

Appendix D: Time of occupancy

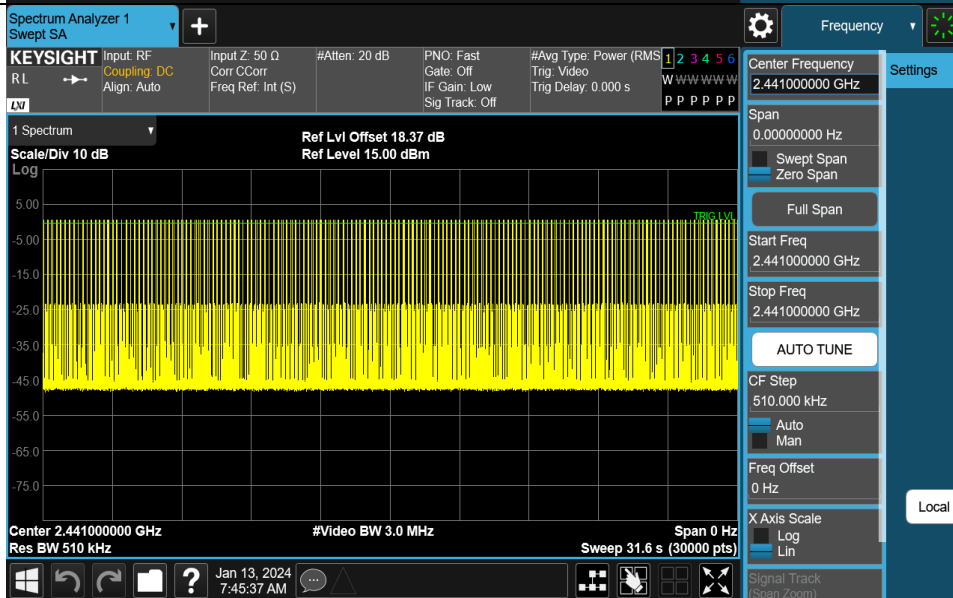
Left earbud

Test Result

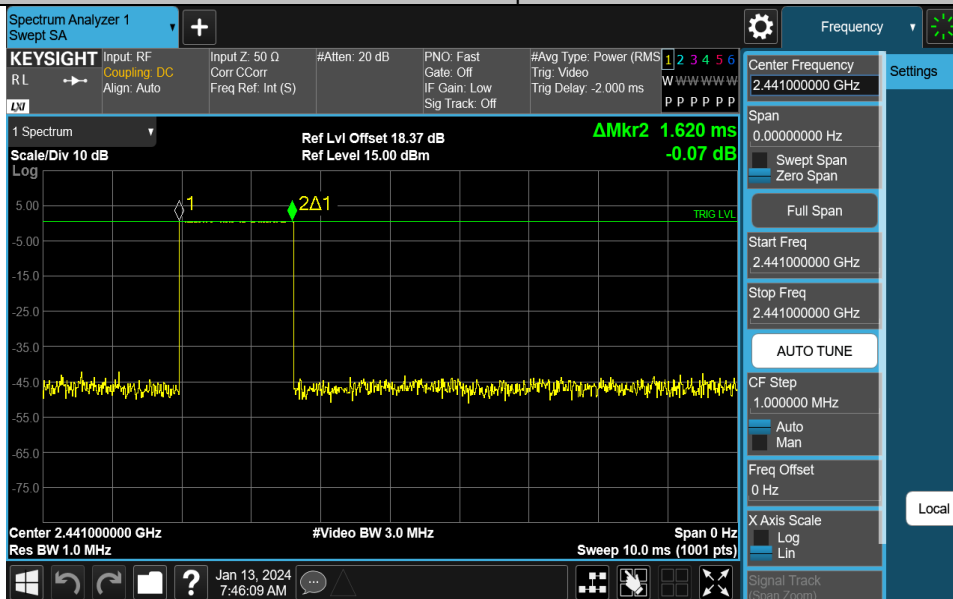
TestMode	Antenna	Frequency[MHz]	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.377	319	0.12	≤0.4	PASS
DH3	Ant1	Hop	1.620	167	0.271	≤0.4	PASS
DH5	Ant1	Hop	2.870	96	0.276	≤0.4	PASS
2DH1	Ant1	Hop	0.388	317	0.123	≤0.4	PASS
2DH3	Ant1	Hop	1.630	161	0.262	≤0.4	PASS
2DH5	Ant1	Hop	2.870	124	0.356	≤0.4	PASS

