



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<sup>o</sup>

# Document/Report Information

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

# 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

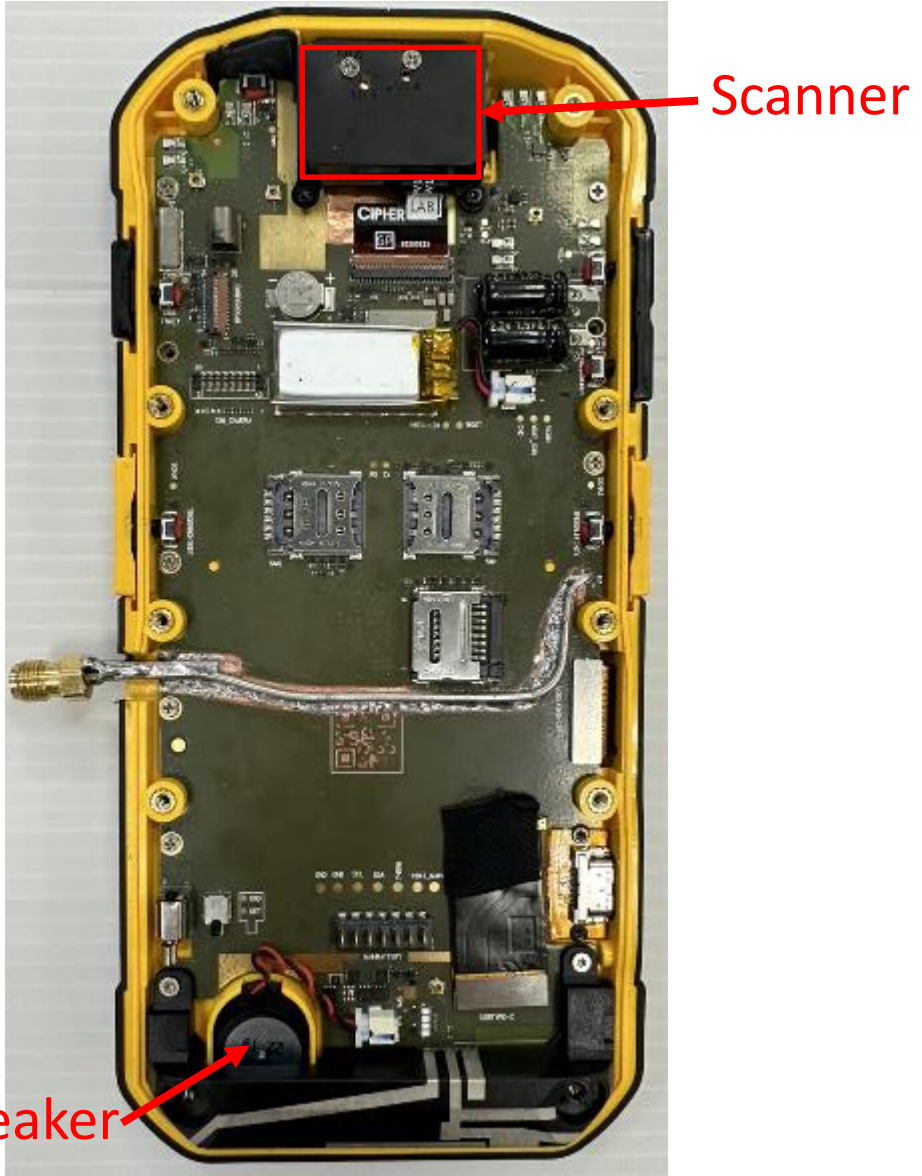
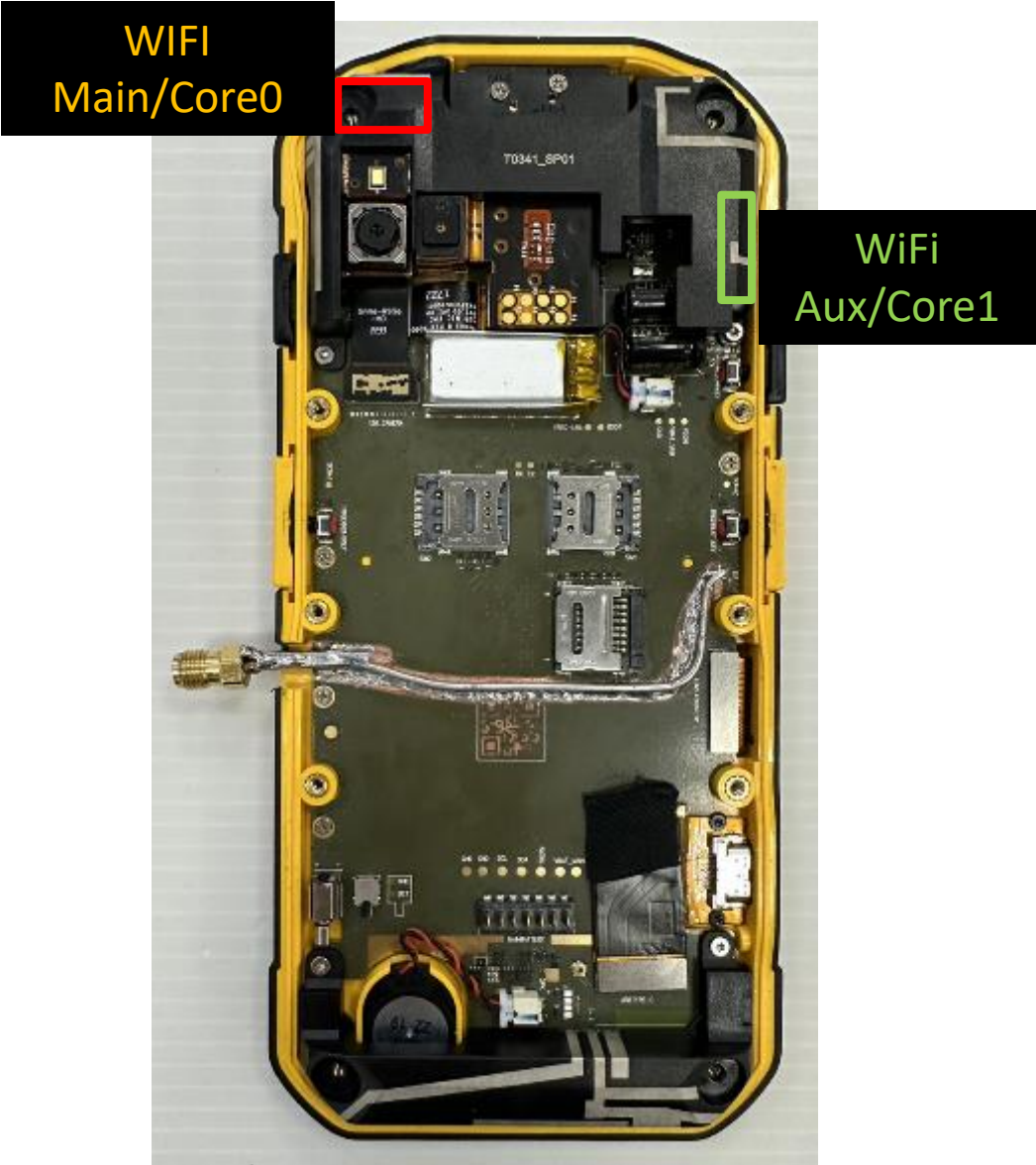


