



SILICON LABS

# BG22 Dual Polarized Antenna Array Radio Board

## 4x4 Antenna Array

Board Function	Page
----------------	------

Title Page	1
------------	---

RF, Antenna & Power	2
---------------------	---

I/O Port Connections	3
----------------------	---

WSTK Connectors & Board ID	4
----------------------------	---

Antenna Array	5
---------------	---



LEGAL NOTICE:  
SILICON LABORATORIES INC. ("SILICON LABS") AND/OR ITS LICENSORS DO NOT WARRANT THE ACCURACY OR COMPLETENESS OF THIS SCHEMATIC OR ANY INFORMATION CONTAINED WITHIN THIS SCHEMATIC. IT IS PROVIDED "AS-IS" FOR REFERENCE ONLY. SILICON LABS DOES NOT WARRANT THAT THIS DESIGN WILL MEET THE SPECIFICATIONS, BE SUITABLE FOR YOUR APPLICATION OR FIT FOR ANY PARTICULAR PURPOSE, OR WILL OPERATE IN YOUR IMPLEMENTATION. SILICON LABS AND ITS LICENSORS DO NOT WARRANT THAT THE DESIGN IMPLIED IN THIS SCHEMATIC IS PRODUCTION-WORTHY. YOU SHOULD COMPLETELY VALIDATE AND TEST YOUR DESIGN IMPLEMENTATION TO CONFIRM SYSTEM FUNCTIONALITY FOR YOUR APPLICATION.


## Revision History

Rev.	Description
------	-------------

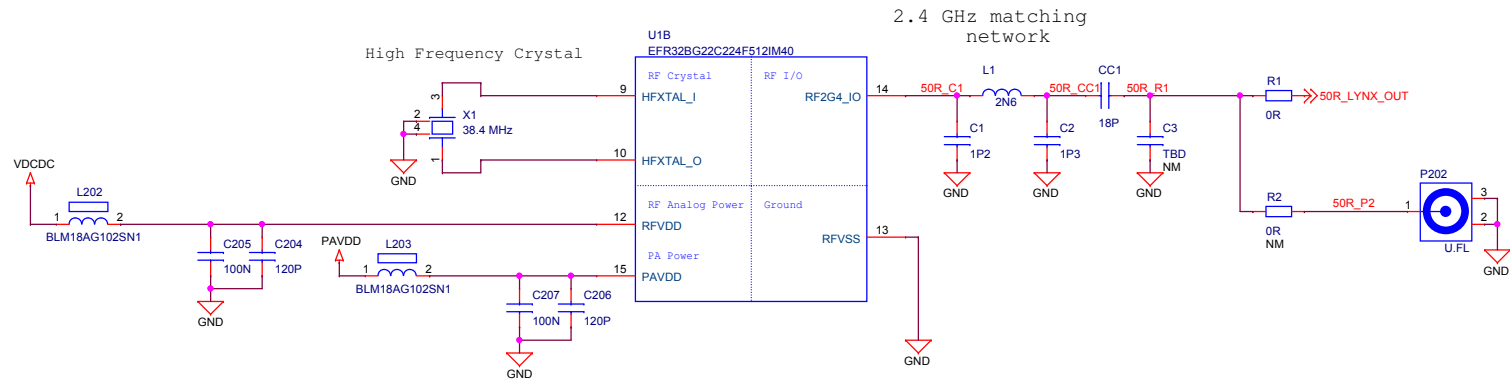
A00	Initial production release.
-----	-----------------------------

A01	Updated PCB variant. No change in the components.
-----	---

A02	Updated PCB variant to final. Added optional parallel antenna tuning components.
-----	--

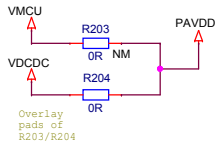
 <b>SILICON LABS</b>		Board Name <b>BG22 Dual Polarized Antenna Array Radio Board</b>	
Designed ADS		Page Title <b>Title Page</b>	
Approved RGU		Board Number <b>BRD4191A</b>	
Size A3	Sheet Modified Date Tuesday, January 25, 2022	Revision <b>A02</b>	
Sheet 1 of 6			
COPYRIGHT SILICON LABORATORIES INC. 2020      CONFIDENTIAL – SUBJECT TO TERMS OF USE			

