

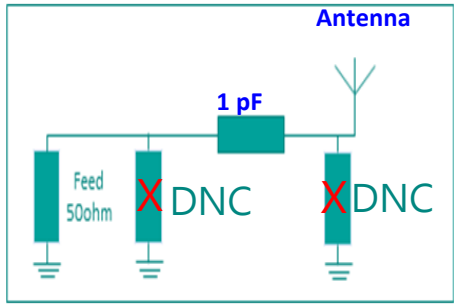


Cisco Crush Headset DVT1 Antenna Report

MERRY Sounds Excellent

*Presented by : Merry Team
Date : 2022.01.17*

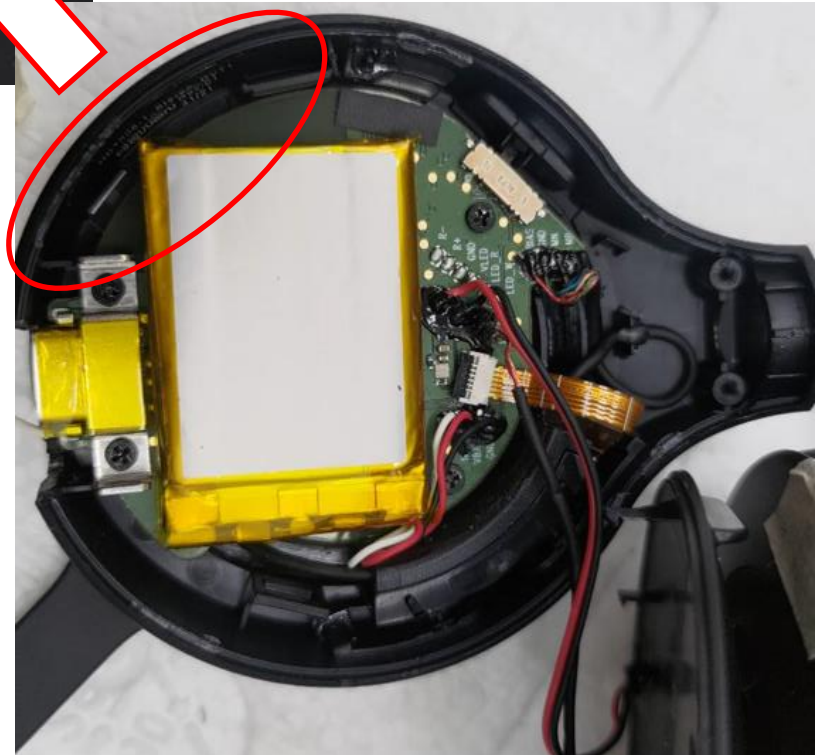
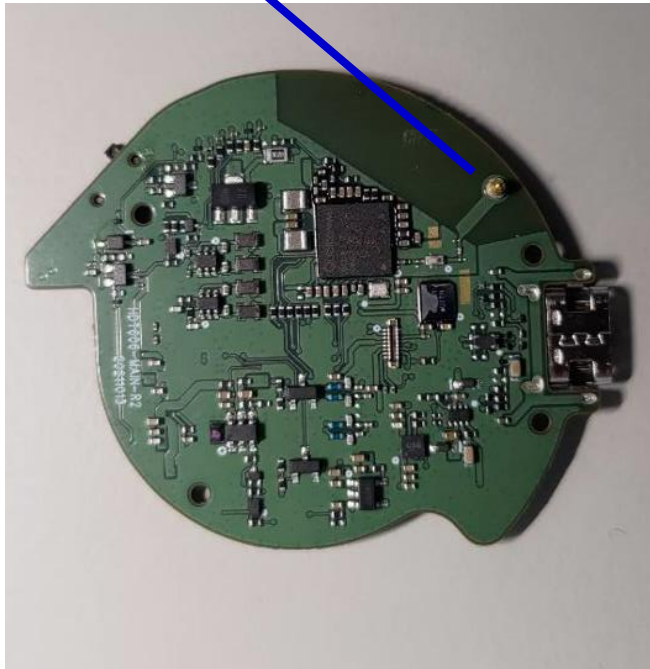
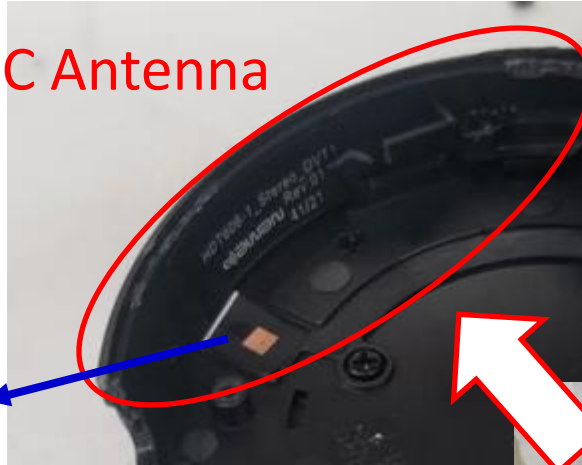
Headset - Antenna Matching