Front view



Back view

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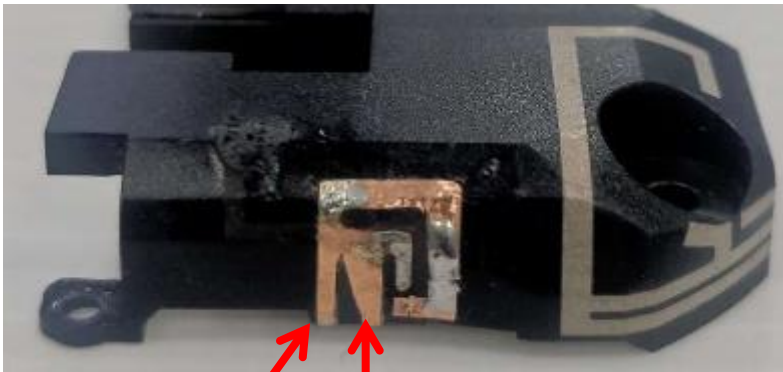
# Pictures of Antenna

WIFI Main/Core0 antenna



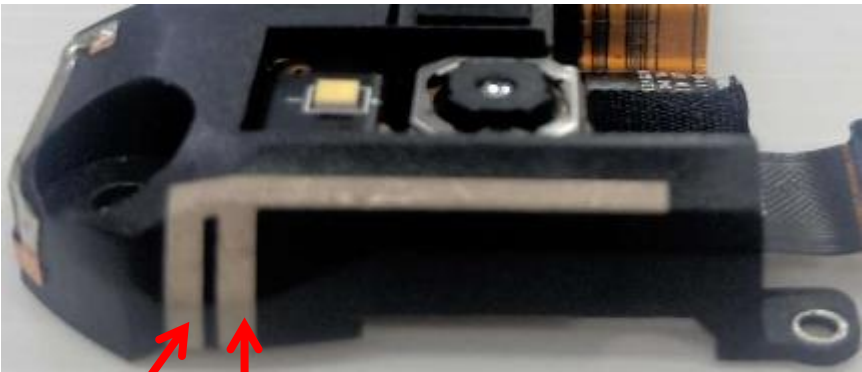
Feed Gnd

WIFI Aux/Core1 antenna