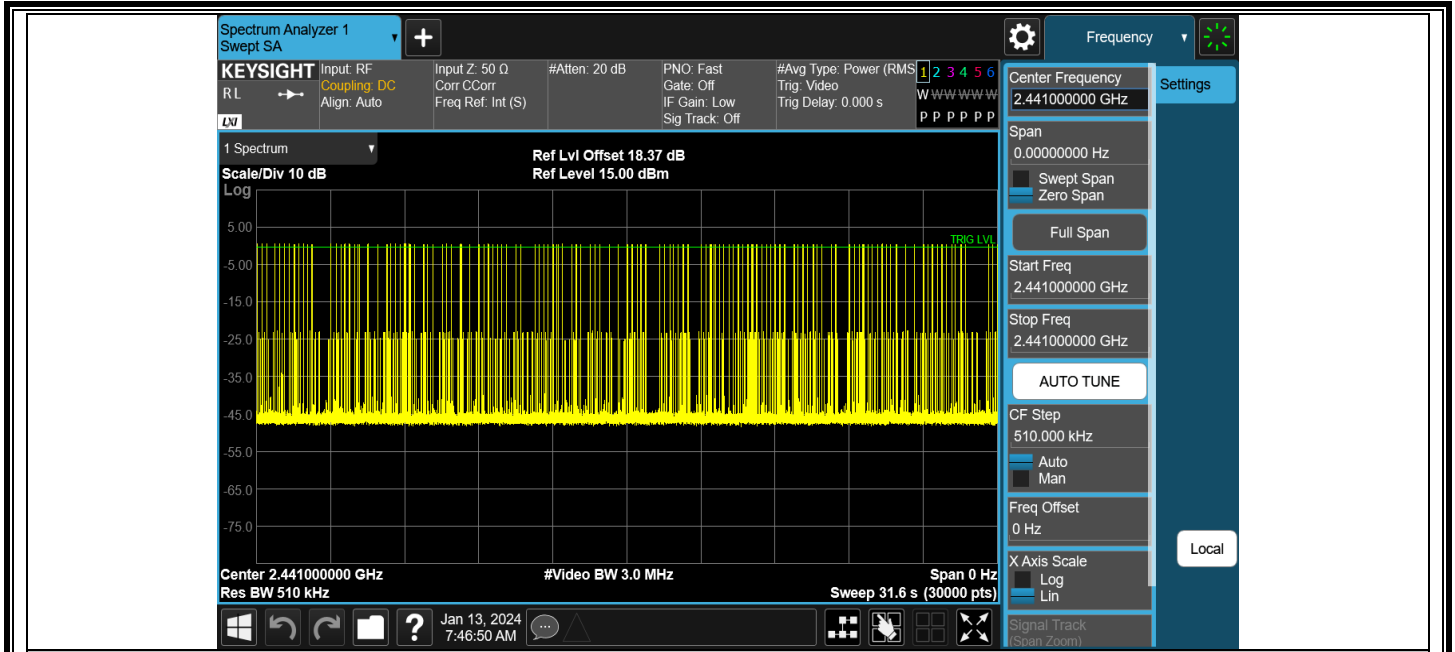
Test Graphs

DH1-Ant1-Hop-PASS

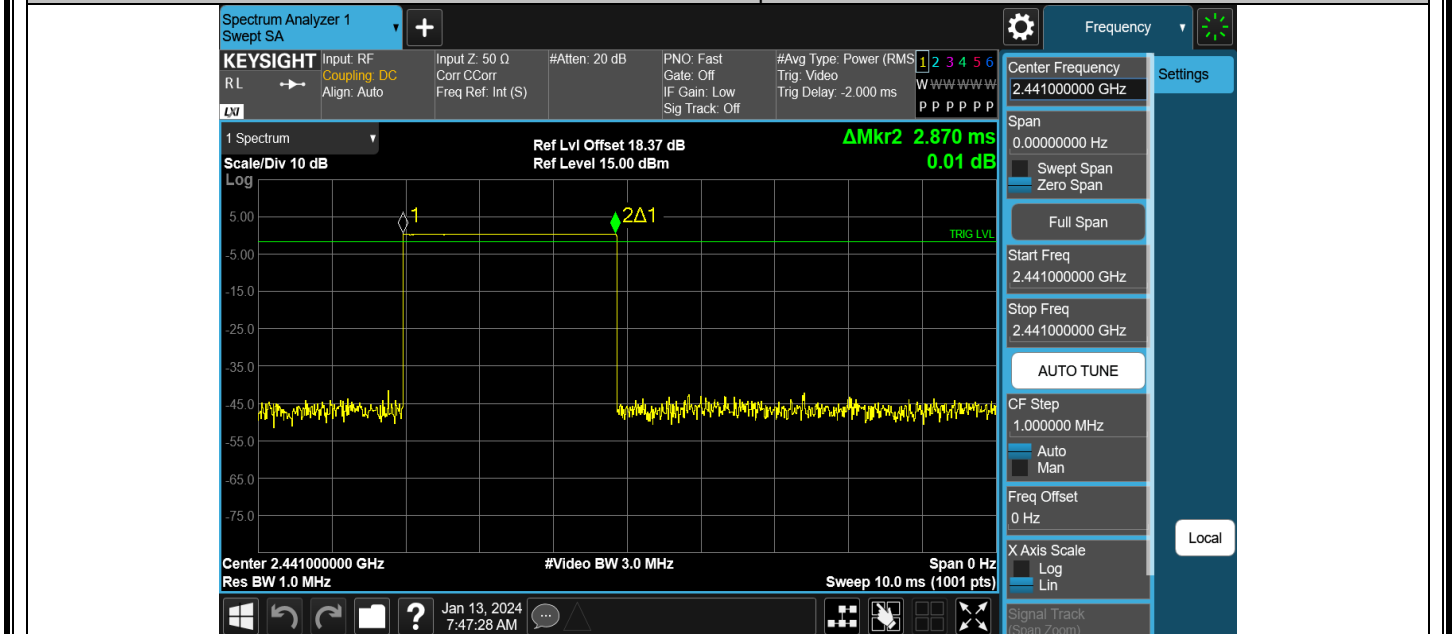


DH3-Ant1-Hop-PASS

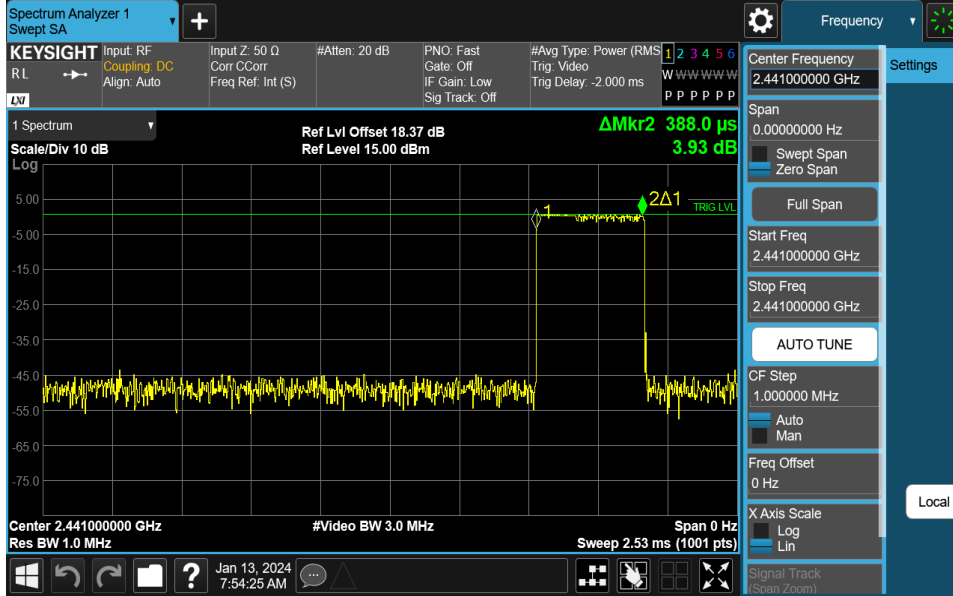




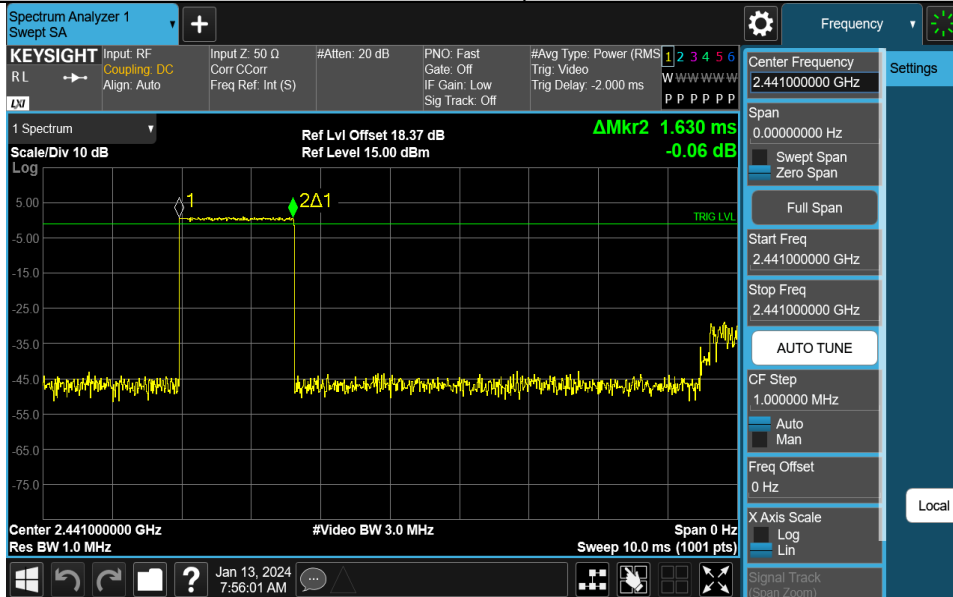
DH5-Ant1-Hop-PASS



2DH1-Ant1-Hop-PASS