Headset	Stereo	Mono
FPC Antenna Pattern	 <p>HDT606-1_Stereo_DVT1 Rev:01 41/21</p> <p>Length 25mm</p>	 <p>HDT606-1_Stereo_DVT1 Rev:01 41/21</p> <p>Length 25mm</p>
PCBA Modify / Matching Circuit	 <p>(1) Antenna type: Monopole</p>	 <p>Antenna</p> <p>Feed 50ohm</p> <p>1 pF</p> <p>DNC</p> <p>DNC</p> <p>(2) R127 Change from 2.2 pF to 1pF</p>

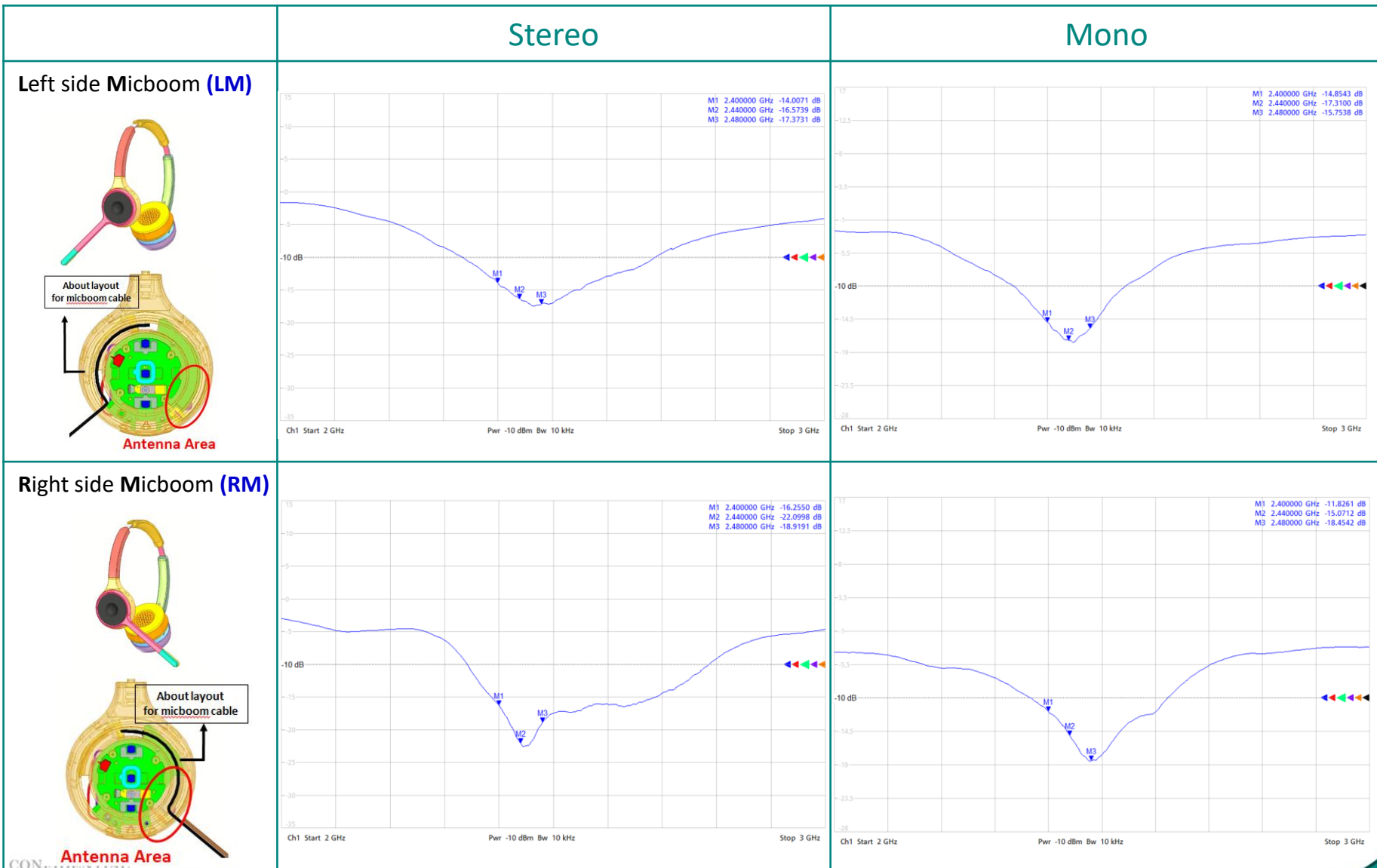
Antenna environment in the headset

FPC Antenna

Pogo pin



S11 Headset



Headset Antenna Efficiency

Headset Type		Efficiency	Frequency (MHz)									
			2400	2410	2420	2430	2440	2450	2460	2470	2480	AVG
Stereo	Left side Micboom (LM)	(dB)	-2.30	-2.31	-2.24	-2.18	-2.17	-2.14	-2.13	-2.10	-2.09	-2.18
		(%)	58.87	58.77	59.73	60.59	60.73	61.15	61.29	61.64	61.80	60.51
	Right side Micboom (RM)	(dB)	-2.57	-2.56	-2.48	-2.42	-2.41	-2.35	-2.30	-2.19	-2.09	-2.38
		Cover ANT (%)	55.30	55.48	56.45	57.21	57.40	58.17	58.95	60.42	61.75	57.90