Gnd Feed

GPS antenna

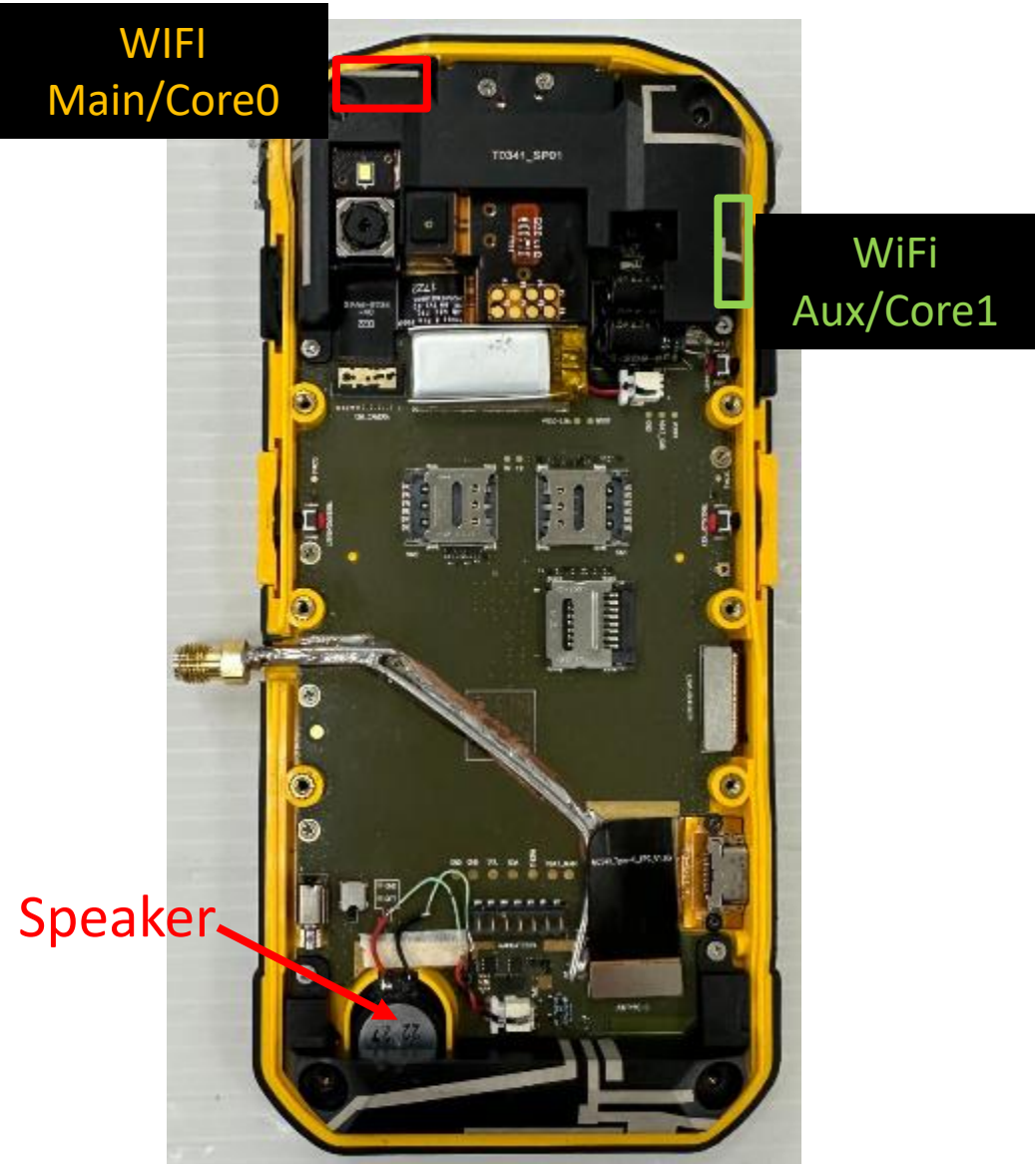


Gnd Feed



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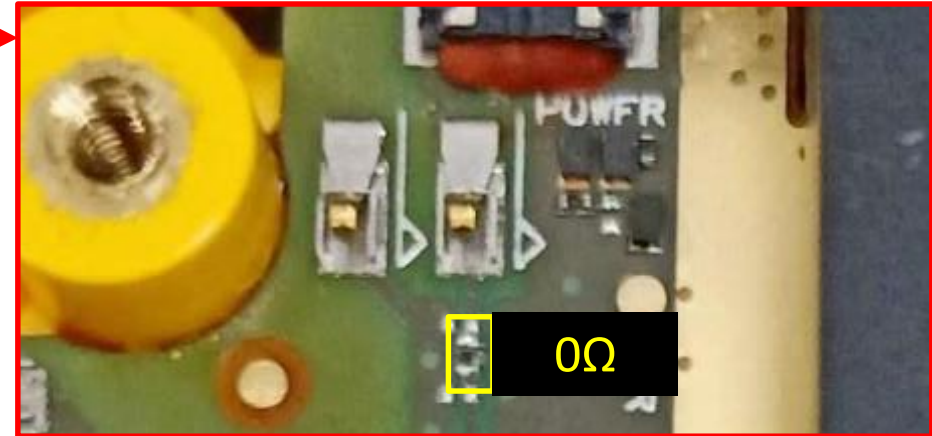
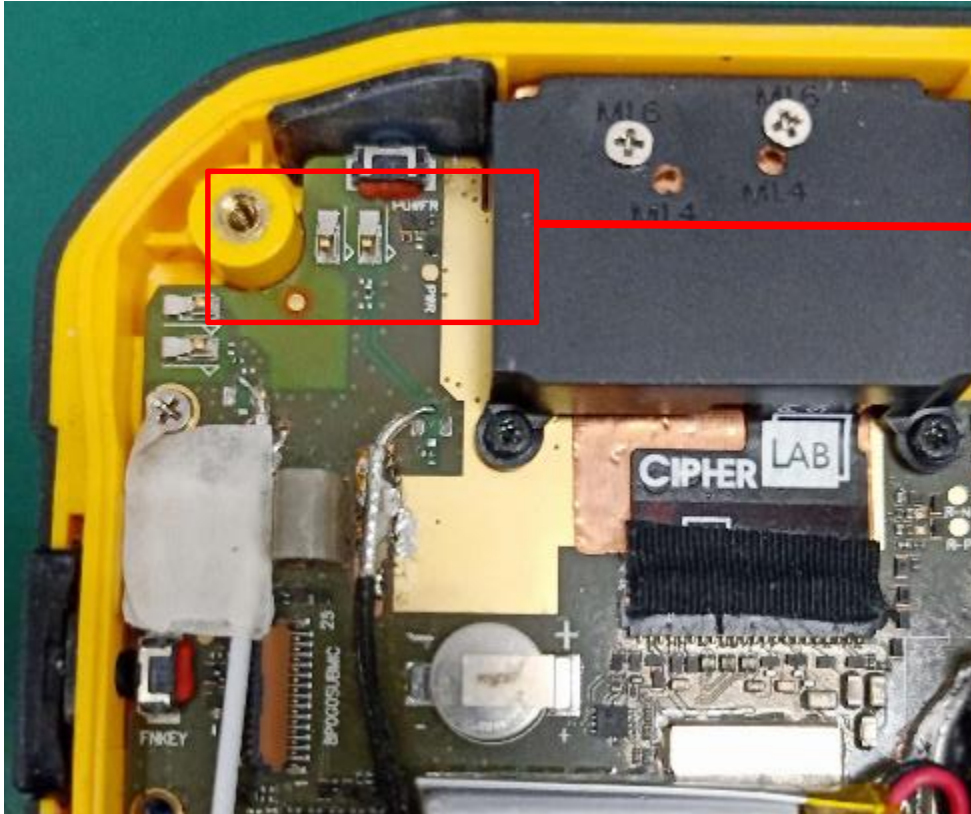
# Pictures of Device