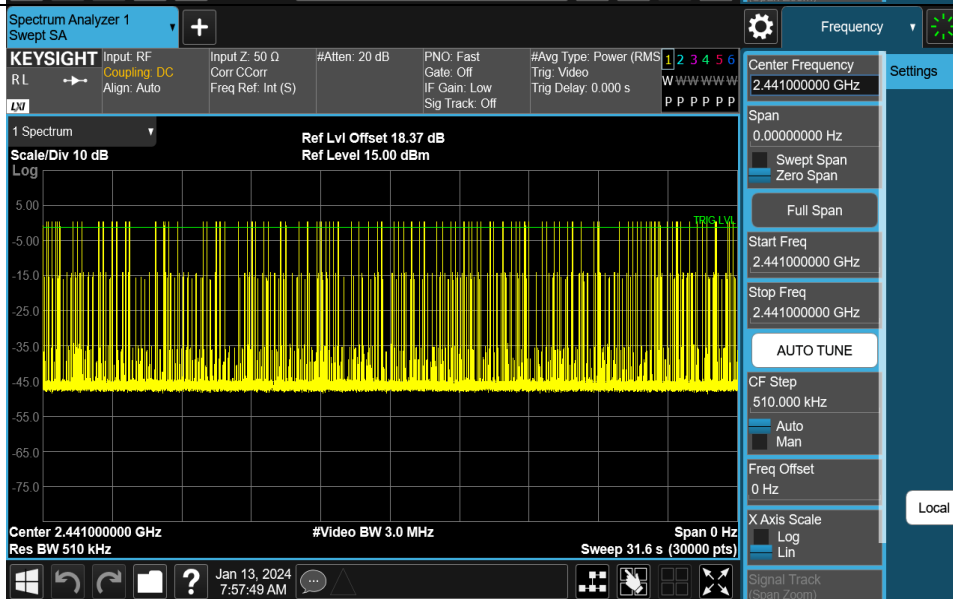
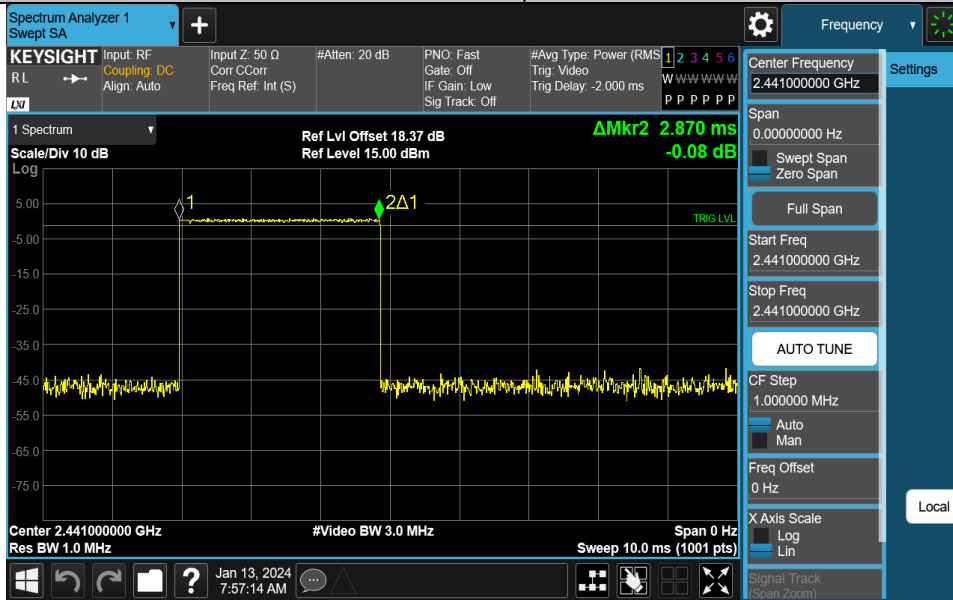


2DH3-Ant1-Hop-PASS





2DH5-Ant1-Hop-PASS



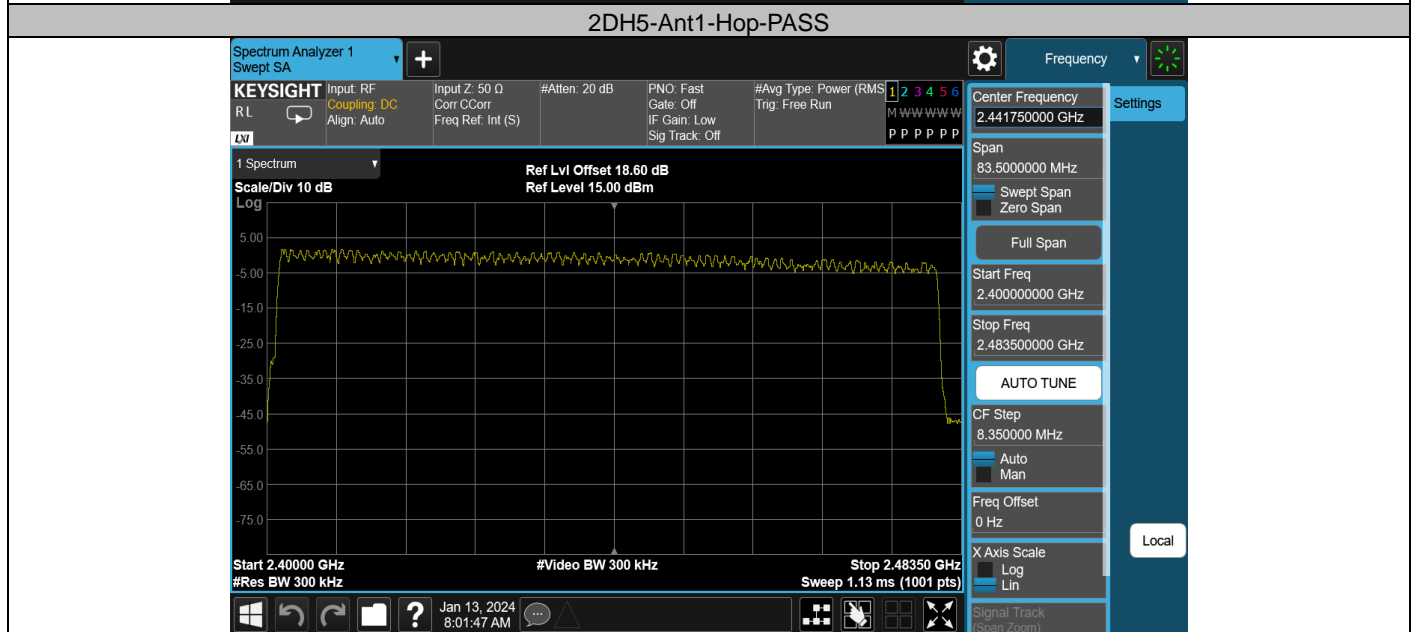
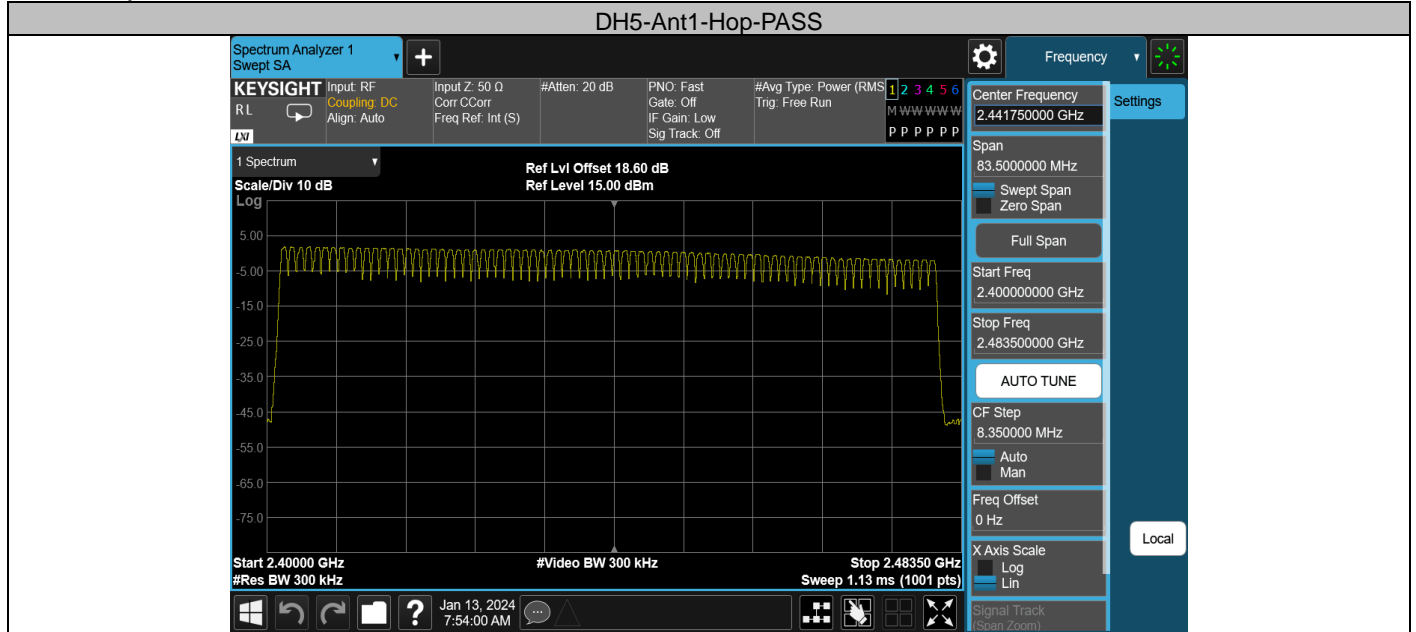
Appendix E: Number of hopping channels