Antenna & Radio Interface

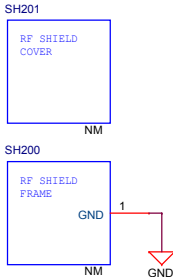


PAVDD Configuration

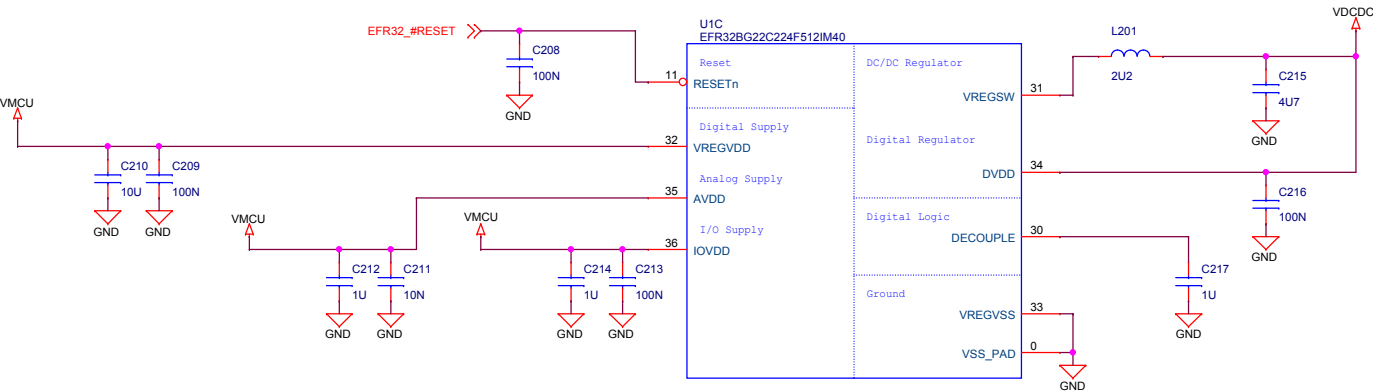
	Power Config 1 VMCU to PAVDD	Power Config 2 DCDC to PAVDD
R203	Mount	Not mount
R204	Not mount	Mount