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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。

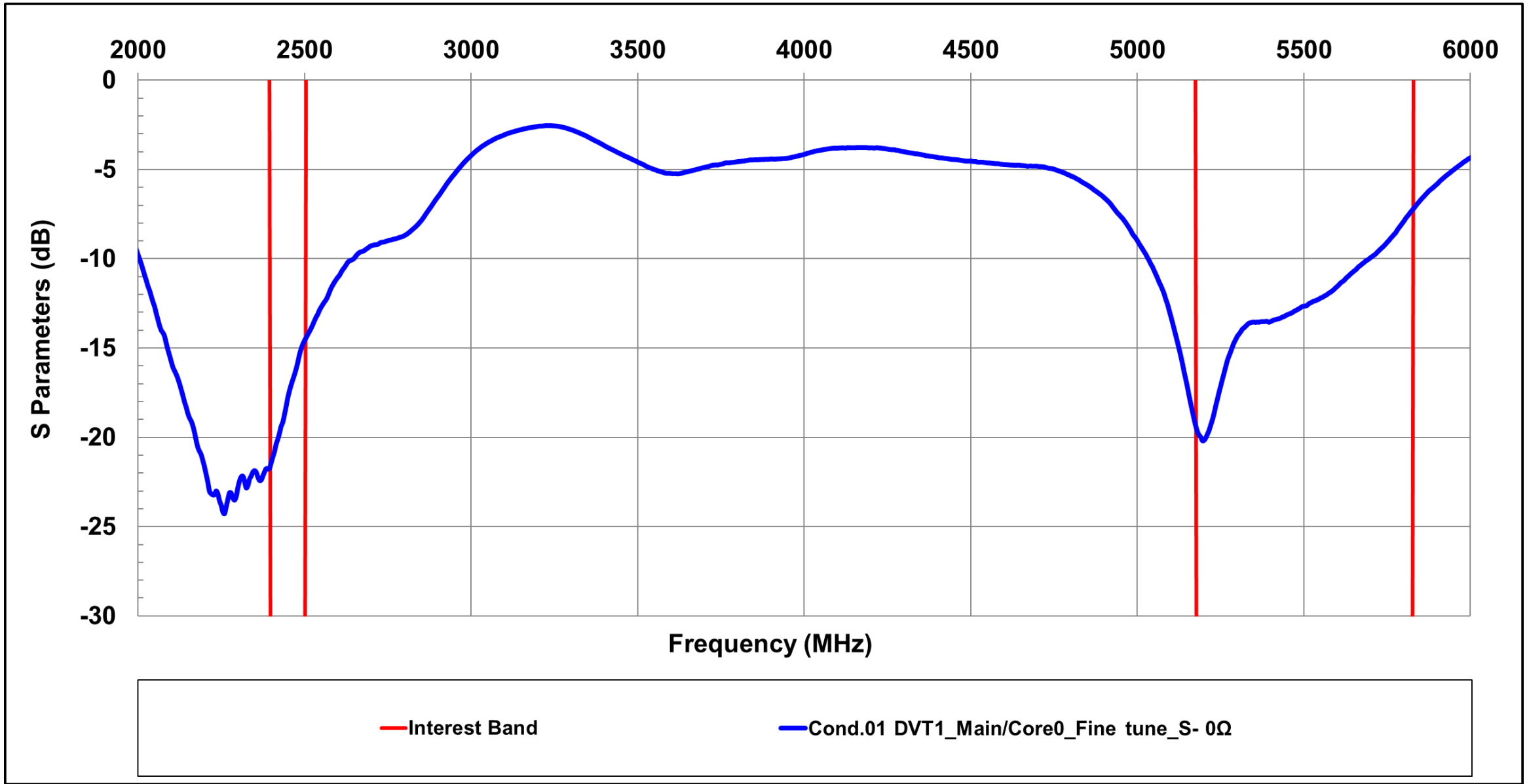


# Solution of WIFI Aux/Core1 Antenna

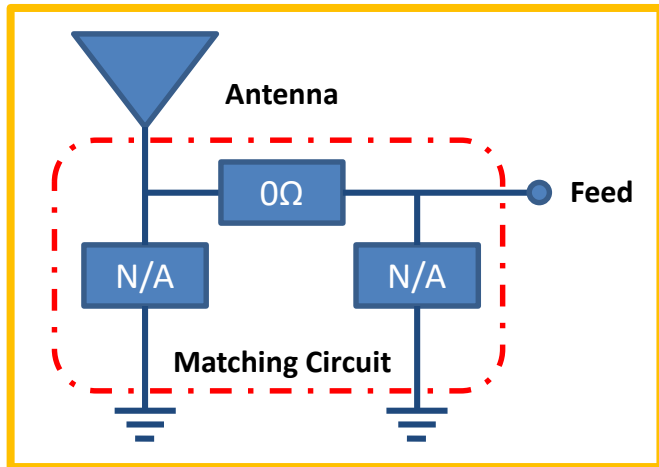
因高頻特性不佳，電路串1nH優化。



