



Next Wave Wireless Speakers



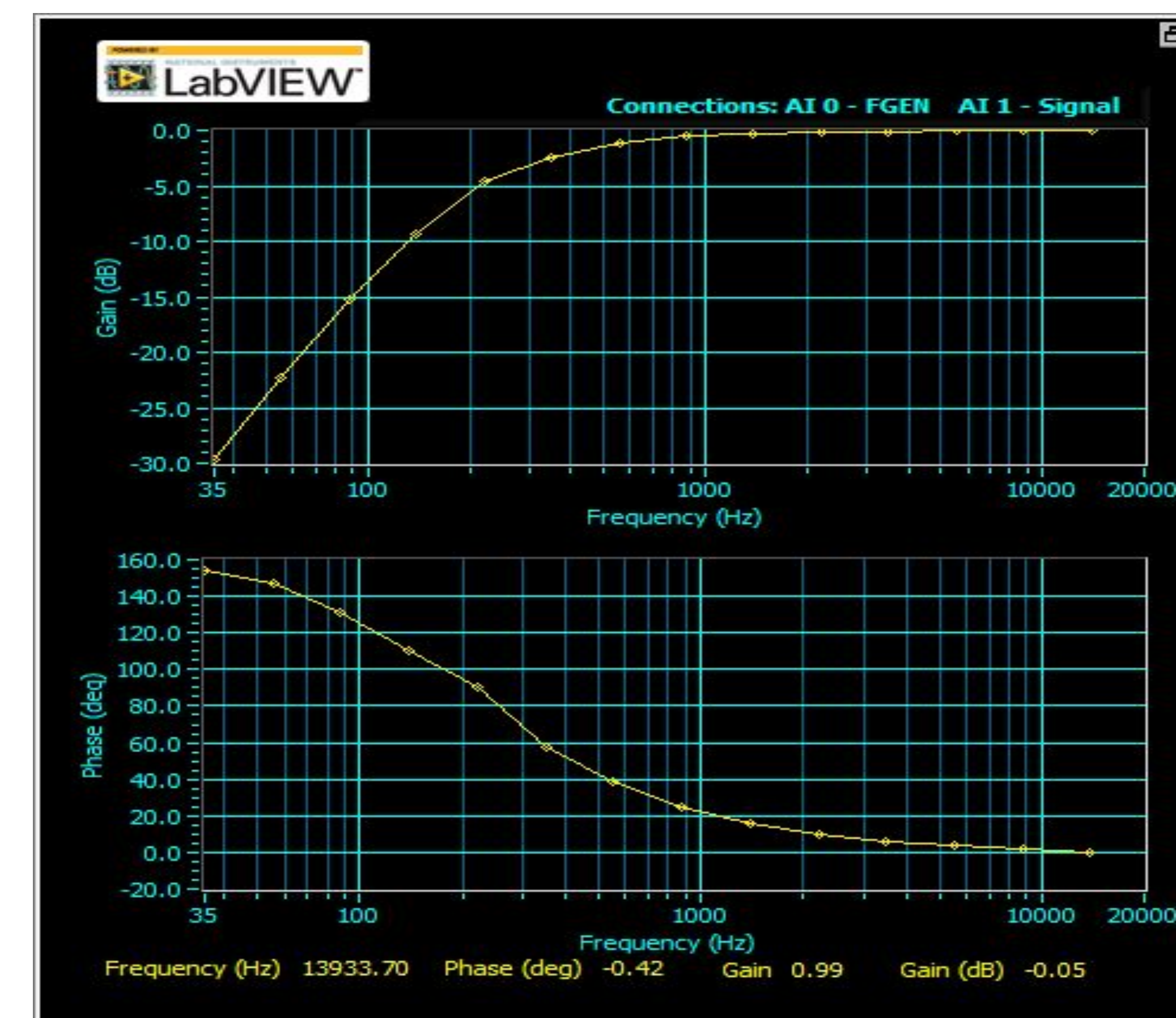
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E2.07 - NextWave Wireless Speakers 2.1 System with Subwoofer and Bluetooth

