90deg angled connector)

b) Oxygen Free Cable Design for Superior Signal Transfer

c) Gold Connectors for minimal Signal Loss

d) Length= 1m

- Must be compatible for use with all MP3 player / laptop and desktop computers / portable CD players, and most portable audio devices.

2.2.2 Speakers

- 2.1 Stereo (Non-Dolby) Solution –Left and Right speakers plus Active Sub-woofer:

i) Frequency Response Level: 80Hz to 20kHz ideally

ii) Left and Right Speakers are optimally positioned on main unit for better stereo separation. Woofer is hard mounted towards base with a optimally designed Bass port at rear of product..

- Should also work with any Stereo audio source thru 3.5mm Headphone jack
- Product should be completely Air sealed at all joins and part lines
- Tweeters should also be air sealed from Woofer chamber

2.2.3 Control Features and Inputs

- Power On/Off control
- Volume Control: 2 way UP and DOWN.
- Play / Pause Combined Button
- Next Track and Previous Track Buttons
- Use of LCD or LED to indicate User feedback on above features.

2.2.4 LED / LCD's

LCD

- A backlight LCD: To indicate:

a) Battery Power Indication and Battery Low warning

b) Volume Up and Down

c) Play and Pause and Stop

d) Next Track and Previous Track

e) Signal Strength

f) Other useful features to be considered.

LED's

- 1 x Green LED for Power ON indication.
- Other lighting effects to be considered

2.2.5 Amplifier Power Output

- Target Output Delivering approx 5W + 5W + 10W (20W Total RMS).

2.2.6 Power Supply

- DM03: 4 x AA Batteries (Alkaline or Re-chargable Cells):

  Battery life from 4 new Alkaline batteries required to be over 24 hours, from continous play at General listening levels.

- AC/DC Power Adapter 12V / 1A or 1.5A (TBD)

  a) To have protection circuit in case batteries (high or low powered) are present.

  b) Adapter to be multi-standard for all CE/FCC versions, and lightweight

- Product should have an automatic battery saving shutoff circuit, when there is no signal received for 20seconds. Product should awake when any button is pressed or when any signal is received from the source.

3. Technical Specification (for both Versions): DM03

2.4 GHz Wireless Digital Audio Streaming Solution

Protocol: Bluetooth Bluecore 3 Multimedia. A single chip radio and baseband IC for Bluetooth 2.4GHz systems.

- **A range of at least 30m uninterrupted Audio Streaming is required with minimal Latency.**

Main Features:

- **Fully Qualified Blue tooth System**
- **Bluetooth v1.2 Specification Compliant**
- **Single Chip Bluetooth System**
- **Kalimba DSP Open Platform Co-Processor**
- **Full Speed Bluetooth Operation with Full Piconet Support**
- **Scatternet Support**
- **Lower Power 1.8V Operation**
- **10 x 10mm 96-Ball LFBGA Package**
- **Minimum External Components**

- **Integrated 1.8V Regulator**
- **Dual UART Ports**
- **16 Bit Stereo Audio CODEC**
- **I^2S and SPDIF Interfaces**
- **RF 'Plug and Go' package**
- **RoHS Compliant**

Key BC3 MM Features

Item	
Radio	• Common TX/RX Terminal for external matching. Eliminates external antenna switch • Antenna Matching and filtering within the IC
Transmitter	• +6dBm RF transmit power with level control from the on chip 6 Bit DAC over a dynamic range > 30dB • Class 1 support (in this case), would require an external power amplifier. Class 2 and Class 3 supported on board.
Receiver	• Integrated Channel Filters • Digital demodulator • Real time digitised RSSI available on HCI Interface • Fast AGC
Synthesiser	• Fully integrated synthesisor • Compatable with crystals between 8 and 32Mhz • Accepts TCXO frequencies for GSM and CDMA devices
Auxiliary Features	• Crystal Oscillator with built in digital trimming • Power Management includes digital shut down, and wake up. • On chip linear regulator, 1.8V output from 2.2-4.2V input • 8 bit ADC and DAC available to applications
Kalimba DSP	• DSP co-processor, 32MIPS, 24 Bit fixed point core • Single cycle MAC, 24 x 24 bit multiply and 56 Bit accumulator • 32 Bit Instruction word, dual 24 Bit data memory • Flexible interfaces to Bluecore 3 subsystem

Baseband and Software	• Internal 8Mbit Flash for complete system solution • Internal 32Kbyte RAM
Physical Interfaces	• Synchronous serial interface up to 4Mbaud. • UART Interface • Full Speed USB 1.1 interface supports OHCI and UHCI interfaces
Stereo Audio CODEC	• 16 Bit Resolution, standard samples rates of 8 KHz, 11.025KHz, 16KHz, 22.05Khz, 32KHz, 44.1KHz and 48KHz • Dual ADC and DAC for stereo audio • Integrated amplifiers for driving microphone and speakers with minimum external components.
Bluetooth Stack	• CSR's Bluetooth Protocal Stack runs on chip MCU as follows i) Standard HCI (UART or USB) ii) Fully embedded RFCOMM iii) Customised builds with embedded application code
Package	96 Ball LFBGA , 10 x 10 x 1.4mm, 0.8mm pitch

Speakers (General)

Item	Description
General Configuration	2.1 Stereo Pair with active Woofer
Speaker Type and Size	2 x Diameter 34mm Drivers in Aluminum Material with Neodymium magnets.(tbd) 1 x Diameter 74.5mm Front Coil Bass Driver in Aluminum Material with Neodymium magnets. (TBD)
Total Output Power	5W + 5W + 10W Woofer (RMS:20W)
Frequency Response	70Hz to 20kHz Target
S/R Ratio (Sensitivity)	90db min (tbc)
Shielding	Magnetically shielded
Peak power handling	
Total Harmonic Distortion	<0.1%

Left/Right Speaker

Item	Description
Drivers	2 x Diameter 34mm Drivers in Aluminum Material with Neodymium magnets.tbc
Speaker Impedance	4 Ohms (tbd)
Peak power handling	5W per channel
Frequency Response	200Hz to 20kHz Target
Shielding	Magnetically shielded

Sub Woofer

Item	Description
Drivers	1 x Diameter 74.5mm Front Coil Bass Driver in Aluminum Material with Neodymium magnets. (TBD)
Frequency Response	70Hz to 200Hz
Peak power handling	10W
Impedance	8 Ohms (tbd)

Power Supply

Item	Description
AC/DC Adapter	Both versions to support AC/DC Power Adapter 12V / 1A or 1.5A [to work with US, UK and EU supplies]
Battery configuration	• DS03: Battery powered via 4 x AA Alkaline Batteries. Battery Life 24hrs Minimum as specified

Inputs/Outputs

Item	Description
USB Dongle	USB v1.1 / 2.0 compatible
Speaker Unit Audio In	1) 3.5mm mini jack Line input
Speaker Unit Power In	DC Jack

4. Connectivity