Mono	Left side Micboom (LM)	(dB)	-1.97	-1.99	-1.96	-1.92	-1.92	-1.91	-1.90	-1.86	-1.84	-1.92
		(%)	63.55	63.24	63.75	64.31	64.27	64.38	64.52	65.19	65.49	64.30
	Right side Micboom (RM)	(dB)	-2.02	-2.02	-1.97	-1.94	-1.95	-1.94	-1.93	-1.90	-1.88	-1.95
		Cover ANT (%)	62.83	62.86	63.49	63.94	63.83	64.02	64.13	64.50	64.80	63.82

Headset Antenna Peak Gain

Headset Type		Gain	Frequency (MHz)									
			2400	2410	2420	2430	2440	2450	2460	2470	2480	AVG
Stereo	Left side Micboom (LM)	(dBi)	2.40	2.38	2.52	2.60	2.75	2.92	3.04	3.18	3.32	2.79
	Right side Micboom (RM) Cover ANT	(dBi)	2.37	2.34	2.33	2.23	2.01	1.76	1.59	1.83	2.01	2.05
Mono	Left side Micboom (LM)	(dBi)	3.55	3.71	3.92	4.09	4.26	4.41	4.60	4.82	5.01	4.26
	Right side Micboom (RM) Cover ANT	(dBi)	2.70	3.00	3.29	3.55	3.77	4.02	4.23	4.44	4.66	3.74

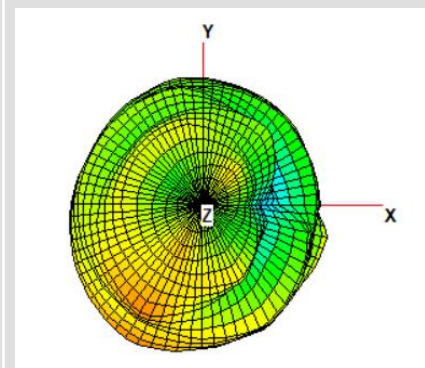
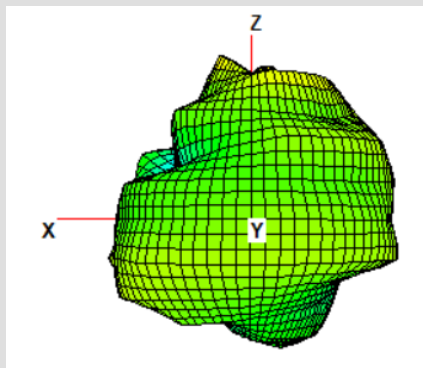
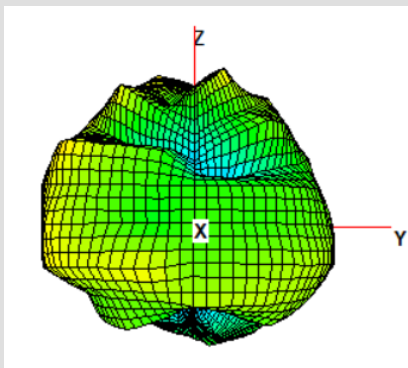
Radiation pattern _ Stereo _ (1/2)