RF Shielding

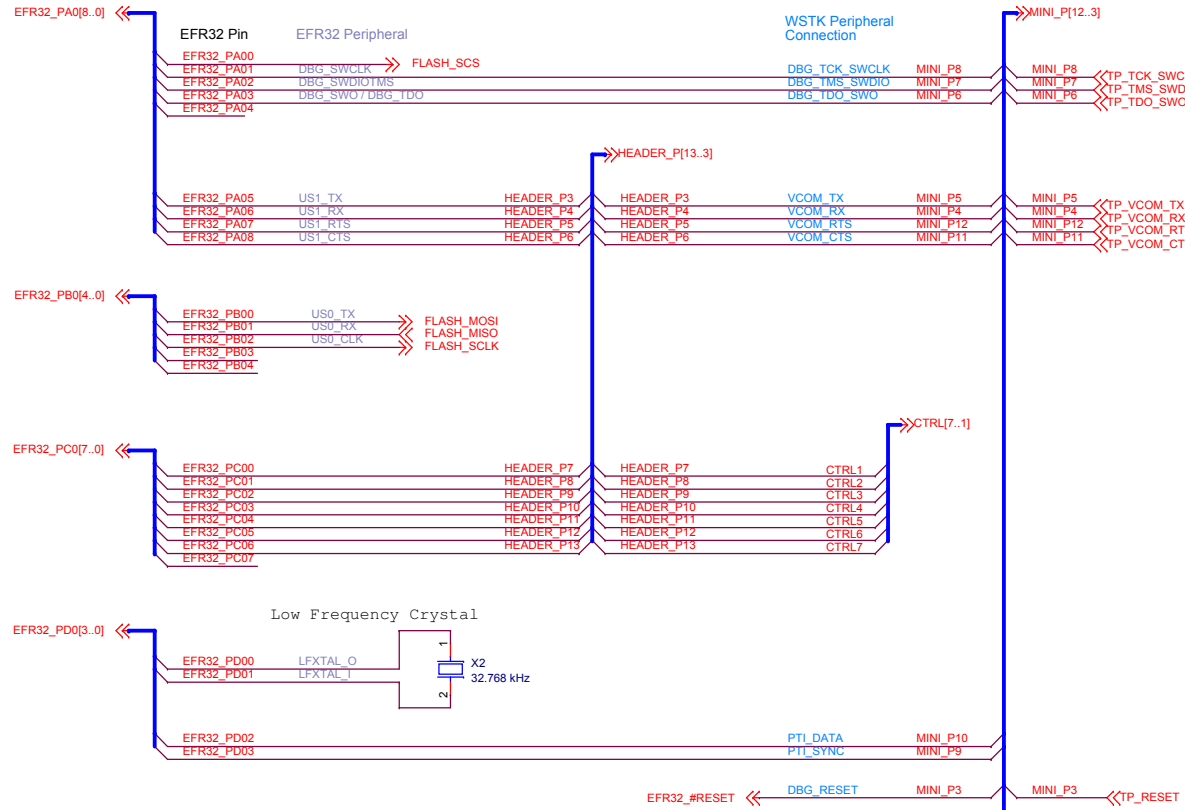


Power & Decoupling



Designed ADS		Approved RGU		Board Name <b>BG22 Dual Polarized Antenna Array Radio Board</b>	
Size A3		Sheet Modified Date Tuesday, January 25, 2022		Page Title <b>RF, Antenna and Power</b>	
Board Number <b>BRD4191A</b>				Revision <b>A02</b>	
COPYRIGHT SILICON LABORATORIES INC. 2020				CONFIDENTIAL – SUBJECT TO TERMS OF USE	
				Sheet 2 of 6	

