



P/N: BRS36ANT00001

CipherLab Venus plus

Antenna Performance Evaluation

-WiFi Main/Aux

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Date of Report: 2023/ 02 / 07
Department: WCB , Auden Techno Corp.
Prepared by: Derek Yen

auden^o

Document/Report Information

Project Name	Venus plus
Topics	Antenna Performance Evaluation
Date of Report	2023/ 02 / 07
Report Revision	Rev06
Dept.	WCB, Auden Techno Corp.
Antenna Type	WiFi Main: PIFA Antenna ,WiFi Aux: PIFA Antenna ,
Revised by	Bryant Huang

Report History

Date	Report Rev.	Project Stage	Description
2022/07/14	Rev00	EVT	1. All Antennas Performance.
2022/08/01	Rev01	EVT	1. WiFi main, Wifl aux, performance optimization.
2022/08/12	Rev02	EVT	1. WiFi main performance Evaluation.
2022/10/11	Rev03	DVT1	1. factory sample and finetune.
2022/10/13	Rev04	DVT1	1. Check Wi-Fi, antenna performance in DVT1 device. 2. Fine tune Wi-Fi antenna in DVT1 device.
2022/11/23	Rev05	DVT1	1. debug with spk.
2023/02/07	Rev06	DVT1	1. All Antennas Performance.

- Platform and Fixture Introduction
- Pictures of Antenna pattern
- Antenna Solution and Performance
 - WIFI Main/Aux
- Conclusion