Stereo Frequency 2.44GHz

Scale

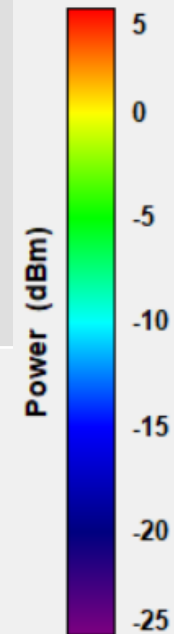
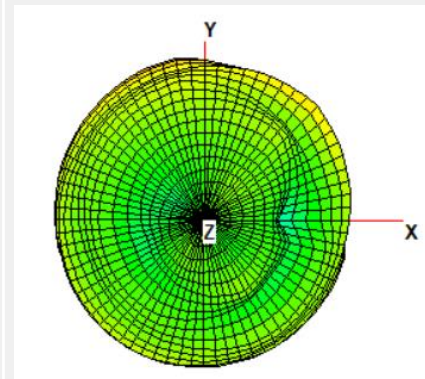
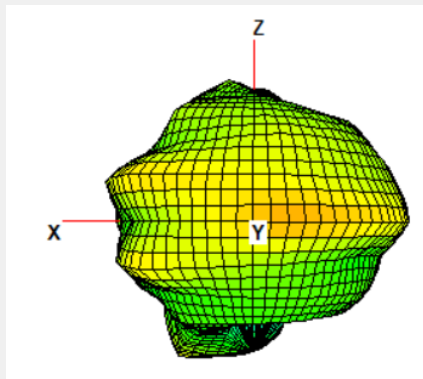
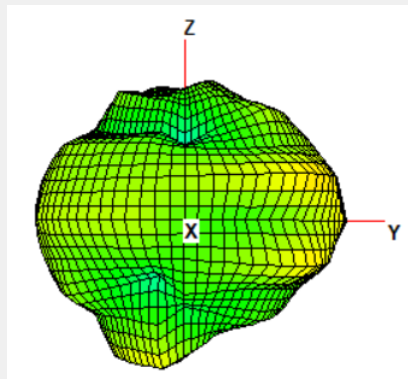
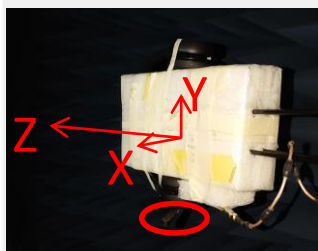
Left side
Micboom (LM)

Micboom



Right side
Micboom (RM)

Micboom



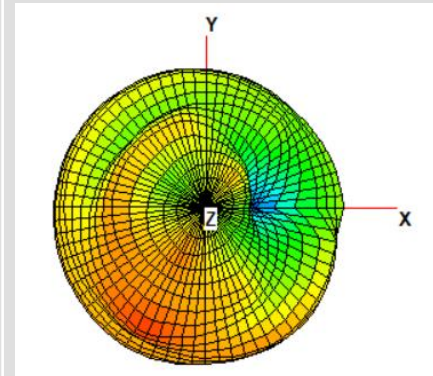
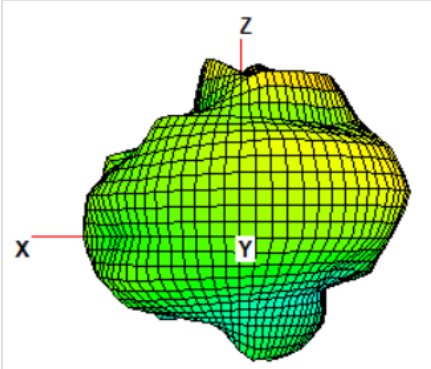
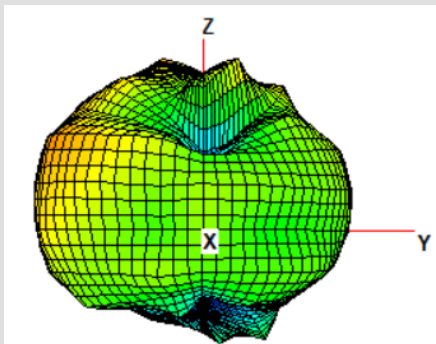
Radiation pattern_Mono_(2/2)