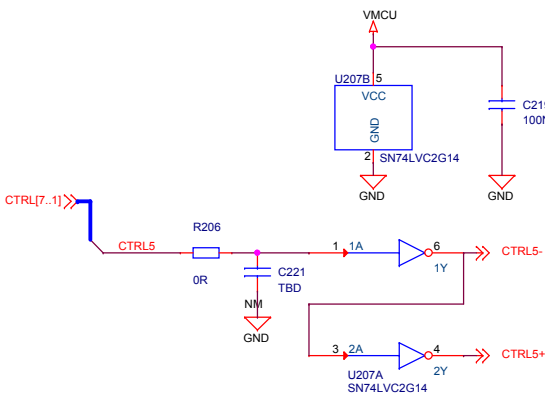
## EFR32 Pin Mapping



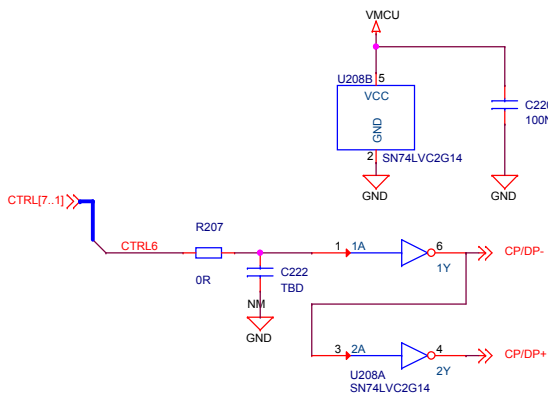
## EFR32 I/O Port Pins



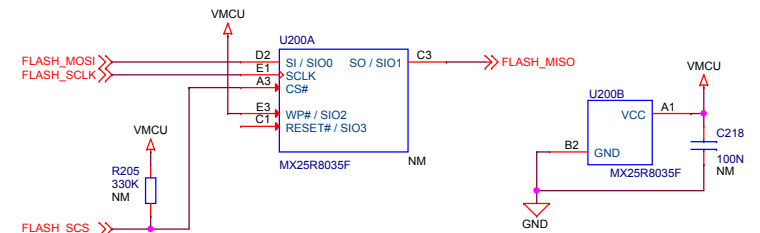
## CHW Selection Signal Buffering



## CP/DP Signal Buffering

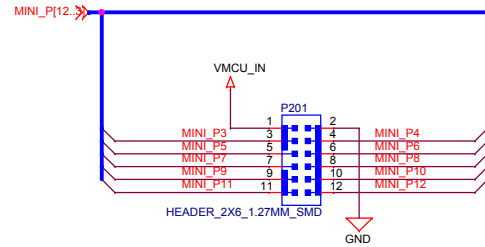


## Serial Flash

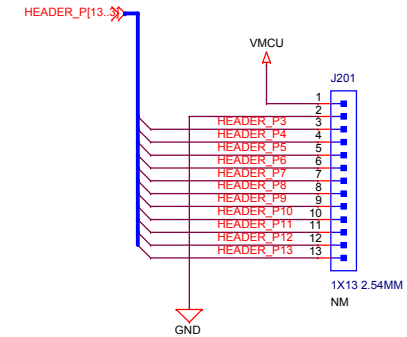


		Board Name	
		BG22 Dual Polarized Antenna Array Radio Board	
Designed ADS		Page Title	
Size A3		I/O Port Connections	
Sheet Modified Date Tuesday, January 25, 2022		Board Number BRD4191A	
COPYRIGHT SILICON LABORATORIES INC. 2020		CONFIDENTIAL – SUBJECT TO TERMS OF USE	
		Revision A02	
		Sheet 3 of 6	