Left earbud

Test Result

TestMode	Antenna	Frequency[MHz]	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥ 15	PASS
2DH5	Ant1	Hop	79	≥ 15	PASS

Test Graphs



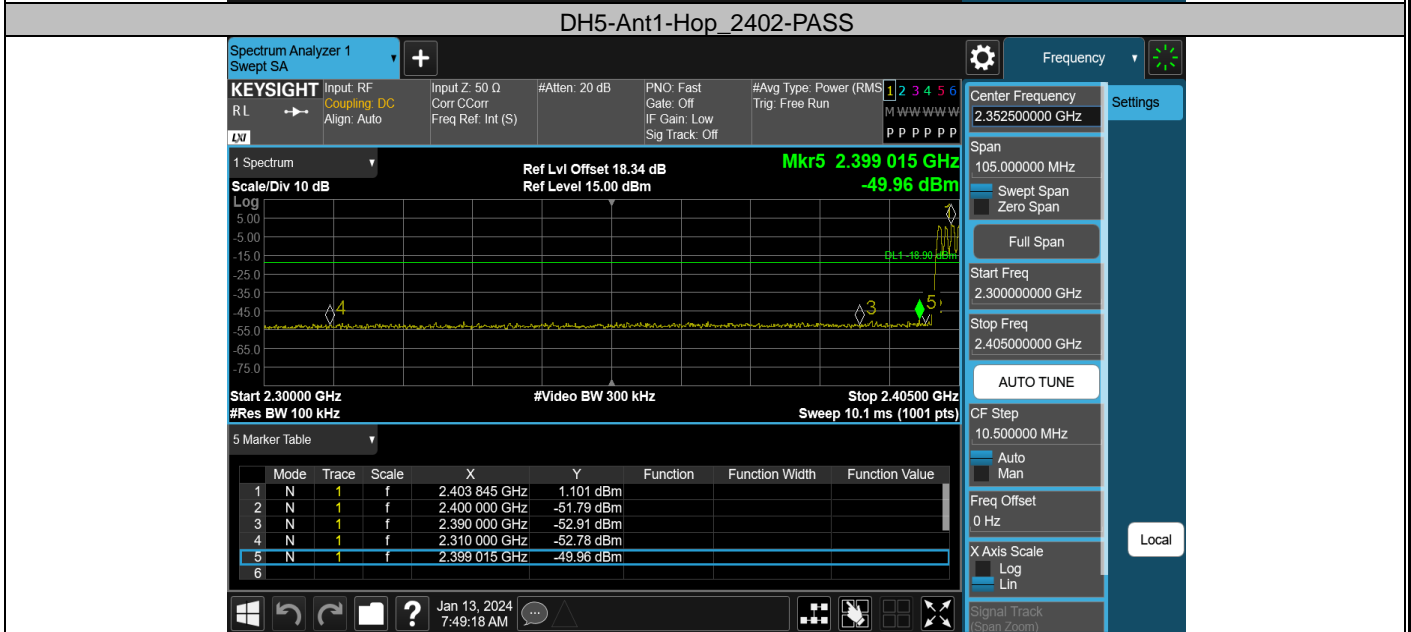
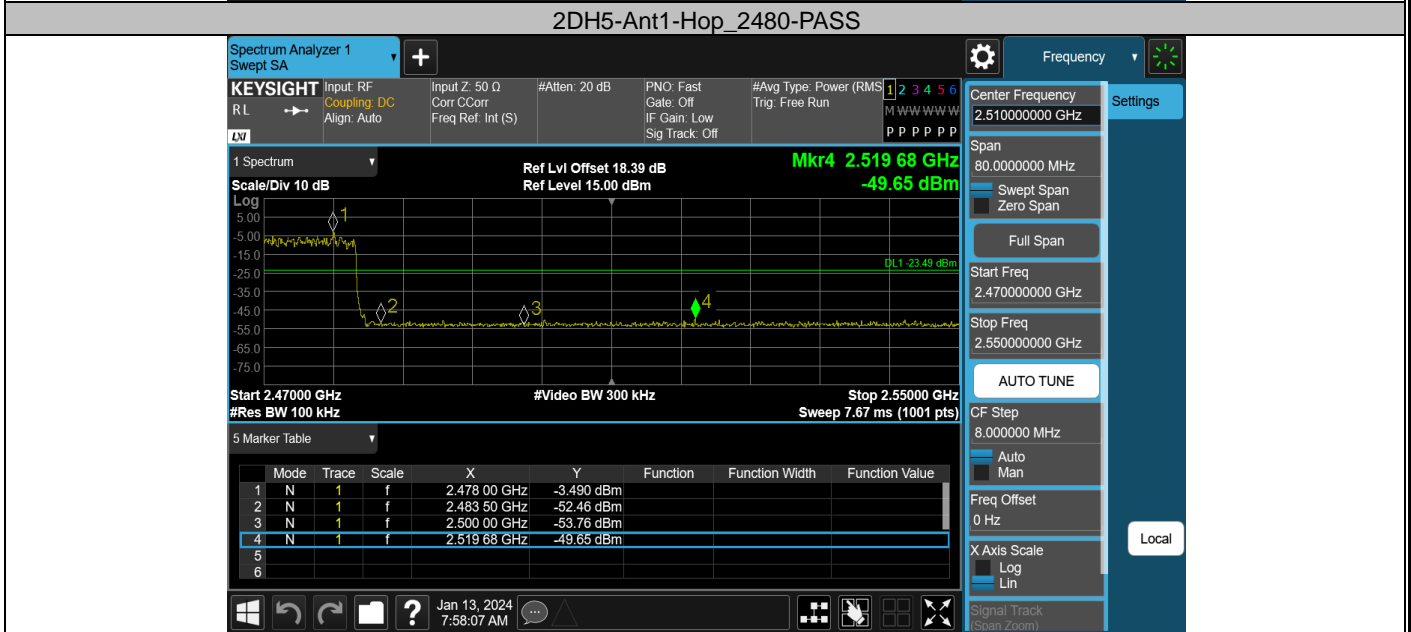
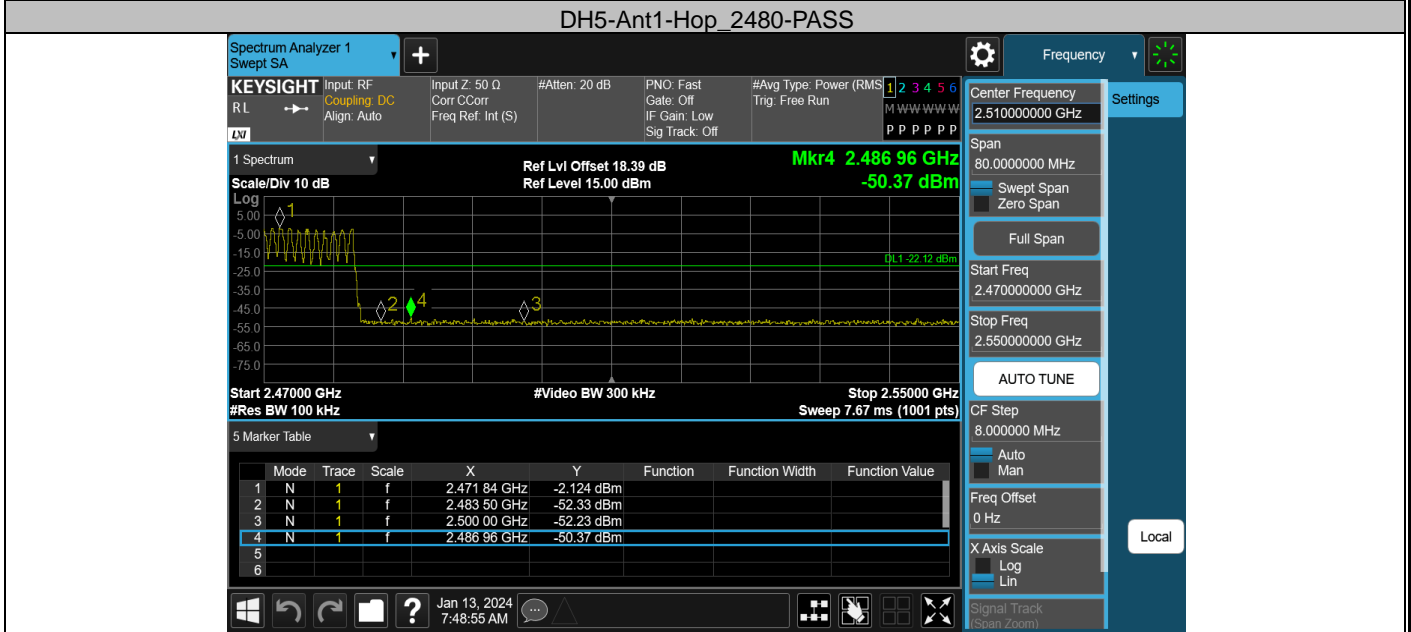
Appendix F: Band edge measurements