# S11\_WiFi Main/Core0 Antenna

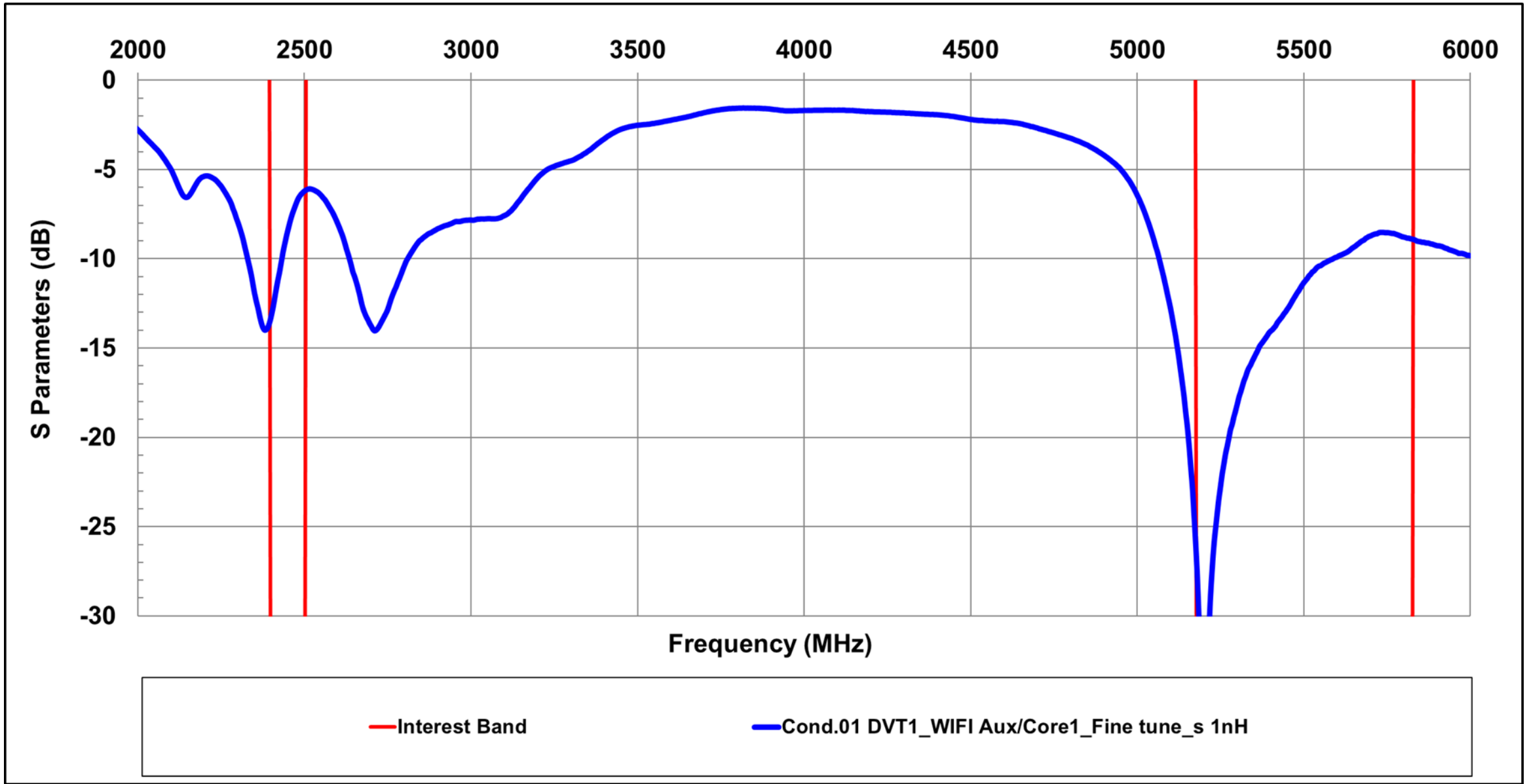


# Efficiency\_WiFi Main/Core0 Antenna



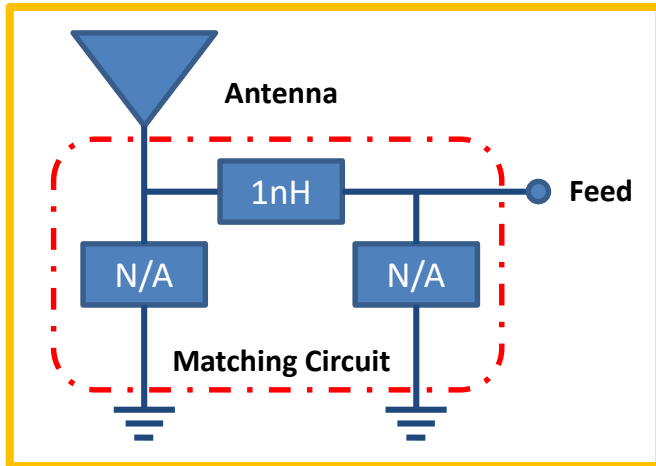
<b>Conditions</b>		Cond.01		
<b>Date</b>		2022/10/13		
<b>Report Rev.</b>		Rev04		
<b>Antenna (Rev.)</b>		WIFI Main/Core0		
<b>Project Stage</b>		DVT1		
<b>Detail</b>		*Fine tune. *S-0歐姆. *PIFA type		
<b>Chamber</b>		Auden GTS2800		
<b>MHz</b>	<b>Spec</b>	<b>MHz</b>	<b>Avg. Gain(dB)</b>	<b>Peak. Gain(dBi)</b>
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