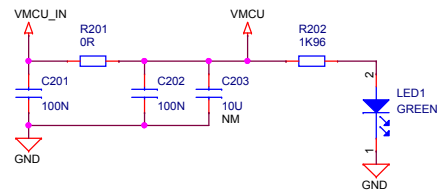
## Simplicity Mini+ Connector



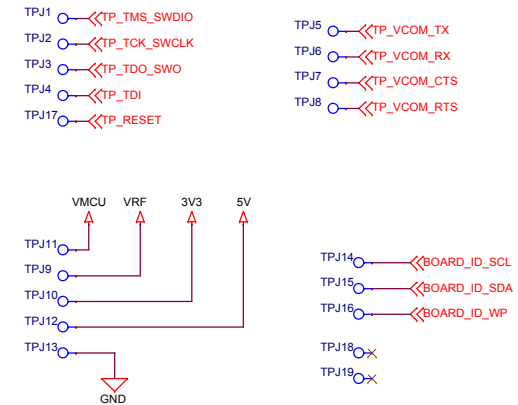
## Breakout Header




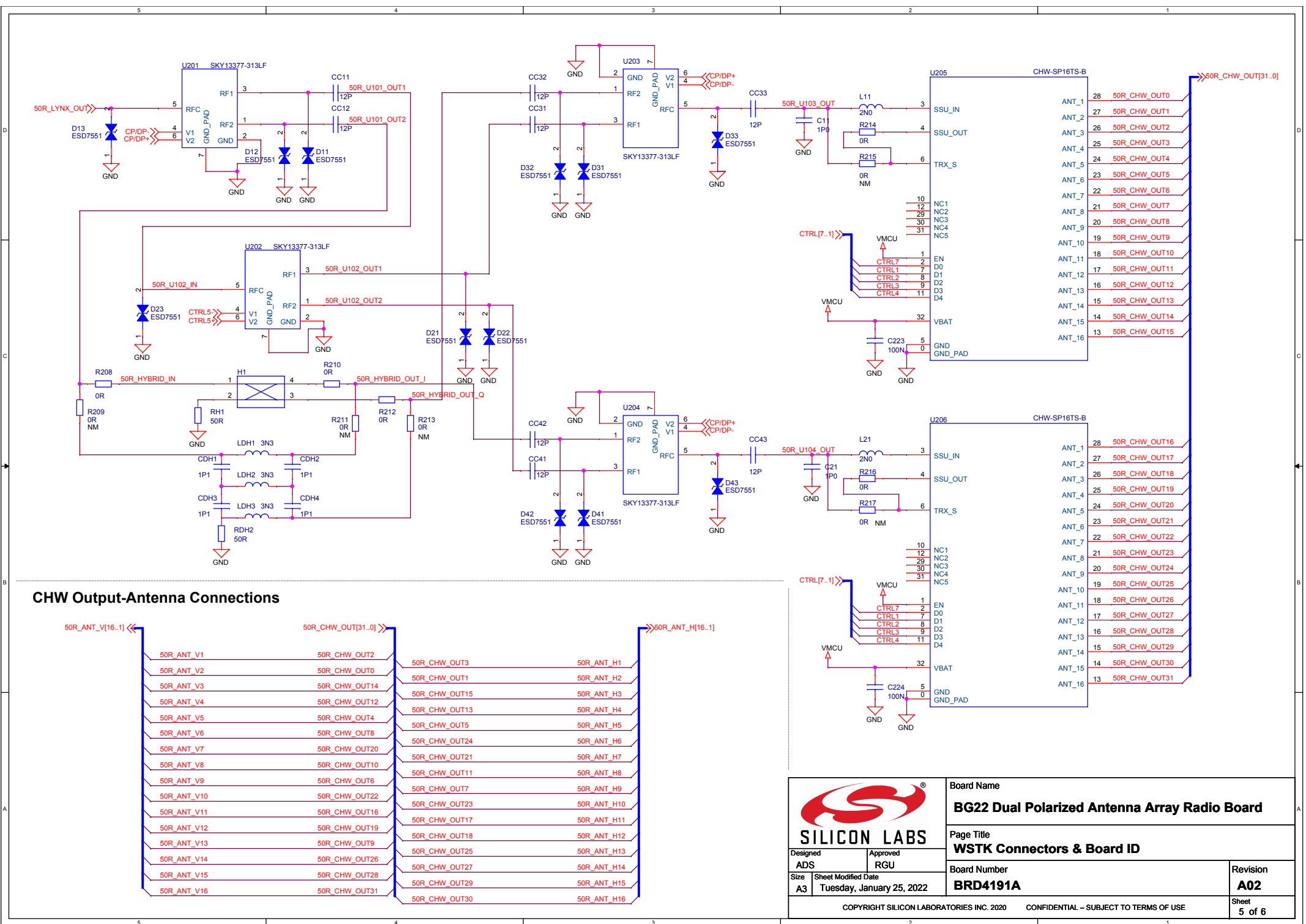
## WSTK Power Decoupling



## Test Points




 <b>SILICON LABS</b>		Board Name	
		<b>BG22 Dual Polarized Antenna Array Radio Board</b>	
Designed ADS		Page Title	
Size A3		<b>WSTK Connectors &amp; Board ID</b>	
Sheet Modified Date Tuesday, January 25, 2022		Board Number	Revision
		<b>BRD4191A</b>	<b>A02</b>
COPYRIGHT SILICON LABORATORIES INC. 2020      CONFIDENTIAL – SUBJECT TO TERMS OF USE			
			Sheet 4 of 6



CHW Output-Antenna Connections

50R_ANT_V[16..1]	50R_CHW_OUT[31..0]	50R_ANT_H[16..1]
50R_ANT_V1	50R_CHW_OUT2	50R_ANT_H1
50R_ANT_V2	50R_CHW_OUT0	50R_ANT_H2
50R_ANT_V3	50R_CHW_OUT14	50R_ANT_H3
50R_ANT_V4	50R_CHW_OUT12	50R_ANT_H4
50R_ANT_V5	50R_CHW_OUT4	50R_ANT_H5
50R_ANT_V6	50R_CHW_OUT8	50R_ANT_H6
50R_ANT_V7	50R_CHW_OUT20	50R_ANT_H7
50R_ANT_V8	50R_CHW_OUT10	50R_ANT_H8
50R_ANT_V9	50R_CHW_OUT6	50R_ANT_H9
50R_ANT_V10	50R_CHW_OUT22	50R_ANT_H10
50R_ANT_V11	50R_CHW_OUT16	50R_ANT_H11
50R_ANT_V12	50R_CHW_OUT19	50R_ANT_H12
50R_ANT_V13	50R_CHW_OUT9	50R_ANT_H13
50R_ANT_V14	50R_CHW_OUT26	50R_ANT_H14
50R_ANT_V15	50R_CHW_OUT28	50R_ANT_H15
50R_ANT_V16	50R_CHW_OUT31	50R_ANT_H16