Left earbud

Test Result

TestMode	Antenna	ChName	Frequency[MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	High	Hop_2480	-2.12	-50.37	≤ -22.12	PASS
2DH5	Ant1	High	Hop_2480	-3.49	-49.65	≤ -23.49	PASS
DH5	Ant1	Low	Hop_2402	1.10	-49.96	≤ -18.9	PASS
2DH5	Ant1	Low	Hop_2402	-1.40	-48.26	≤ -21.4	PASS
DH5	Ant1	High	2480	-3.07	-51.32	≤ -23.07	PASS
2DH5	Ant1	High	2480	-2.37	-50	≤ -22.37	PASS
DH5	Ant1	Low	2402	1.09	-51.23	≤ -18.91	PASS
2DH5	Ant1	Low	2402	1.17	-48	≤ -18.83	PASS

Test Graphs



2DH5-Ant1-Hop_2402-PASS

Spectrum Analyzer 1
Swept SA

KEYSIGHT Input: RF Coupling: DC Align: Auto Input Z: 50 Ω Corr: CCorr Freq Ref: Int (S) #Atten: 20 dB PNO: Fast Gate: Off IF Gain: Low Sig Track: Off #Avg Type: Power (RMS) Trig: Free Run

Center Frequency: 2.352500000 GHz

Span: 105.0000000 MHz

Start Freq: 2.300000000 GHz

Stop Freq: 2.405000000 GHz

Mkr5 2.399 855 GHz -48.26 dBm

Scale/Div 10 dB

Ref Lvl Offset 18.34 dB

Ref Level 15.00 dBm

Start 2.30000 GHz #Res BW 100 kHz #Video BW 300 kHz Stop 2.40500 GHz Sweep 10.1 ms (1001 pts)

Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	2.404 055 GHz	-1.398 dBm			
2	N	1	2.400 000 GHz	-49.74 dBm			
3	N	1	2.390 000 GHz	-52.28 dBm			
4	N	1	2.310 000 GHz	-53.36 dBm			
5	N	1	2.399 855 GHz	-48.26 dBm			

Jan 13, 2024 7:58:28 AM

DH5-Ant1-2480-PASS

Spectrum Analyzer 1
Swept SA

KEYSIGHT Input: RF Coupling: DC Align: Auto Input Z: 50 Ω Corr: CCorr Freq Ref: Int (S) #Atten: 20 dB PNO: Fast Gate: Off IF Gain: Low Sig Track: Off #Avg Type: Power (RMS) Trig: Free Run

Center Frequency: 2.510000000 GHz

Span: 80.0000000 MHz

Start Freq: 2.470000000 GHz

Stop Freq: 2.550000000 GHz

Mkr4 2.520 64 GHz -51.32 dBm

Scale/Div 10 dB

Ref Lvl Offset 18.44 dB

Ref Level 20.00 dBm

Start 2.47000 GHz #Res BW 100 kHz #Video BW 300 kHz Stop 2.55000 GHz Sweep 7.67 ms (1001 pts)

Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	2.483 50 GHz	-55.21 dBm			
2	N	1	2.500 00 GHz	-55.54 dBm			
3	N	1	2.520 64 GHz	-51.32 dBm			

Jan 13, 2024 7:38:45 AM

2DH5-Ant1-2480-PASS

Spectrum Analyzer 1
Swept SA

KEYSIGHT Input: RF Coupling: DC Align: Auto Input Z: 50 Ω Corr: CCorr Freq Ref: Int (S) #Atten: 20 dB PNO: Fast Gate: Off IF Gain: Low Sig Track: Off #Avg Type: Power (RMS) Trig: Free Run

Center Frequency: 2.510000000 GHz

Span: 80.0000000 MHz

Start Freq: 2.470000000 GHz

Stop Freq: 2.550000000 GHz

Mkr4 2.532 40 GHz -50.00 dBm

Scale/Div 10 dB

Ref Lvl Offset 18.44 dB

Ref Level 20.00 dBm

Start 2.47000 GHz #Res BW 100 kHz #Video BW 300 kHz Stop 2.55000 GHz Sweep 7.67 ms (1001 pts)

Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	2.483 50 GHz	-54.48 dBm			
2	N	1	2.500 00 GHz	-54.93 dBm			
3	N	1	2.532 40 GHz	-50.00 dBm			

Jan 13, 2024 7:43:25 AM

DH5-Ant1-2402-PASS

Spectrum Analyzer 1
Swept SA

KEYSIGHT Input: RF Coupling: DC Align: Auto Input Z: 50 Ω Corr: CCorr Freq Ref: Int (S) #Atten: 20 dB PNO: Fast Gate: Off IF Gain: Low Sig Track: Off #Avg Type: Power (RMS) Trig: Free Run

Center Frequency: 2.352500000 GHz
Span: 105.000000 MHz
Start Freq: 2.300000000 GHz
Stop Freq: 2.405000000 GHz
AUTO TUNE
CF Step: 10.500000 MHz
Freq Offset: 0 Hz
X Axis Scale: Log

1 Spectrum
Scale/Div 10 dB
Log
Ref Lvl Offset 18.60 dB
Ref Level 20.00 dBm
Mkr5 2.368 355 GHz
-51.23 dBm
DL1 -18.91 dBm

Start 2.30000 GHz #Res BW 100 kHz #Video BW 300 kHz Stop 2.40500 GHz Sweep 10.1 ms (1001 pts)

5 Marker Table

Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1							
2	N	1	f	2.400 000 GHz	-52.17 dBm		
3	N	1	f	2.390 000 GHz	-54.45 dBm		
4	N	1	f	2.310 000 GHz	-54.48 dBm		
5	N	1	f	2.368 355 GHz	-51.23 dBm		
6							

Jan 13, 2024 7:35:53 AM

2DH5-Ant1-2402-PASS

Spectrum Analyzer 1
Swept SA

KEYSIGHT Input: RF Coupling: DC Align: Auto Input Z: 50 Ω Corr: CCorr Freq Ref: Int (S) #Atten: 20 dB PNO: Fast Gate: Off IF Gain: Low Sig Track: Off #Avg Type: Power (RMS) Trig: Free Run

Center Frequency: 2.352500000 GHz
Span: 105.000000 MHz
Start Freq: 2.300000000 GHz
Stop Freq: 2.405000000 GHz
AUTO TUNE
CF Step: 10.500000 MHz
Freq Offset: 0 Hz
X Axis Scale: Log

1 Spectrum
Scale/Div 10 dB
Log
Ref Lvl Offset 18.60 dB
Ref Level 20.00 dBm
Mkr5 2.399 435 GHz
-48.00 dBm
DL1 -18.60 dBm

Start 2.30000 GHz #Res BW 100 kHz #Video BW 300 kHz Stop 2.40500 GHz Sweep 10.1 ms (1001 pts)

5 Marker Table

Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1							
2	N	1	f	2.400 000 GHz	-51.22 dBm		
3	N	1	f	2.390 000 GHz	-54.52 dBm		
4	N	1	f	2.310 000 GHz	-54.57 dBm		
5	N	1	f	2.399 435 GHz	-48.00 dBm		
6							