Pictures of Device

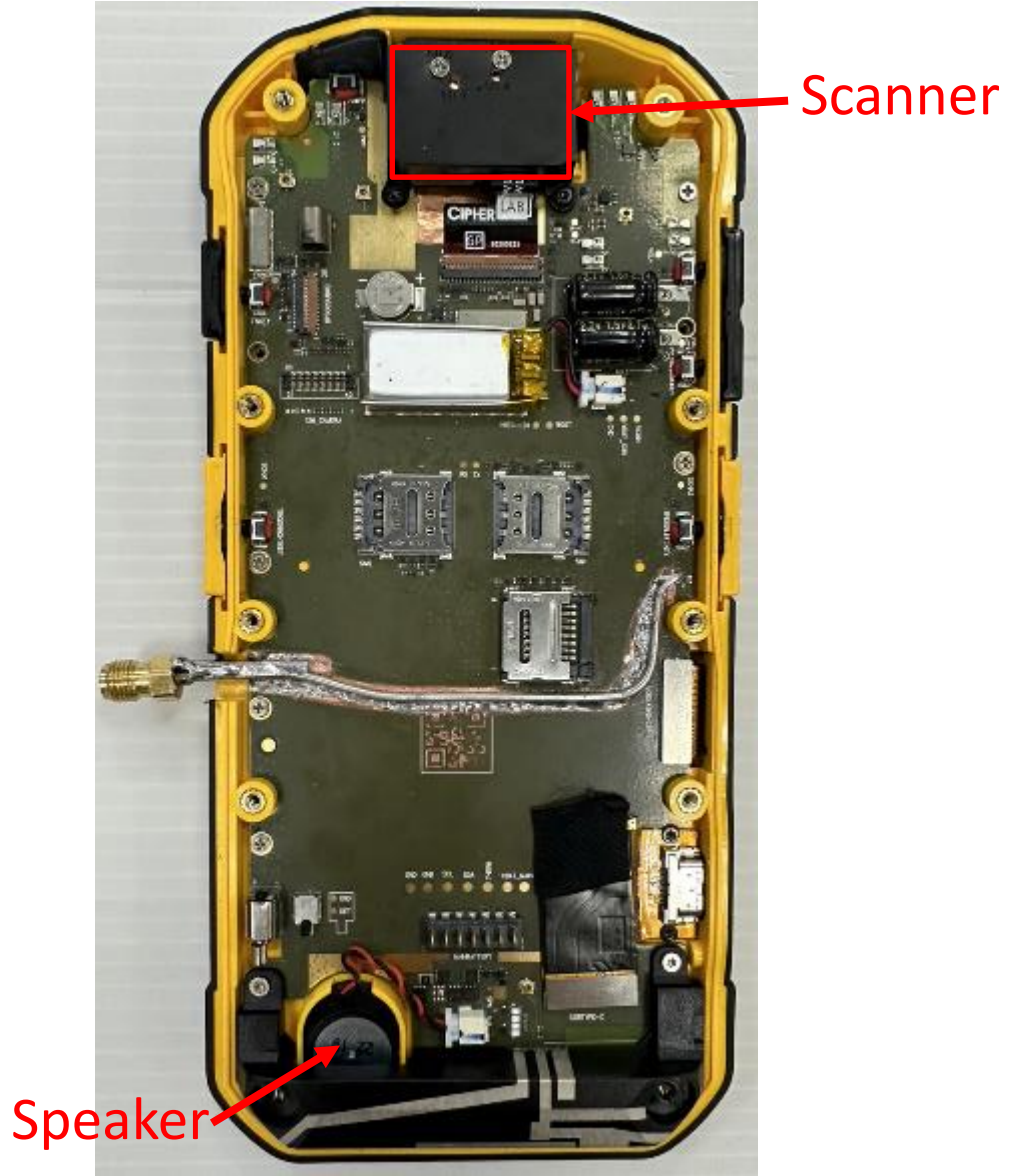
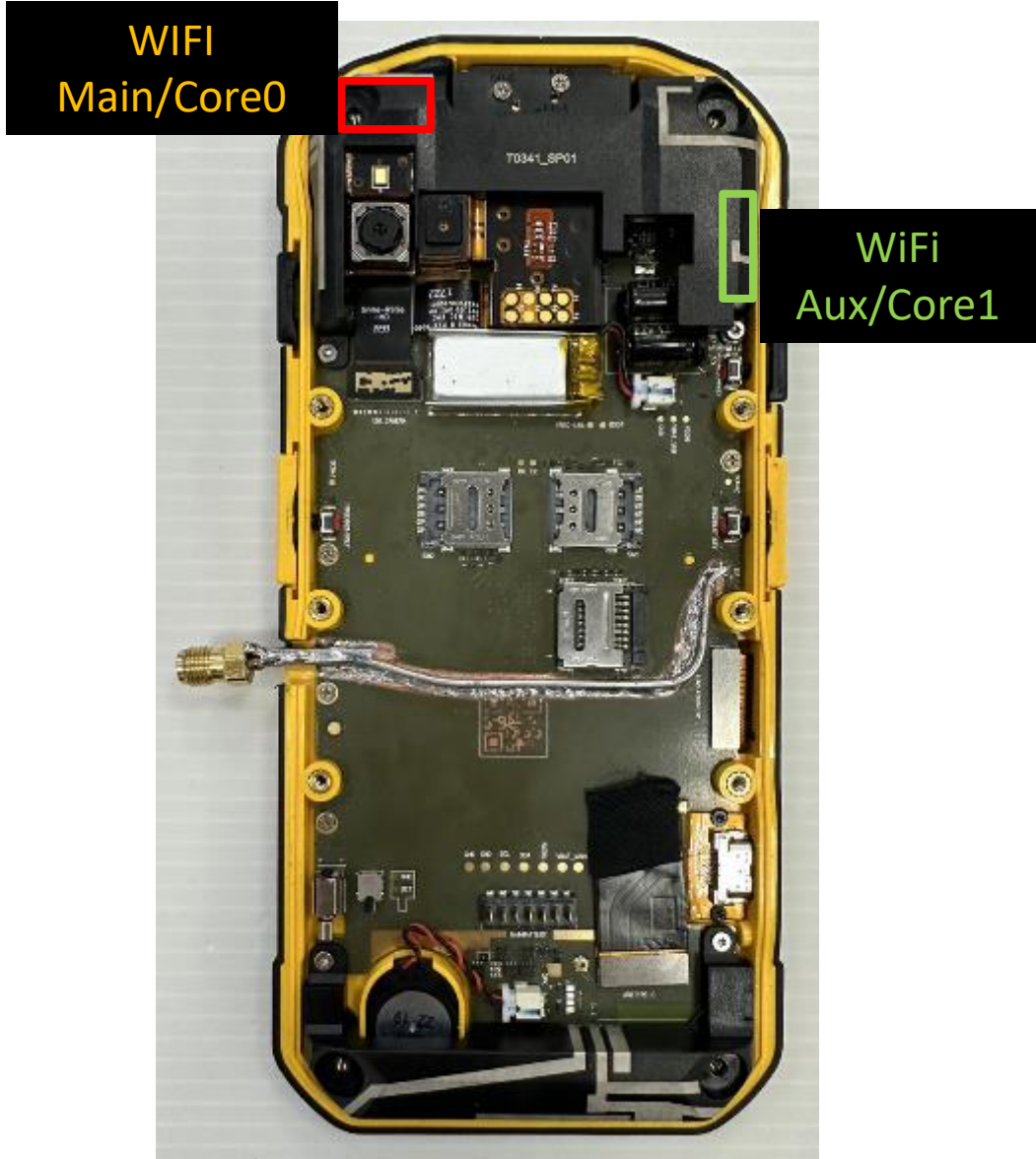


Front view



Back view

Pictures of Device



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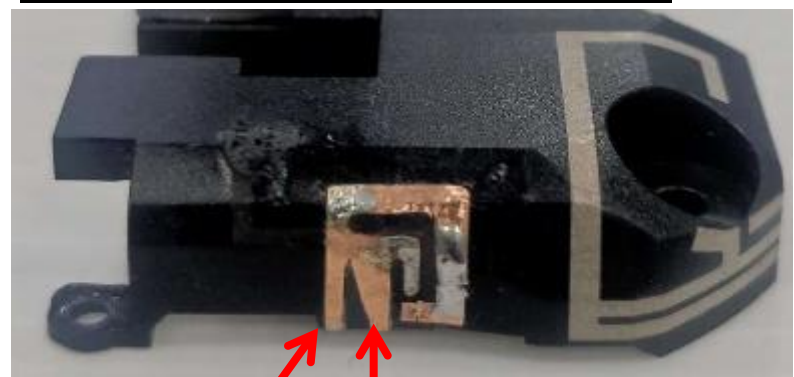
Pictures of Antenna