Mono Frequency 2.44GHz

Scale

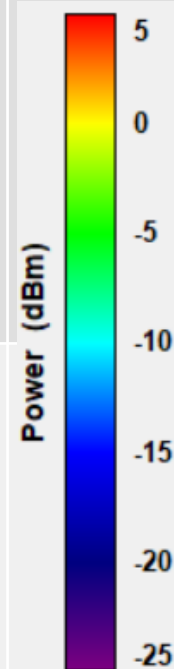
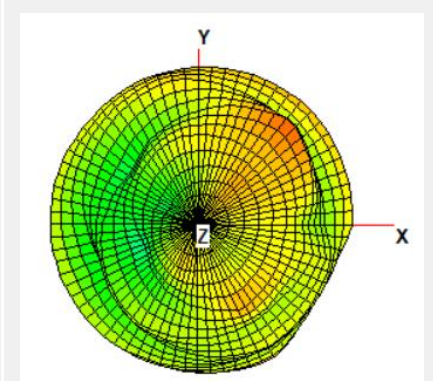
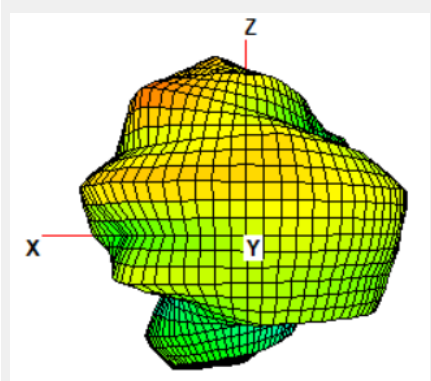
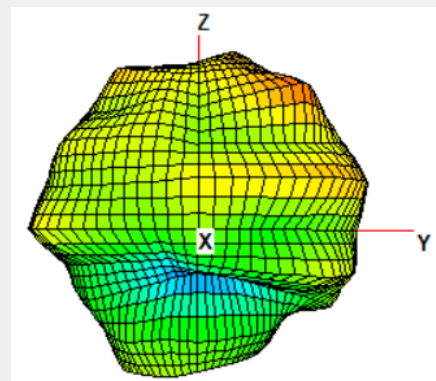
Left side
Micboom (LM)

Micboom



Right side
Micboom (RM)

Micboom



RF range test

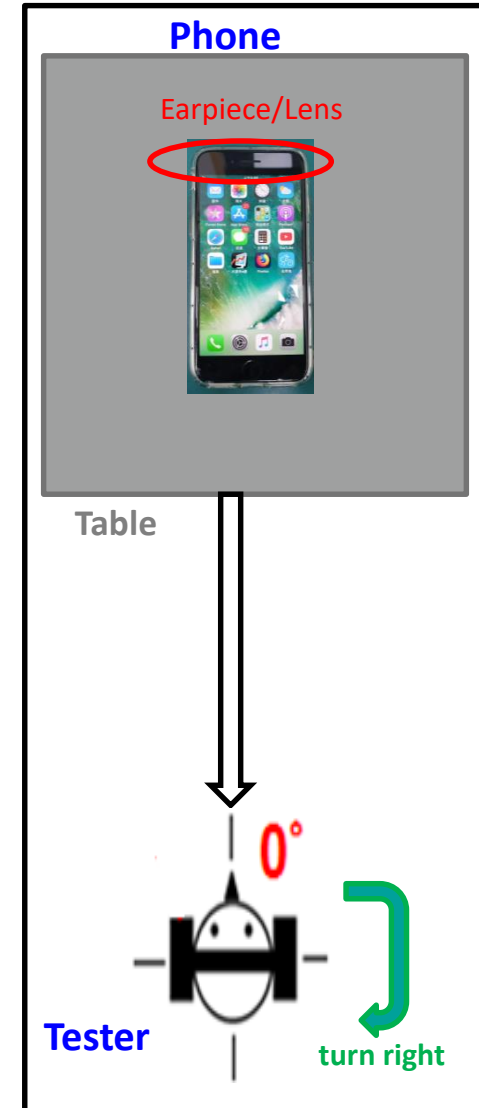
➤ Test condition :

Measurement environment

- Range test at Jingmei Riverside park in Taipei (outdoor)
- Wifi noise : -65 ~ -75 dB
- Test mobile phone on a 90 cm height desk.



Set up staunts(not 1:1 scale)



Item	Stereo (FW V1-8-m-168)	
Mic boom Direction	Left side Micboom (LM)	Right side Micboom (RM)
Apple I-phone 7	>40m	>40m

Conclusion

- **DVT1 Build antenna return loss level degrade than EVT**
 - DVT1 sample S11 is about -8dB
 - Adjusting the matching component can improve the S11 level to under -10dB.
- **Crush Headset Antenna design :**
 - Antenna matching: series 1pF capacitor for both mono and stereo headsets.
 - Both mono and stereo Antenna length are 25mm.
- **Crush Headset Antenna performance :**
 - Outside RF range result is over 40 meters pairing with iPhone 7.

Thank You

Delivering Fidelity Sound to Enrich Human's Life