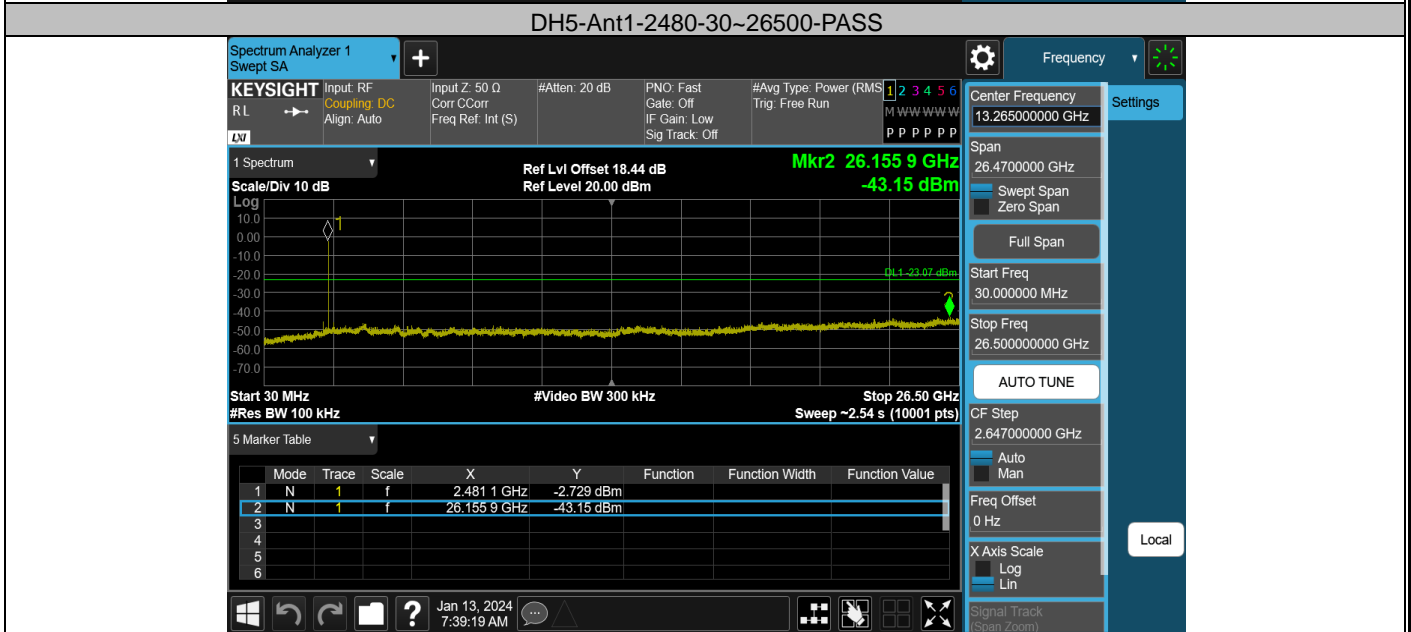
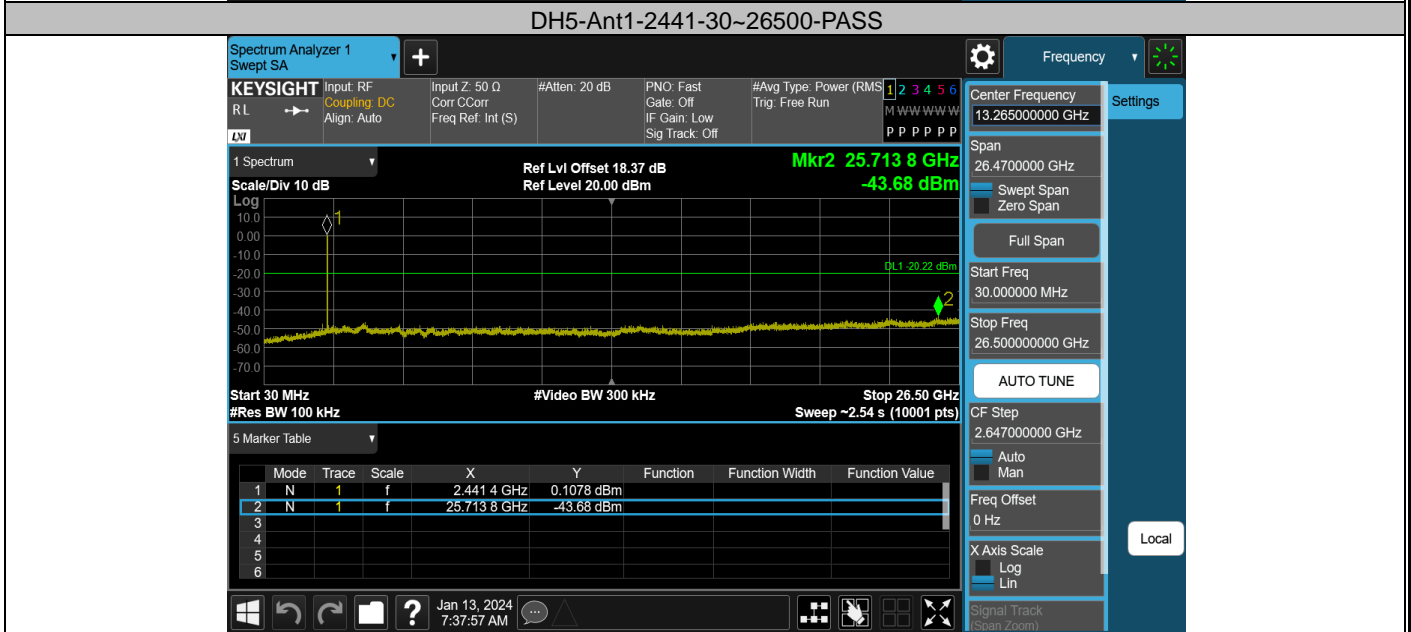
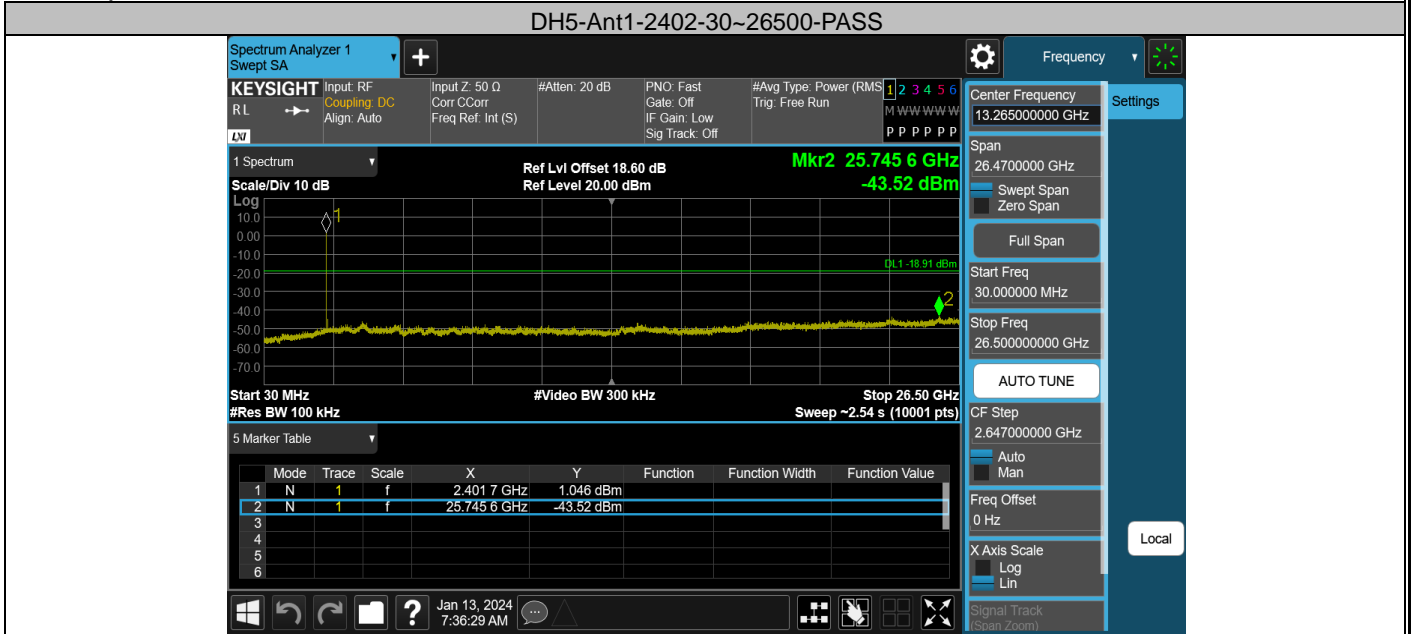
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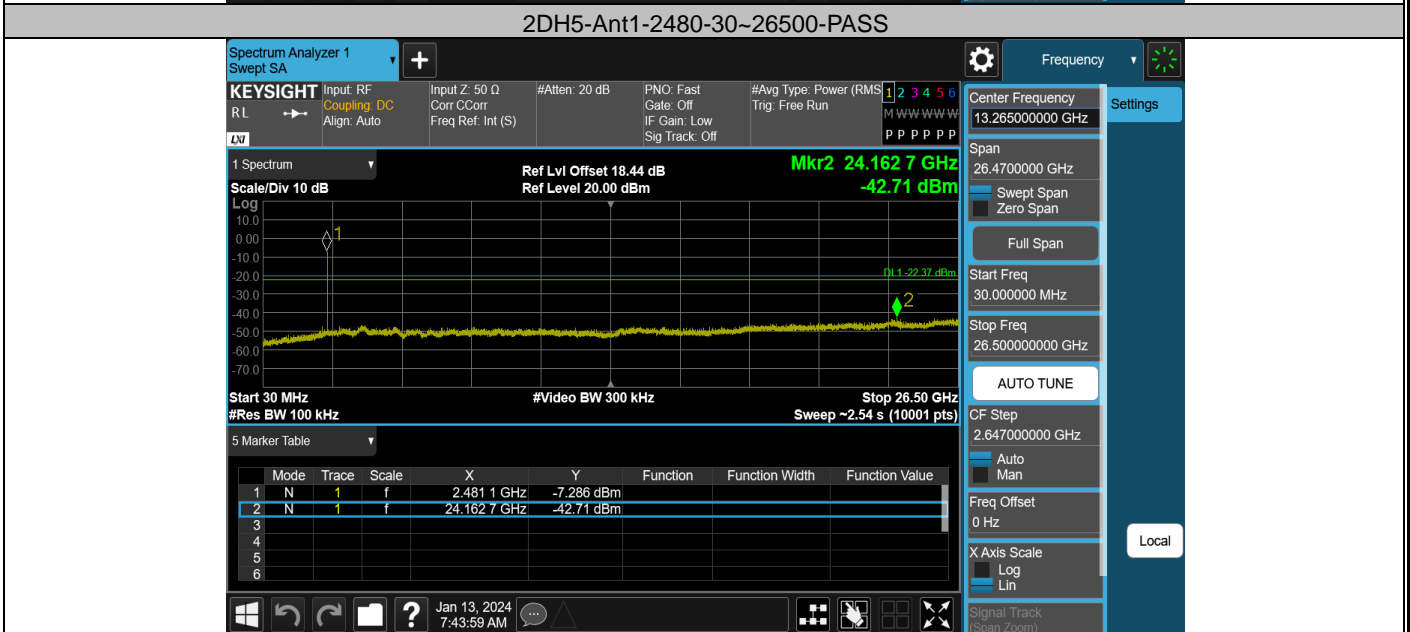
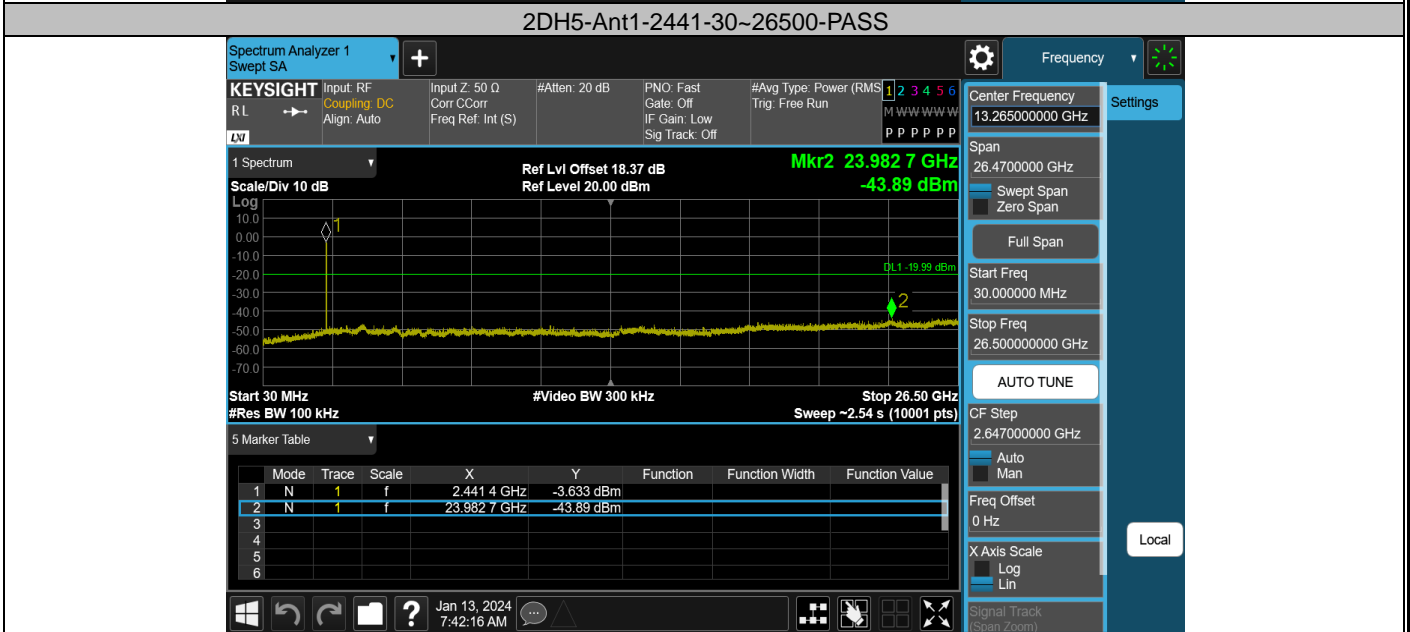
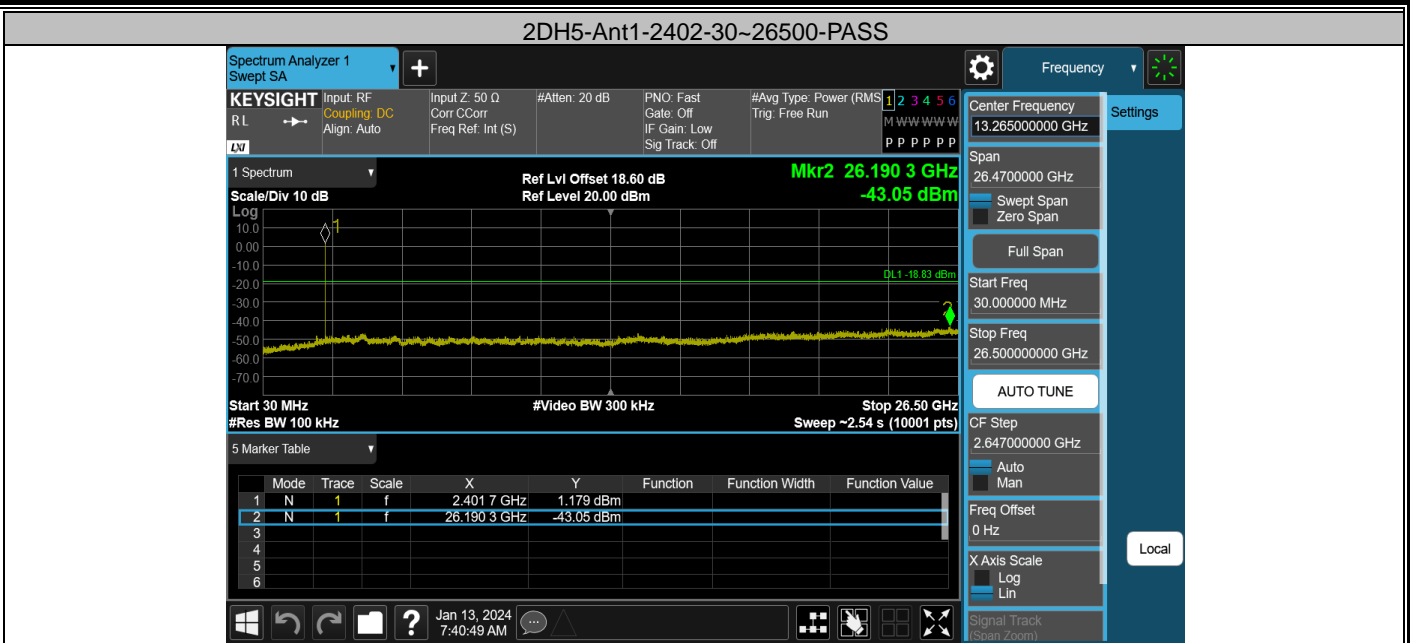
Appendix G: Conducted Spurious Emission