WIFI Main/Core0 antenna



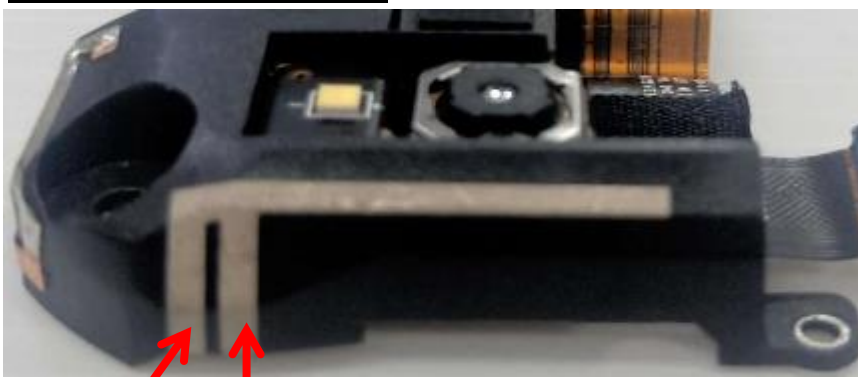
Feed Gnd

WIFI Aux/Core1 antenna



Gnd Feed

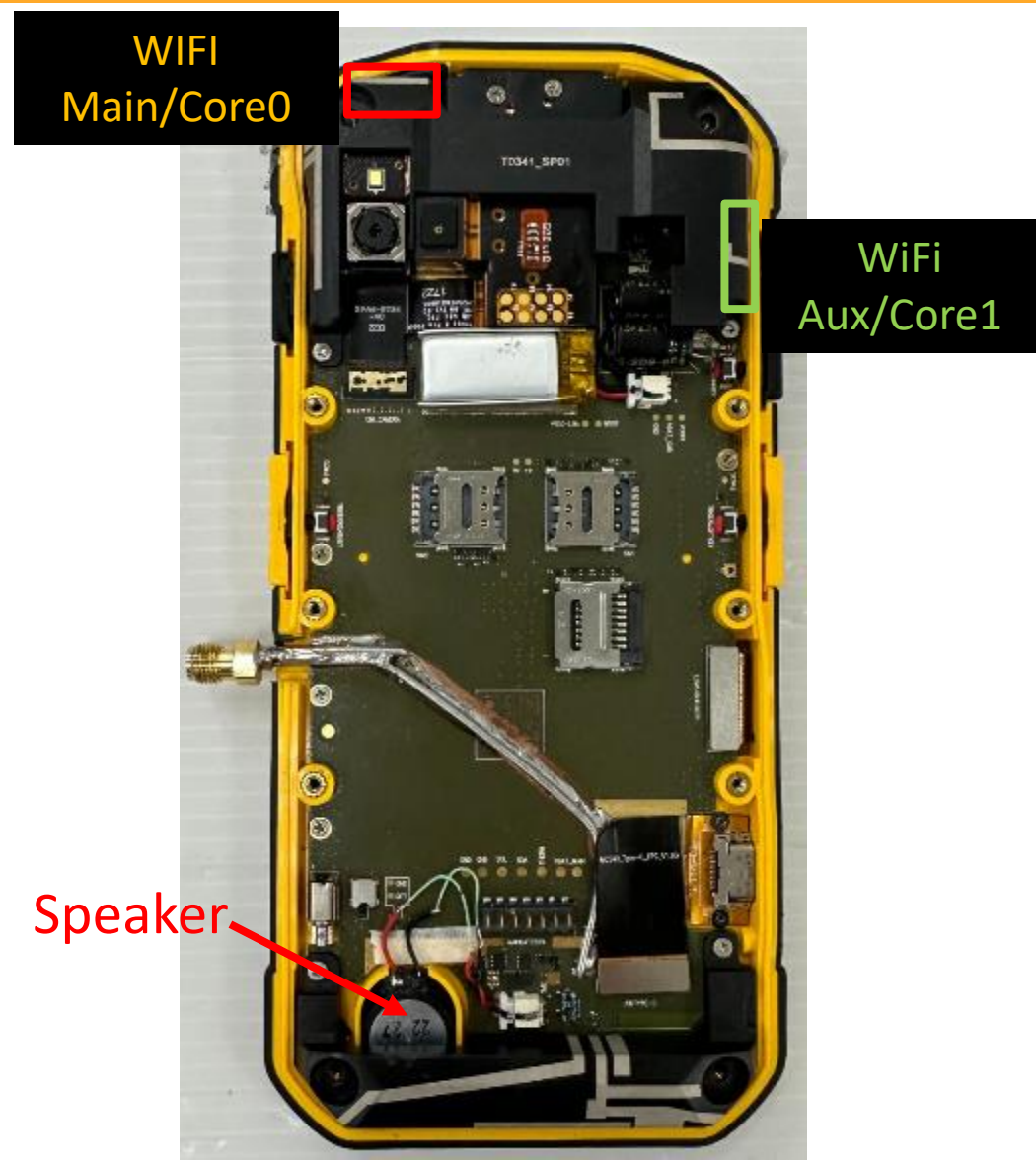
GPS antenna



Gnd Feed

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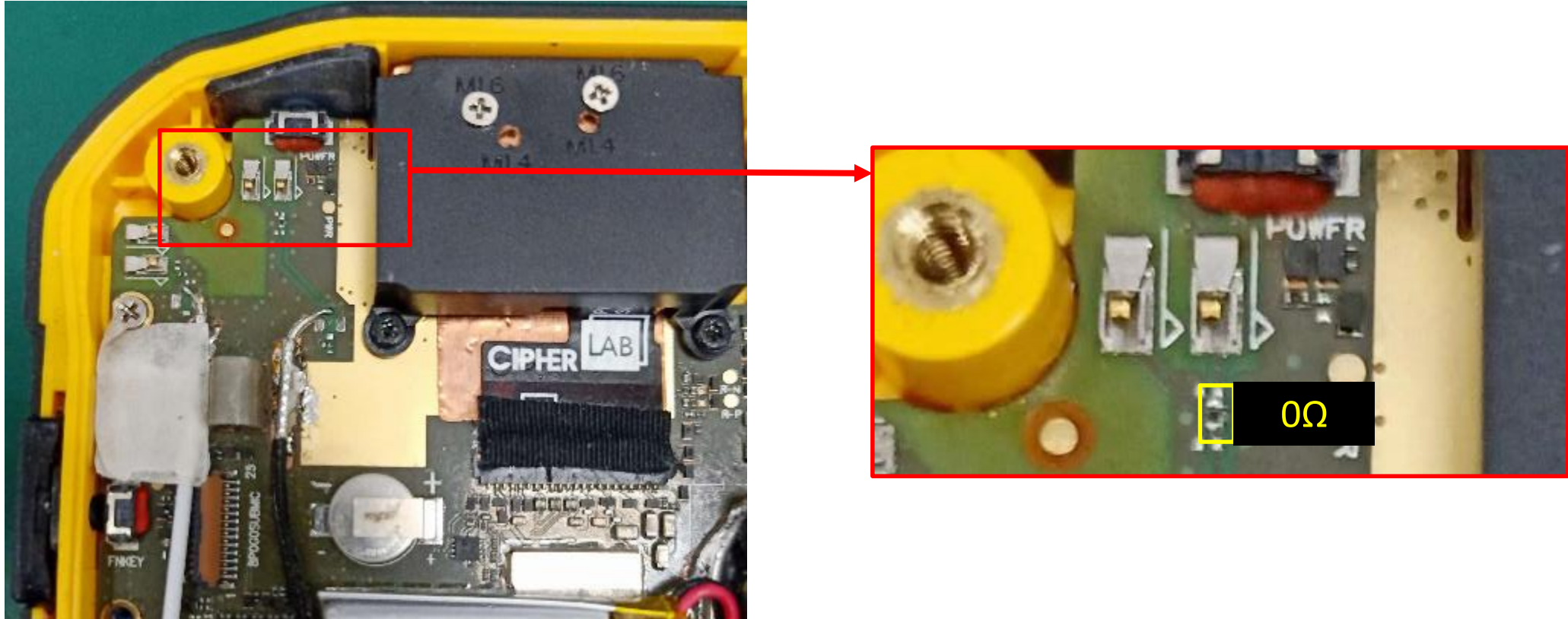
Pictures of Device