**SILICON LABS**

Designed  
ADS

Size  
A3

Approved  
RGU

Sheet Modified Date  
Tuesday, January 25, 2022

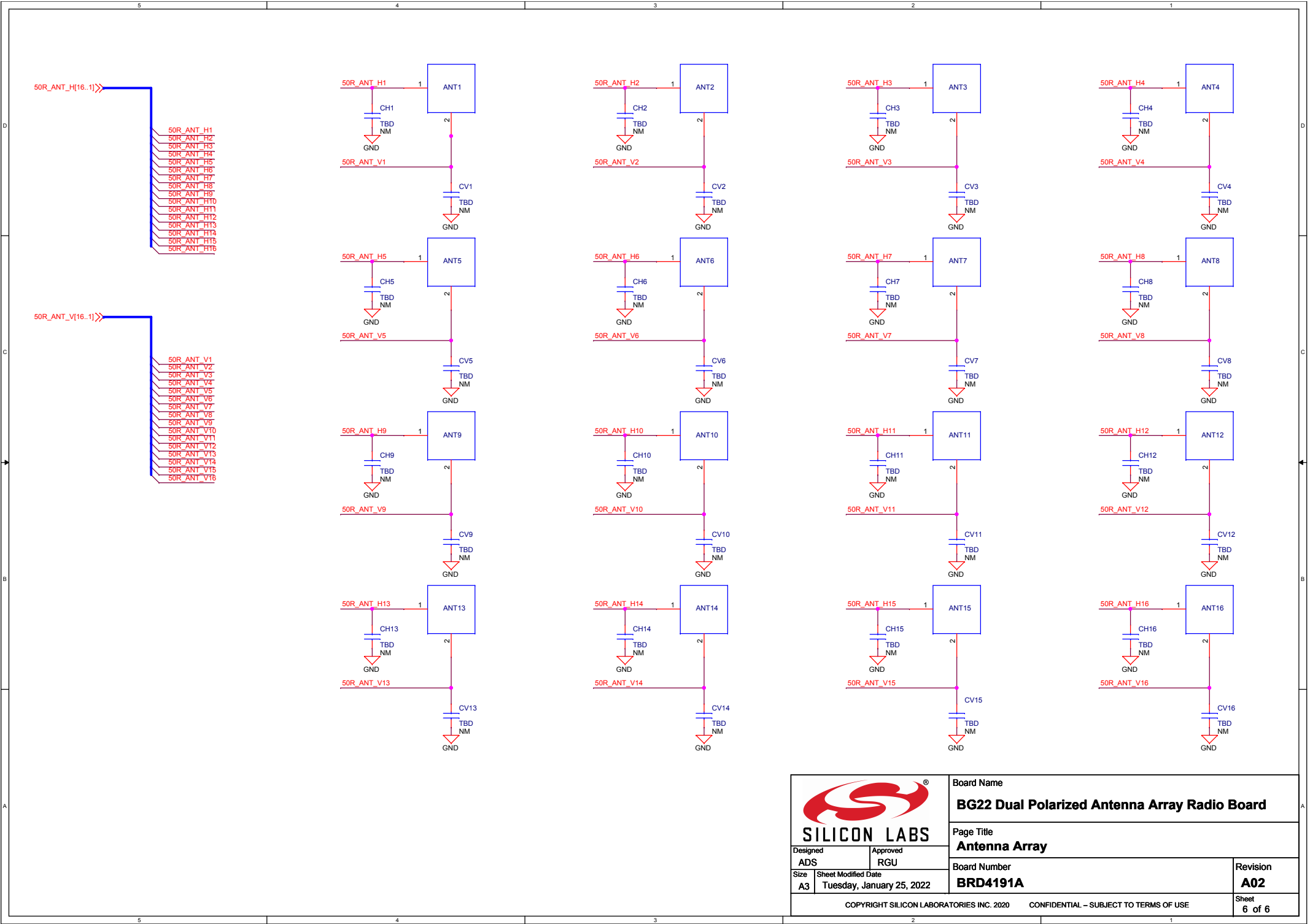
Board Name  
**BG22 Dual Polarized Antenna Array Radio Board**


Page Title  
**WSTK Connectors & Board ID**

Board Number  
**BRD4191A**

Revision  
**A02**

5 of 6



 <b>SILICON LABS</b>		Board Name <b>BG22 Dual Polarized Antenna Array Radio Board</b>	
		Page Title <b>Antenna Array</b>	
Designed ADS		Approved RGU	Revision <b>A02</b>
Size A3	Sheet Modified Date Tuesday, January 25, 2022	Board Number <b>BRD4191A</b>	
COPYRIGHT SILICON LABORATORIES INC. 2020      CONFIDENTIAL – SUBJECT TO TERMS OF USE			Sheet 6 of 6