Left earbud
Test Result

TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	30~26500	1.09	-43.52	≤-18.91	PASS
DH5	Ant1	2441	30~26500	-0.22	-43.68	≤-20.22	PASS
DH5	Ant1	2480	30~26500	-3.07	-43.15	≤-23.07	PASS
2DH5	Ant1	2402	30~26500	1.17	-43.05	≤-18.83	PASS
2DH5	Ant1	2441	30~26500	0.01	-43.89	≤-19.99	PASS
2DH5	Ant1	2480	30~26500	-2.37	-42.71	≤-22.37	PASS

Test Graphs





Appendix H: Reference level measurement

Left earbud

Test Result

TestMode	Antenna	Freq(MHz)	Max.Point[MHz]	Result[dBm]
DH5	Ant1	2402	2402.02	1.09
DH5	Ant1	2441	2441.20	-0.22
DH5	Ant1	2480	2480.02	-3.07
2DH5	Ant1	2402	2401.86	1.17
2DH5	Ant1	2441	2440.87	0.01
2DH5	Ant1	2480	2480.02	-2.37

Test Graphs

DH5-Ant1-2402-PASS



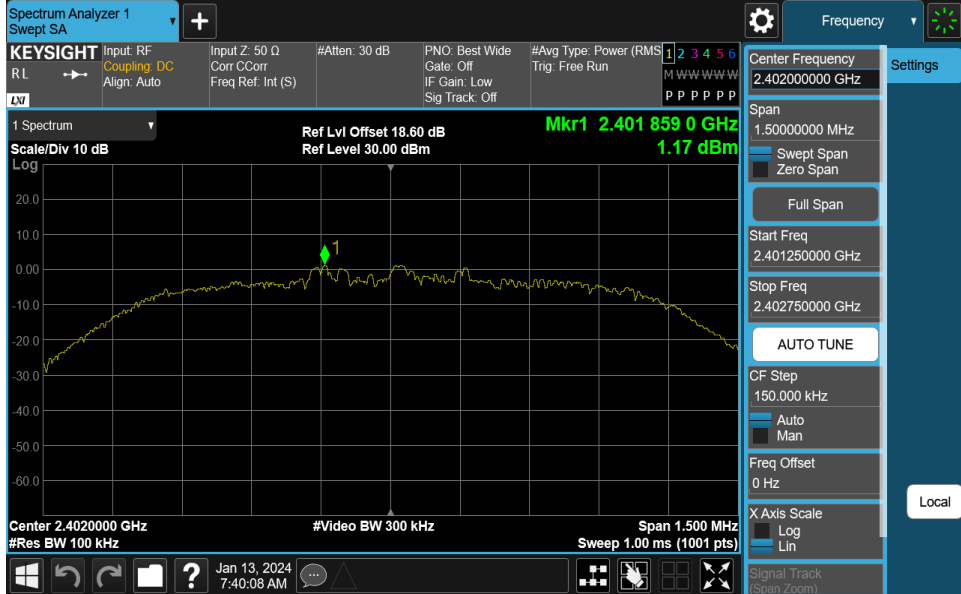
DH5-Ant1-2441-PASS



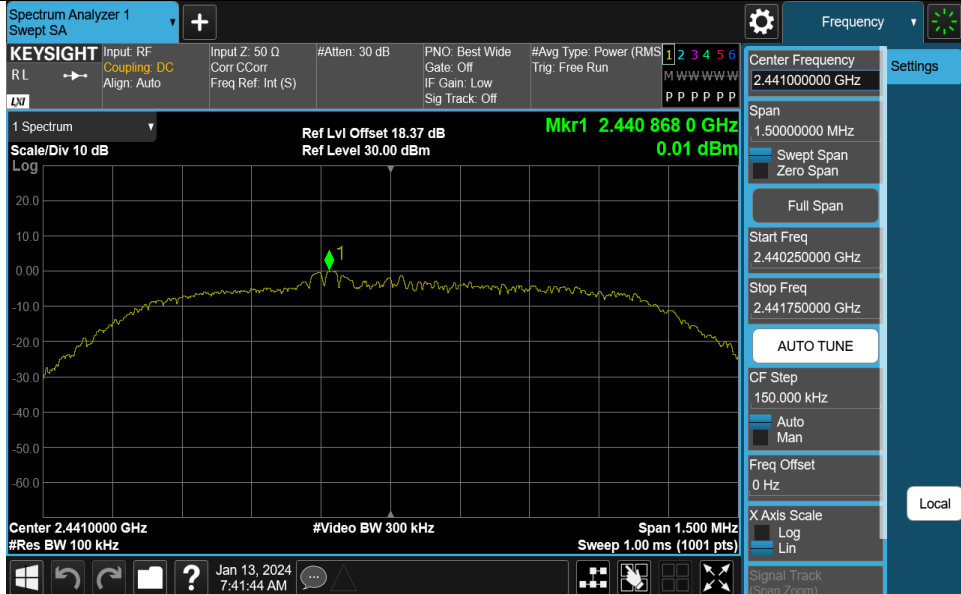
DH5-Ant1-2480-PASS



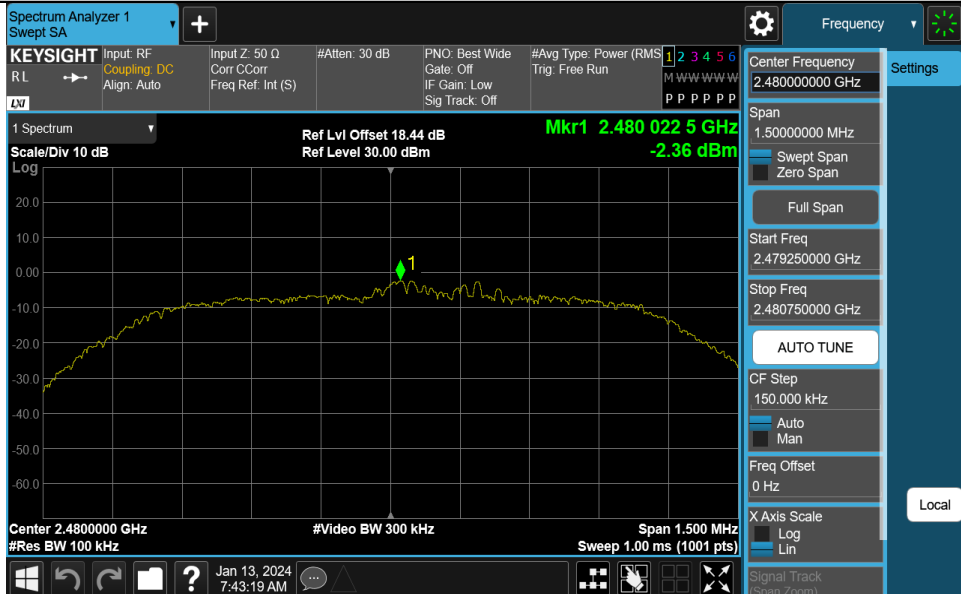
2DH5-Ant1-2402-PASS



2DH5-Ant1-2441-PASS

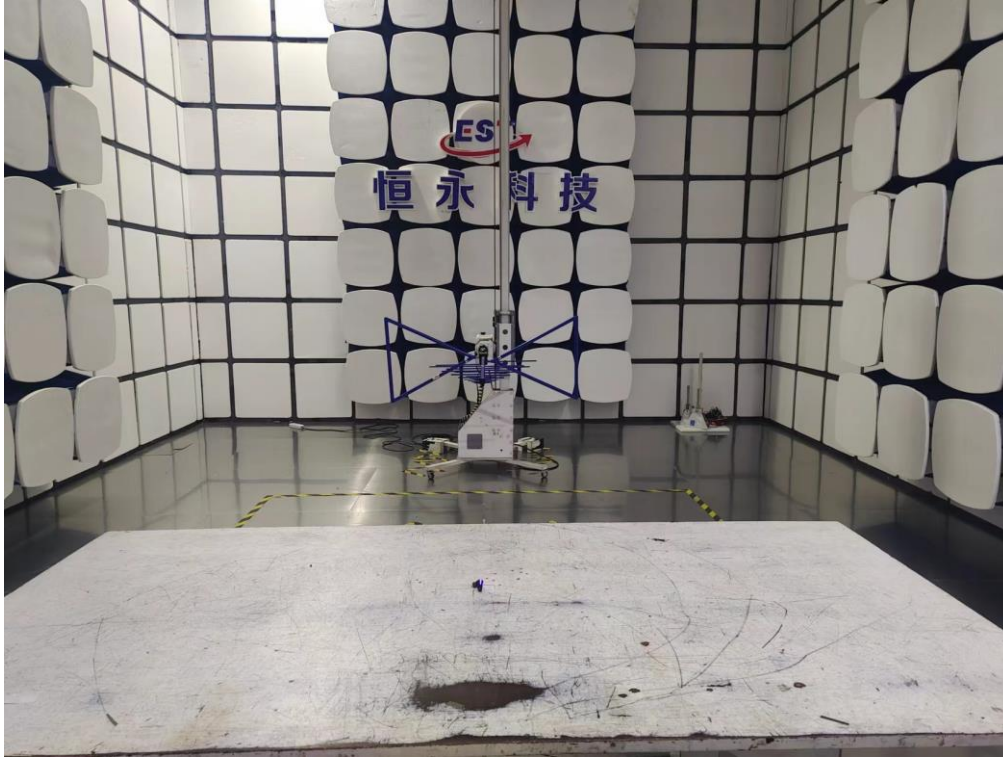


2DH5-Ant1-2480-PASS



13. TEST SETUP PHOTO

Radiated Test (Below 1GHz)



Radiated Test (Above 1GHz)



14. EUT PHOTO

External Photos
M/N: TW970



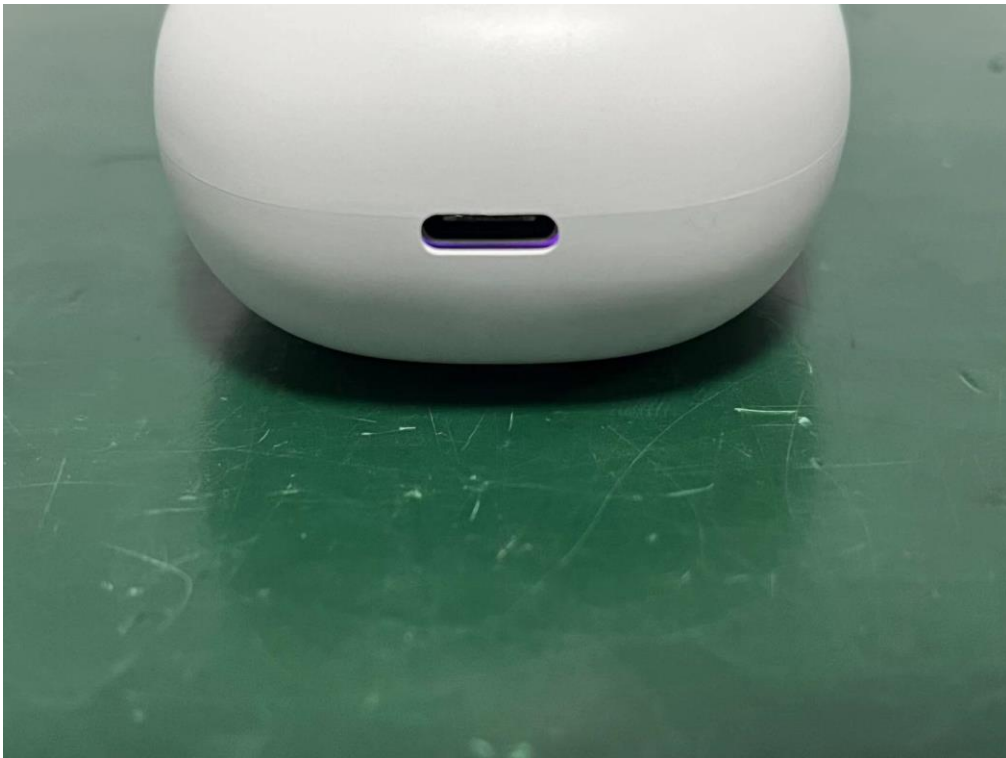
External Photos
M/N: TW970



External Photos
M/N: TW970



External Photos
M/N: TW970



External Photos
M/N: TW970



External Photos
M/N: TW970



External Photos
M/N: TW970



External Photos
M/N: TW970



External Photos
M/N: TW970



External Photos
M/N: TW970



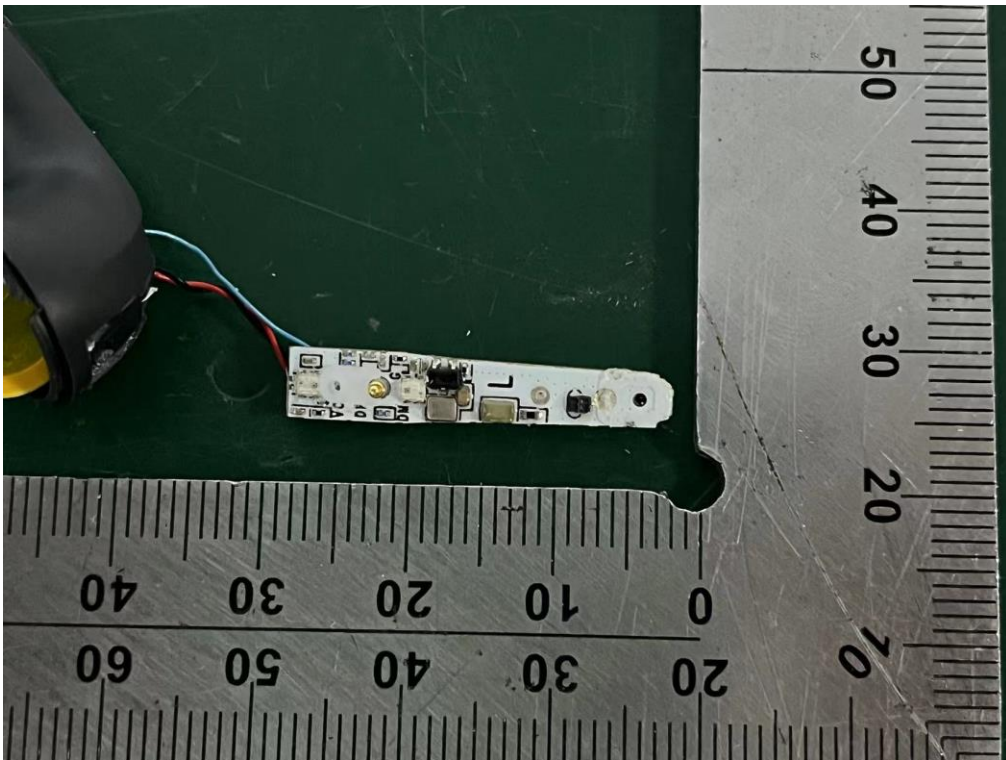
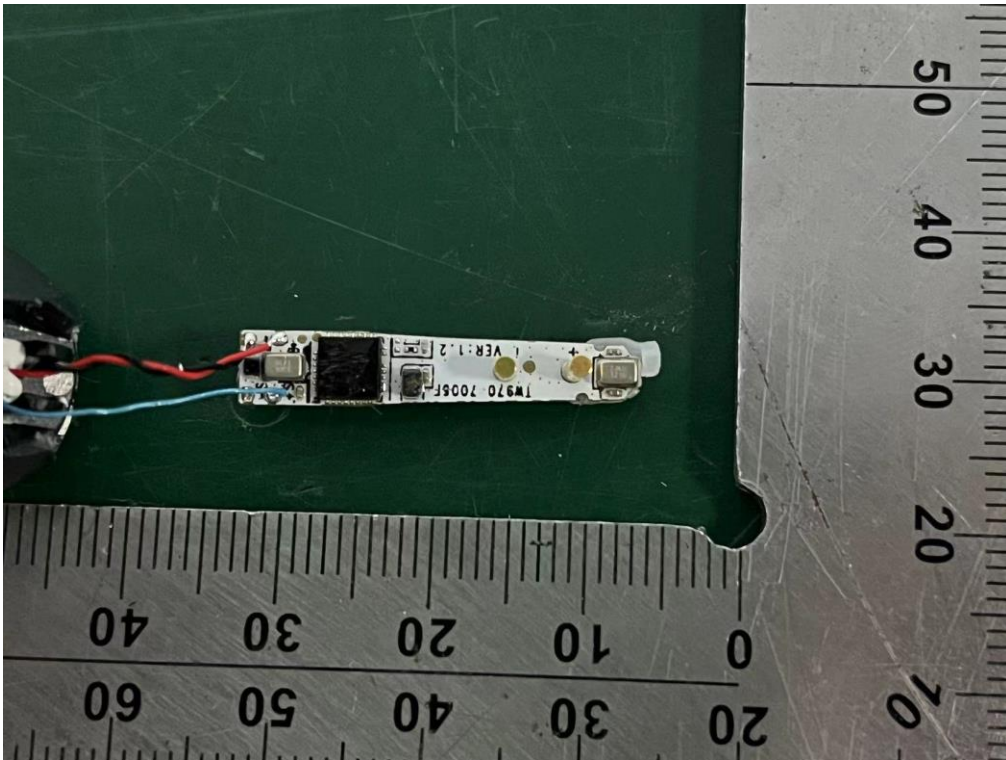
External Photos
M/N: TW970