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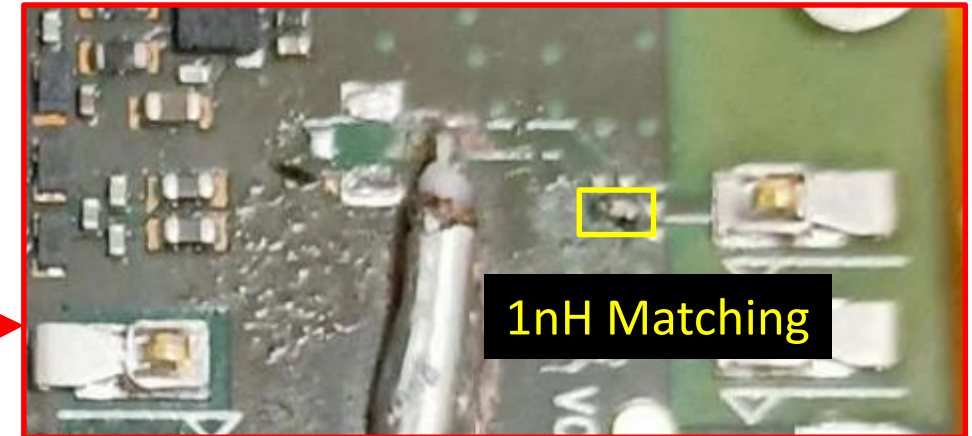
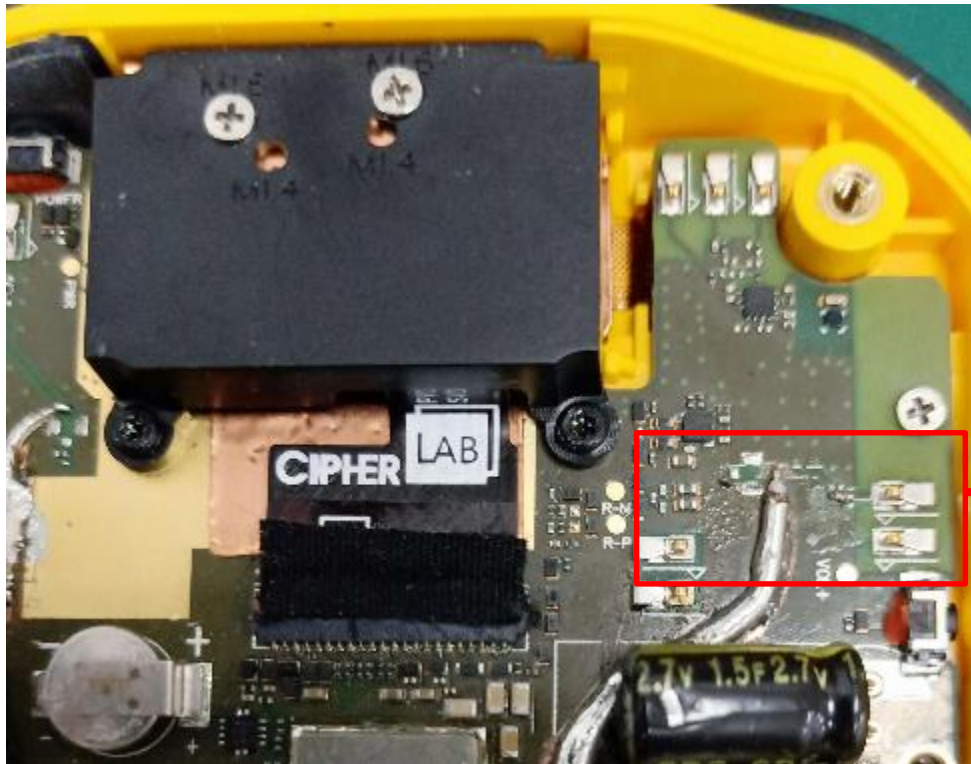
Solution of WIFI Main/Core0 Antenna