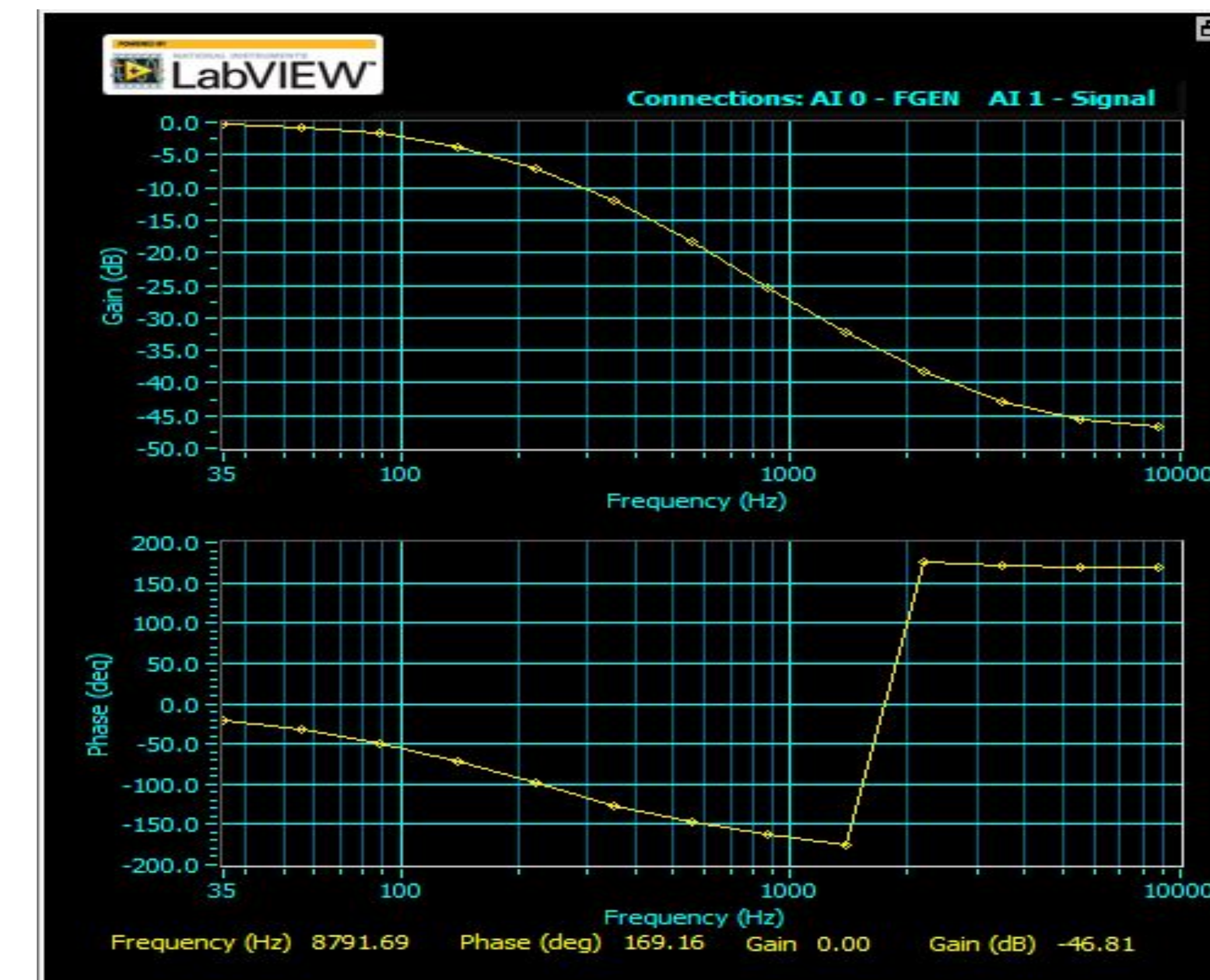
Overview

Our product is a wireless 2.1 speaker system that features one subwoofer and two wireless satellite speakers. The main hub houses the subwoofer, a crossover, and a wireless transmitter, and the two satellite speakers house the left/right speakers, battery power and FM receivers. Audio is input by either a 3.5 mm jack or Bluetooth, then split at the appropriate frequencies. With a wireless operation range of 14 feet and at least 10 hours of playtime, you can play "Back in Black" by AC/DC at maximum volume anywhere in your room and "... adjust to whatever situation [you] have."

