

## Appendix A for Emission and Immunity test results

**Product Name: Bluetooth Earphones**

**Test Model: TA1**

### A.1 Line Conducted Emission

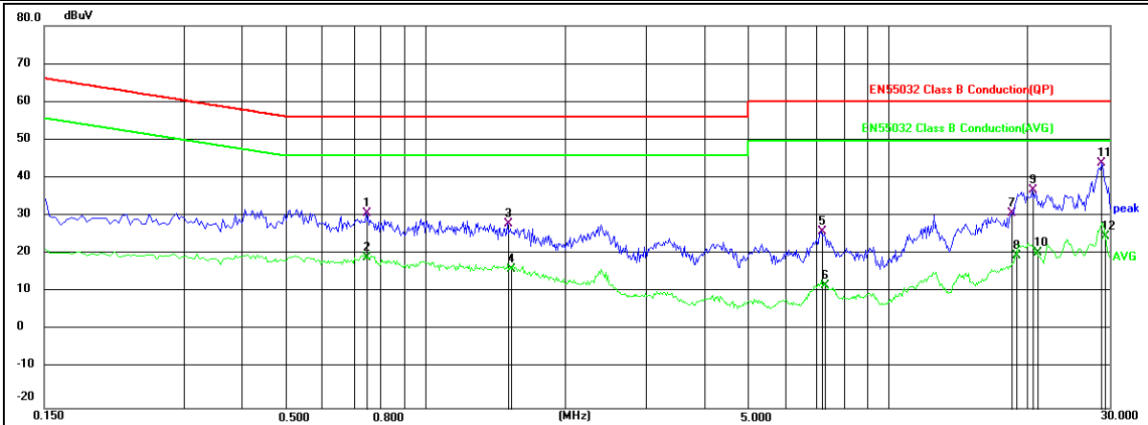
\*\*\*Note: For pre-scan, the worst case is TM1, and the test data was shown as follow:

<b>Test Model</b>	TA1	<b>Test Mode</b>	TM1
<b>Environmental Conditions</b>	23.3°C, 53.7% RH	<b>Test Engineer</b>	Diamond Lu
<b>Pol.</b>	Line	<b>Test Voltage</b>	AC230V/50Hz

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.5191	12.75	19.32	32.07	56.00	-23.93	QP
2	0.5237	-0.69	19.32	18.63	46.00	-27.37	AVG
3	2.4496	12.83	19.45	32.28	56.00	-23.72	QP
4	2.5035	-5.20	19.45	14.25	46.00	-31.75	AVG
5	7.1476	-8.52	19.59	11.07	50.00	-38.93	AVG
6	7.1881	6.52	19.59	26.11	60.00	-33.89	QP
7	16.6066	11.91	20.22	32.13	60.00	-27.87	QP
8	16.8406	-5.01	20.22	15.21	50.00	-34.79	AVG
9	20.1121	17.37	20.30	37.67	60.00	-22.33	QP
10	20.1886	0.87	20.30	21.17	50.00	-28.83	AVG
11	28.8376	25.29	20.13	45.42	60.00	-14.58	QP
12	29.0896	5.42	20.12	25.54	50.00	-24.46	AVG

<b>Test Model</b>	TA1	<b>Test Mode</b>	TM1
<b>Environmental Conditions</b>	23.3°C, 53.7% RH	<b>Test Engineer</b>	Diamond Lu
<b>Pol.</b>	Neutral	<b>Test Voltage</b>	AC230V/50Hz