因高頻諧振頻偏，原matching替換成0歐姆後特性有改善。

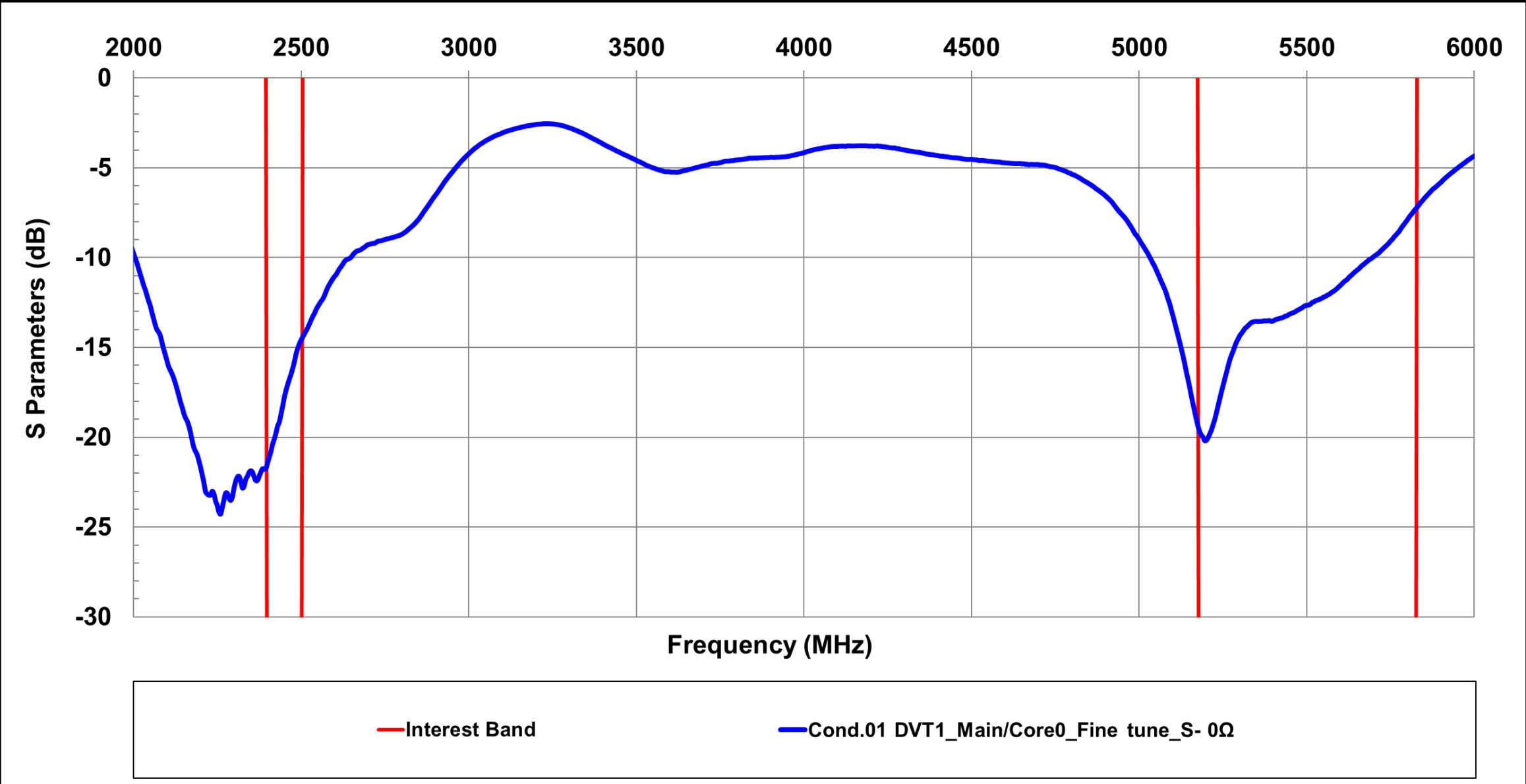


Solution of WIFI Aux/Core1 Antenna

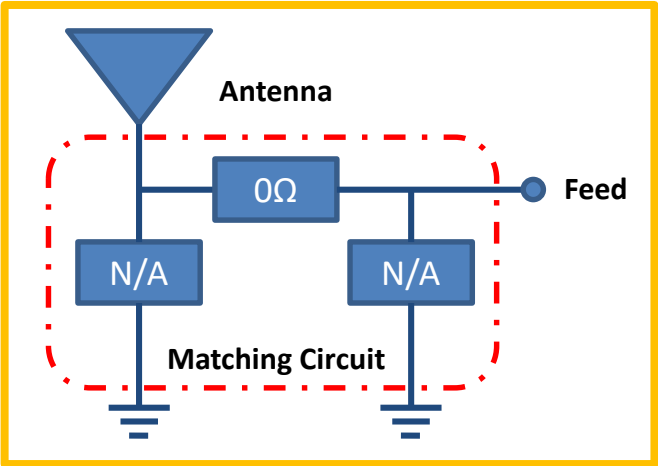
因高頻特性不佳，電路串1nH優化。



S11_WiFi Main/Core0 Antenna

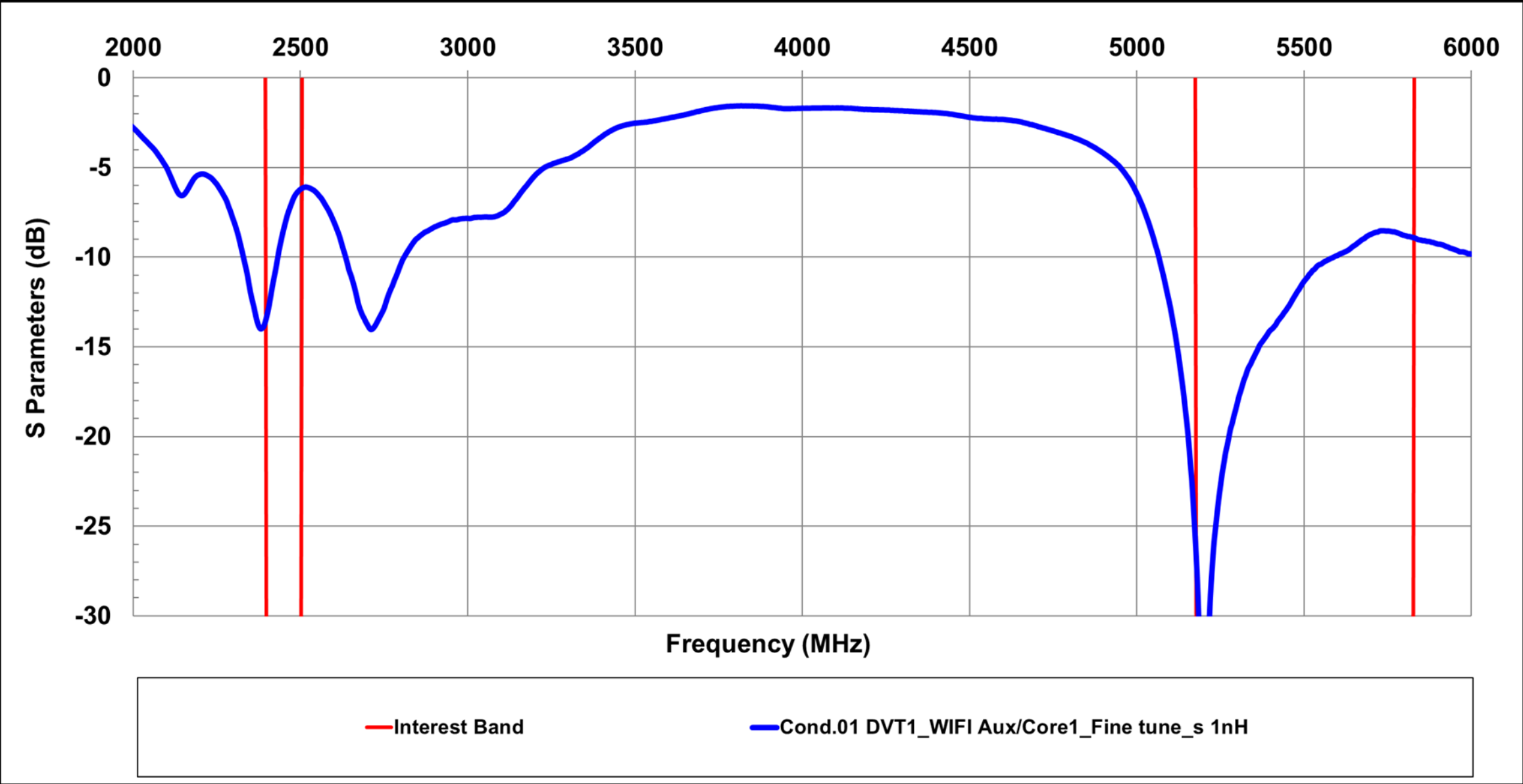


Efficiency_WiFi Main/Core0 Antenna

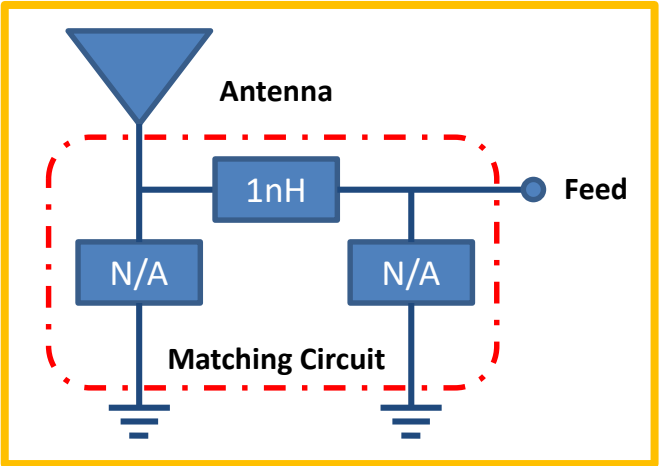


Conditions		Cond.01		
Date		2022/10/13		
Report Rev.		Rev04		
Antenna (Rev.)		WIFI Main/Core0		
Project Stage		DVT1		
Detail		*Fine tune.		
		*S-0歐姆.		
		*PIFA type		
Chamber		Auden GTS2800		
MHz	Spec	MHz	Avg. Gain(dB)	Peak. Gain(dBi)
2402	-3.0	2402	-3.5	1.8
2442	-3.0	2442	-4.0	1.7
2484	-3.0	2484	-4.8	0.3
5150	-3.0	5150	-6.1	-0.8
5250	-3.0	5250	-4.6	1.1
5350	-3.0	5350	-4.2	2.1
5470	-3.0	5470	-4.6	1.5
5725	-3.0	5725	-4.9	1.0
5785	-3.0	5785	-5.1	1.3
5875	-3.0	5875	-4.6	1.9