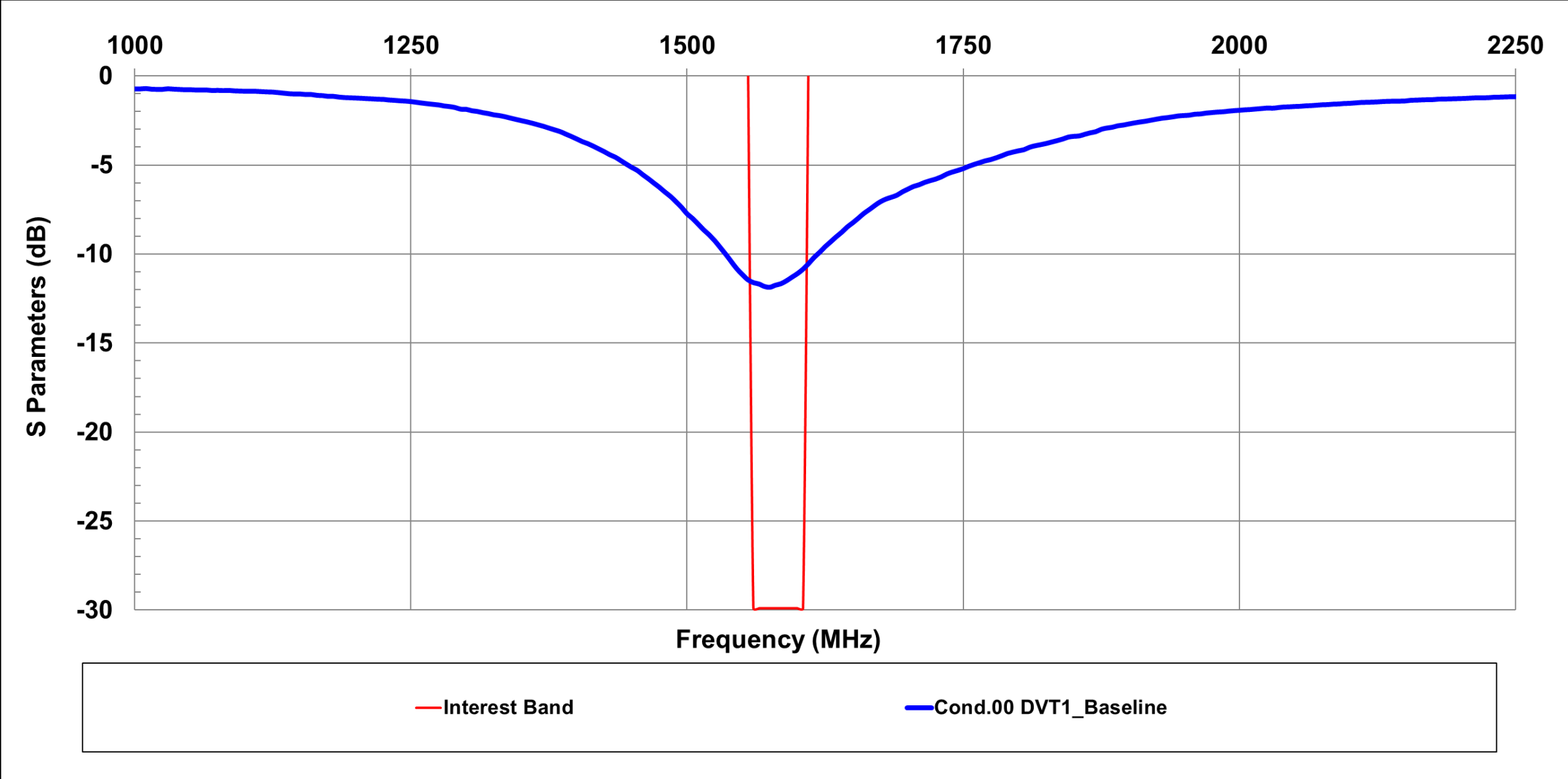


# Efficiency\_WiFi Aux/Core1 Antenna



<b>Conditions</b>		Cond.01		
<b>Date</b>		2022/10/13		
<b>Report Rev.</b>		Rev04		
<b>Antenna (Rev.)</b>		WIFI Aux/Core1		
<b>Project Stage</b>		DVT1		
<b>Detail</b>		*Fine tune. *S-1nH *PIFA type		
<b>Chamber</b>		Auden GTS2800		
<b>MHz</b>	<b>Spec</b>	<b>MHz</b>	<b>Avg. Gain(dB)</b>	<b>Peak. Gain(dBi)</b>
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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# Efficiency\_WiFi Aux Antenna

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