- Maria Elisa Ayerbe-Barona, Grammy-nominated audio engineer



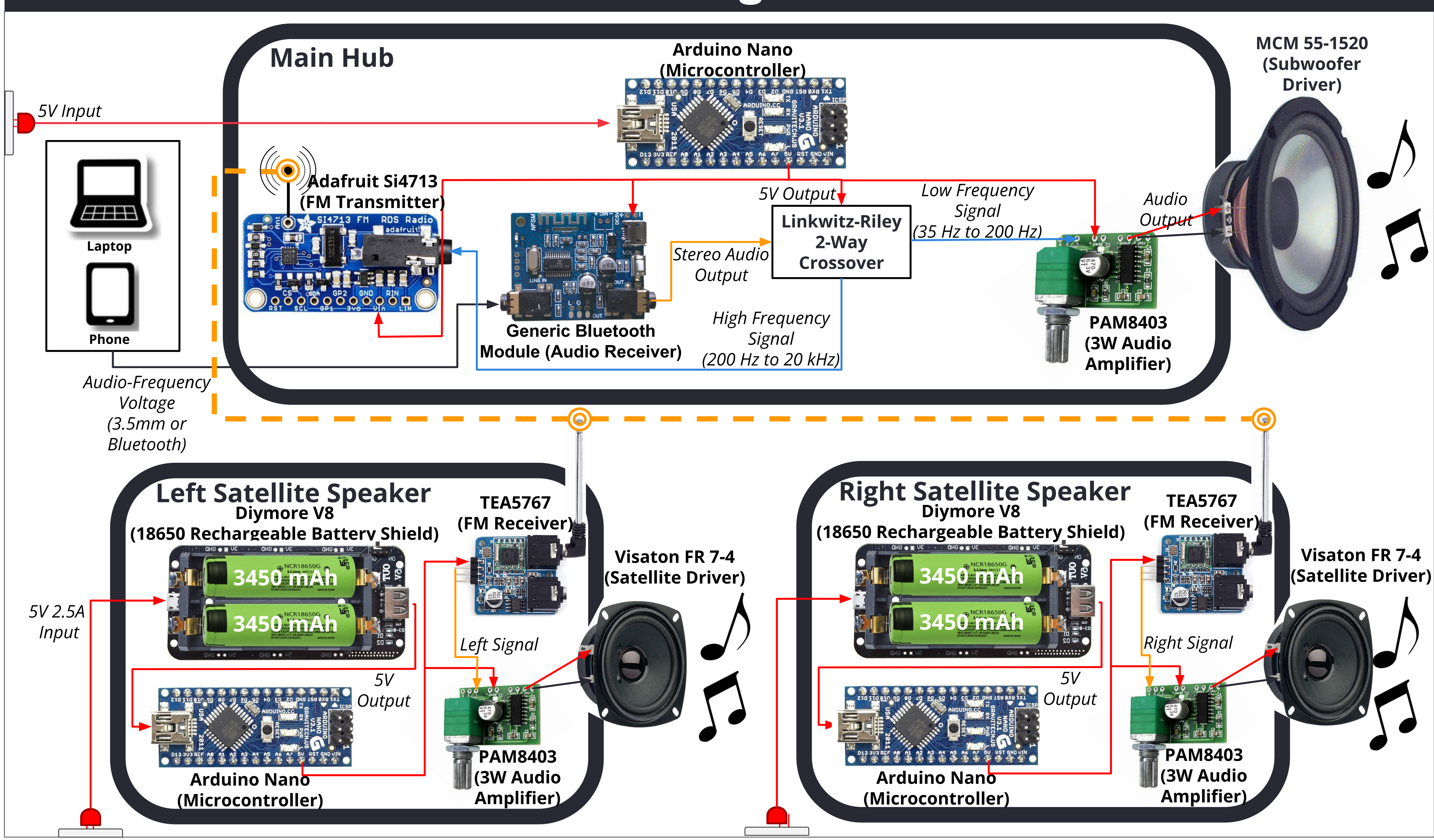
Above: High Pass Frequency/Phase Response
 Below: Low Pass Frequency/Phase Response



Test Results

Metric	Minimum	Maximum	Method
System Output	85 dB		DB-C value at 1 meter
Frequency Response	35 Hz	20 kHz	DB-C signal greater than noise floor
Amplifier Output	626 mW		Current output with 1 V input
Wireless Distance	15 ft		Distance at which signal breaks up
Crossover Cutoff Frequency	200 Hz		NI Elvis Bode Response
Crossover Attenuation	-12 dB / Octave		NI Elvis Bode Response
Recharge Time	2h 25m	2h 31m	Take voltage recordings from 0-3.0V
Battery Life	10h 2m	10h 16m	Take voltage recordings from 4.2V

Design



Market Comparison

Competitor	Price	Crossover	Wireless Charge time (hours)	Wireless Playtime @ Max Volume (hours)	Freq. Reponse (Hz)	SPL @ Max Volume (dB SPL)
NextWave	\$ 98.73	✓	2.5	10.3	35 - 20k	85.0
Generic brand	<\$ 50.00	✗	1.0	1.5	-	-
Bose Soundlink Color II	\$ 129.00	✗	4.2	<7	88.5 - 7.1k	84.4
JBL Flip 5	\$ 129.95	✗	2.6	8.2	68.3 - 13.7k	85.5
UE MEGABOOM 3	\$ 199.99	✗	2.5	17.7	72.3 - 18.2k	89.9
B&O Beosound A1	\$ 235.62	✓	4.9	4.6	62.6 - 13.5k	84.2
B&W Formation Flex	\$ 449.00	✓	-	-	53.4 - 19.9k	96.0

Acknowledgements

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 Dr. William Stapleton

Requirements

Requirement	Metric
Output Level	80 dB SPL @ 1 meter
2.1 Audio system	System must have left, right, and subwoofer channels
Wireless Distance	Up to 14.14 ft (10x10' room)
Crossover Type	2nd Order Linkwitz-Riley split at 200 Hz 12 dB/octave drop off
Frequency Range	35 Hz - 20 kHz
Recharge Time	4 hours
Battery Life	10 hours
Bill of Materials	\$50 or less

- On/off switches **Integrated**
- Wireless transmission indicator light **Integrated**
- Master volume control potentiometer **Integrated**
- All housed components **Integrated**
- User-accessible components with hinge and latch **Integrated**