S11_WiFi Aux/Core1 Antenna



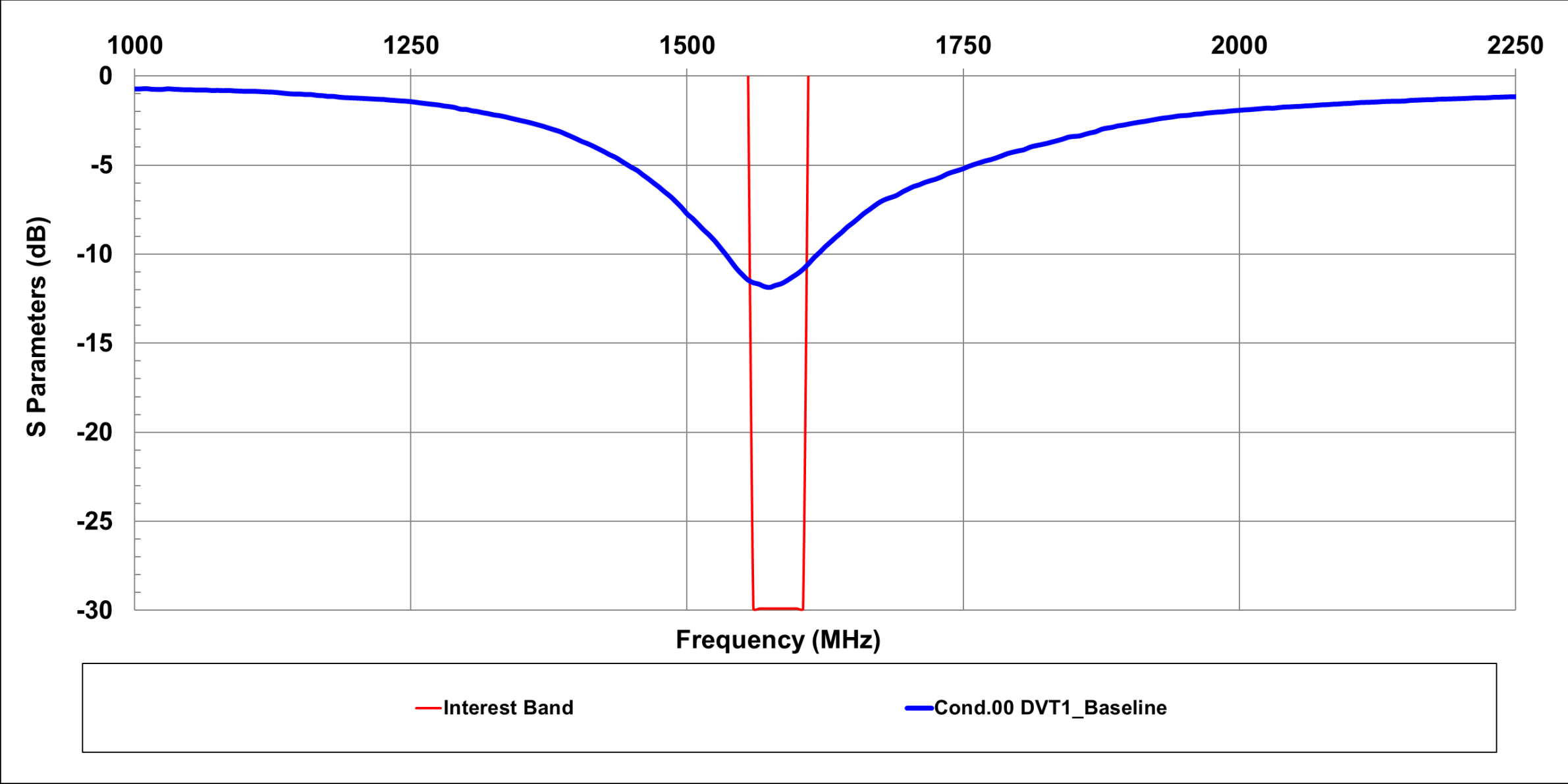
Efficiency_WiFi Aux/Core1 Antenna



Conditions		Cond.01		
Date		2022/10/13		
Report Rev.		Rev04		
Antenna (Rev.)		WIFI Aux/Core1		
Project Stage		DVT1		
Detail		*Fine tune.		
		*S-1nH		
		*PIFA type		
Chamber		Auden GTS2800		
MHz	Spec	MHz	Avg. Gain(dB)	Peak. Gain(dBi)
2402	-3.0	2402	-3.2	0.3
2442	-3.0	2442	-3.2	0.2
2484	-3.0	2484	-3.7	-0.1
5150	-3.0	5150	-6.0	-1.1
5250	-3.0	5250	-5.1	0.2
5350	-3.0	5350	-4.1	1.2
5470	-3.0	5470	-4.0	1.9
5725	-3.0	5725	-4.3	2.9
5785	-3.0	5785	-4.8	2.2
5875	-3.0	5875	-5.1	1.8

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 - LTE Main
 - LTE Aux
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S11_WiFi Aux Antenna



Efficiency_WiFi Aux Antenna



Conditions		Cond.00		
Date		2022/10/13		
Report Rev.		Rev04		
Antenna (Rev.)		GPS		
Project Stage		DVT1		
Detail		*Baseline. *Factory sample. *PIFA type.		
Chamber		Auden GTS 2800		
MHz	Spec	MHz	Avg. Gain(dB)	Peak. Gain(dBi)
Total Eff.				
1560	-3.0	1560	-3.2	1.1
1585	-3.0	1585	-3.4	0.6
1610	-3.0	1610	-3.3	0.2
UHS Eff.				
1560	-6.0	1560	-6.9	
1585	-6.0	1585	-6.9	
1610	-6.0	1610	-6.4	