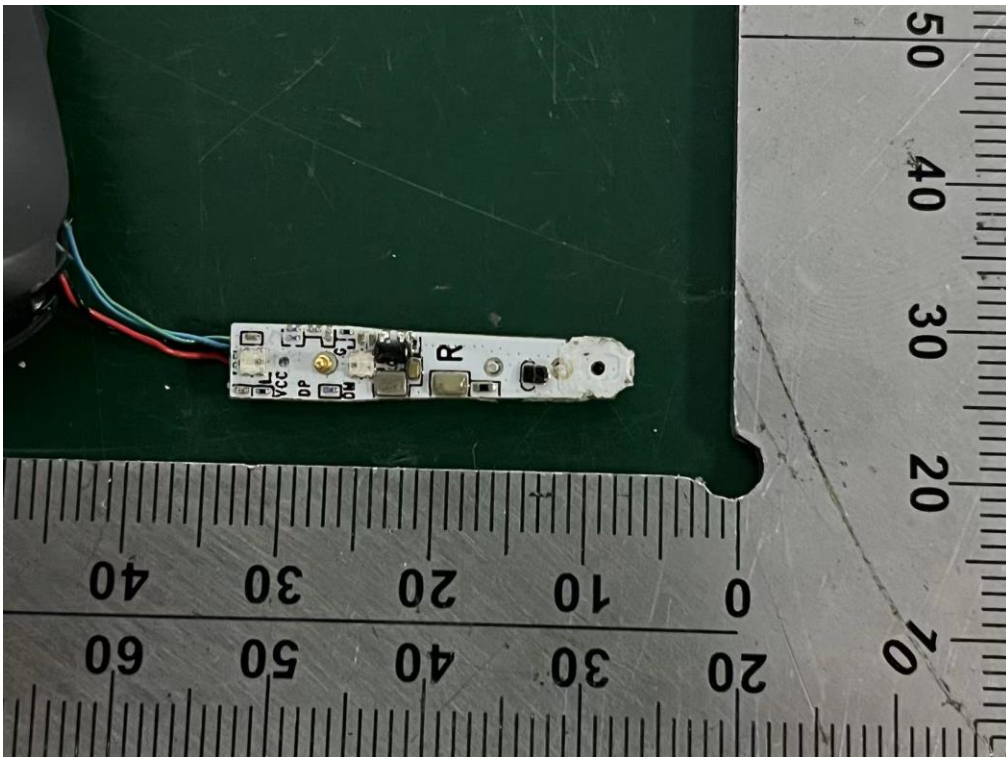
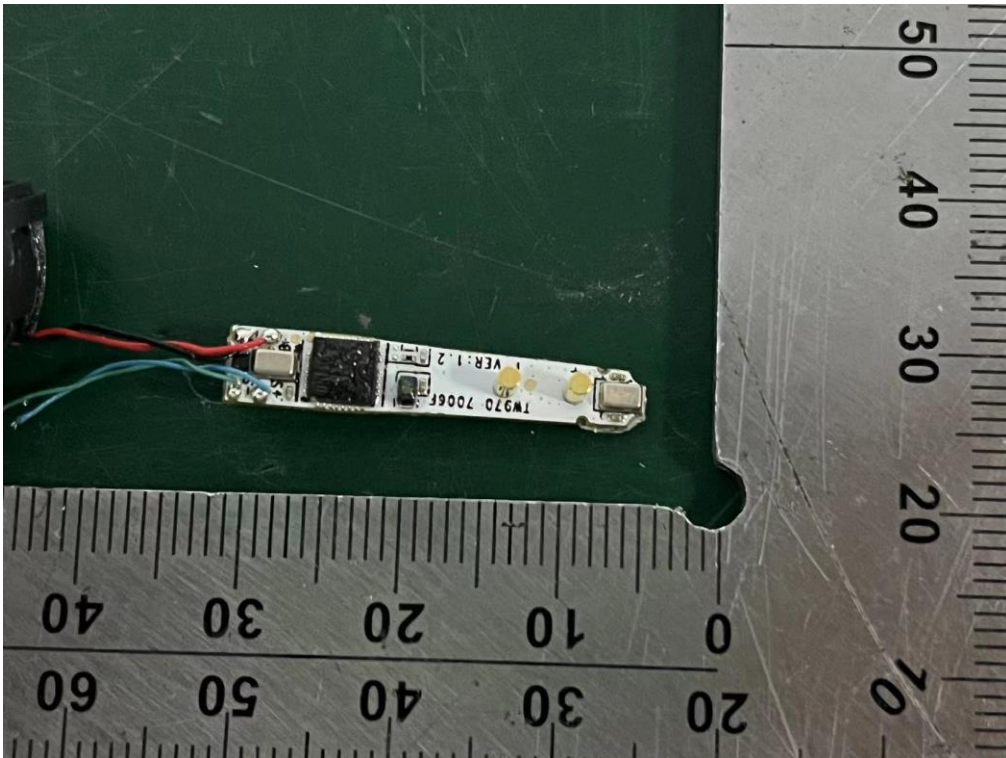
Internal Photos
M/N: TW970



Internal Photos
M/N: TW970

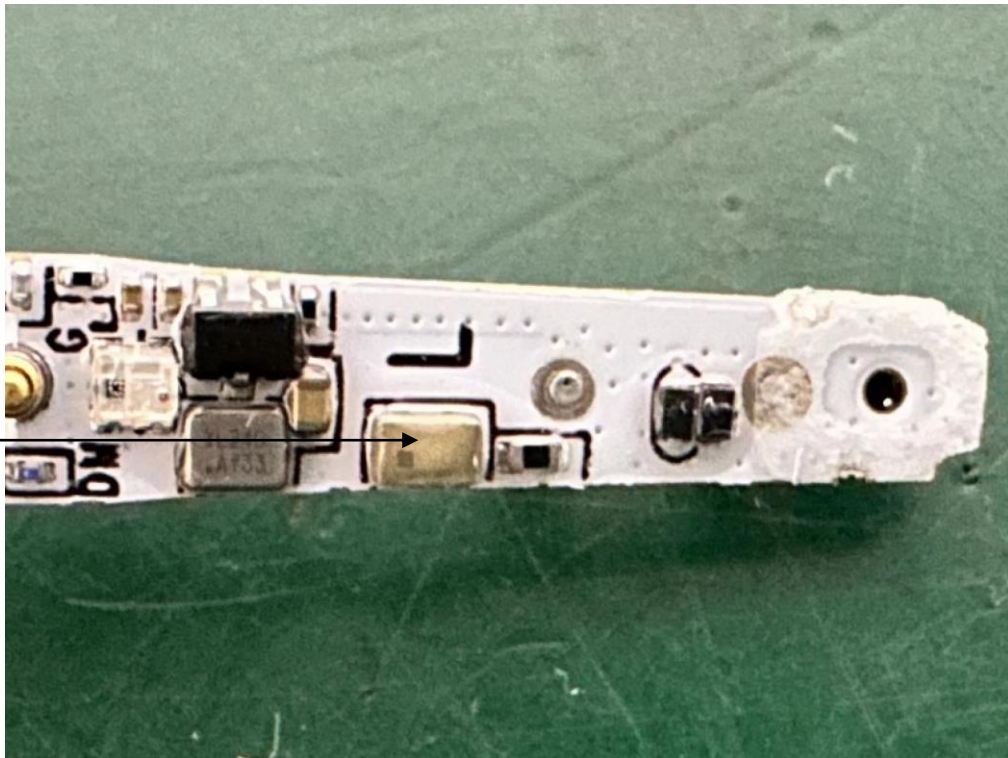


Internal Photos
M/N: TW970

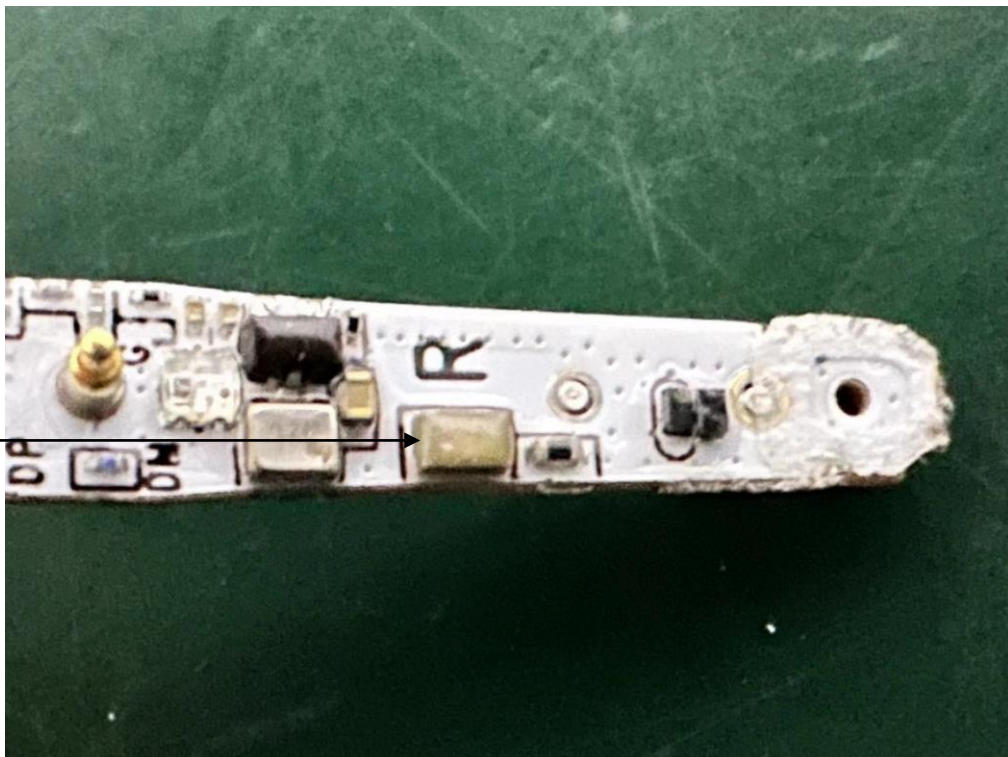


Internal Photos
M/N: TW970

Antenna



Antenna



End of Test Report