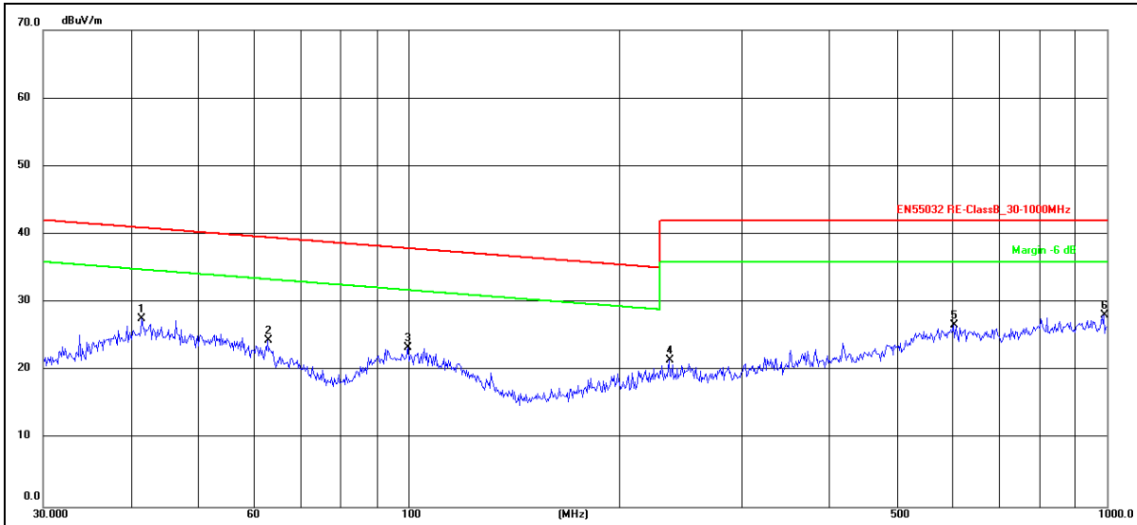


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.7440	11.77	19.31	31.08	56.00	-24.92	QP
2	0.7485	0.22	19.31	19.53	46.00	-26.47	AVG
3	1.5090	8.84	19.33	28.17	56.00	-27.83	QP
4	1.5360	-2.87	19.33	16.46	46.00	-29.54	AVG
5	7.1701	6.59	19.58	26.17	60.00	-33.83	QP
6	7.3006	-7.57	19.59	12.02	50.00	-37.98	AVG
7	18.5101	10.92	20.11	31.03	60.00	-28.97	QP
8	18.9151	-0.28	20.10	19.82	50.00	-30.18	AVG
9	20.4226	17.05	20.05	37.10	60.00	-22.90	QP
10	20.9716	0.60	20.07	20.67	50.00	-29.33	AVG
11	28.8196	24.02	20.14	44.16	60.00	-15.84	QP
12	29.4451	4.78	20.14	24.92	50.00	-25.08	AVG

Note: For conducted emission and radiated emission test, a power supply of 230VAC and 120VAC was used for testing respectively, and only recorded the worst case of 230VAC.

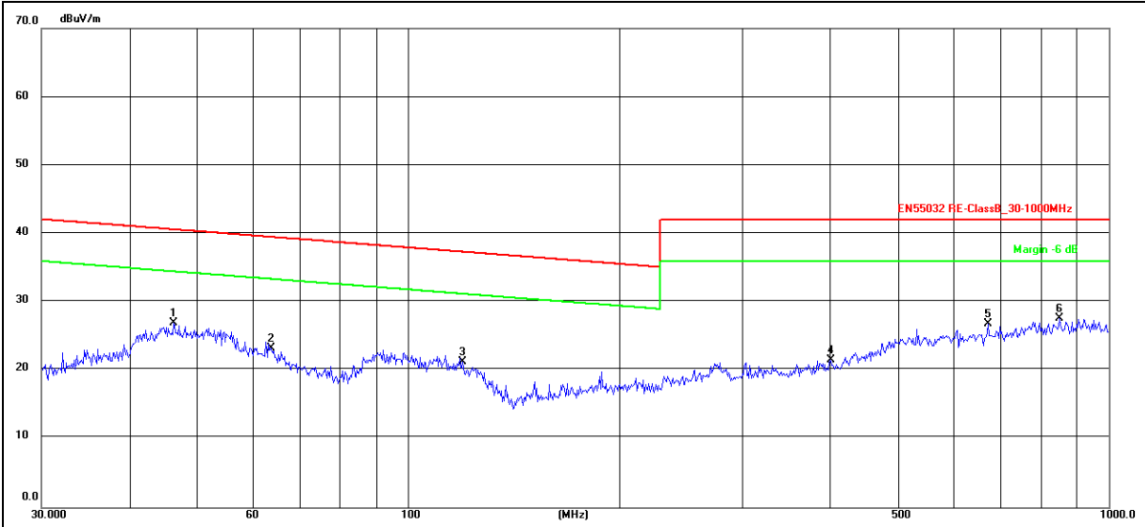
## A.2 Radiated Disturbance

<b>Test Model</b>	TA1	<b>Test Mode</b>	TM1
<b>Environmental Conditions</b>	24.6°C, 54.1% RH	<b>Test Engineer</b>	Diamond Lu
<b>Pol.</b>	Vertical	<b>Detector Function</b>	Quasi-peak
<b>Distance</b>	3m	<b>Test Voltage</b>	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1 *	41.5670	57.25	-29.57	27.68	40.88	-13.20	QP
2	62.8708	55.20	-30.76	24.44	39.46	-15.02	QP
3	99.8777	50.90	-27.43	23.47	37.87	-14.40	QP
4	235.8164	51.24	-29.71	21.53	42.00	-20.47	QP
5	603.5392	48.48	-21.73	26.75	42.00	-15.25	QP
6	989.5355	45.75	-17.60	28.15	42.00	-13.85	QP

<b>Test Model</b>	TA1	<b>Test Mode</b>	TM1
<b>Environmental Conditions</b>	24.6°C, 54.1% RH	<b>Test Engineer</b>	Diamond Lu
<b>Pol.</b>	Horizontal	<b>Detector Function</b>	Quasi-peak
<b>Distance</b>	3m	<b>Test Voltage</b>	DC 3.7V



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1 *	46.3402	55.87	-28.88	26.99	40.51	-13.52	QP
2	63.7588	54.17	-30.90	23.27	39.41	-16.14	QP
3	119.8556	50.99	-29.60	21.39	37.24	-15.85	QP
4	400.4319	47.49	-25.84	21.65	42.00	-20.35	QP
5	672.8444	47.99	-21.09	26.90	42.00	-15.10	QP
6	851.0353	46.53	-18.91	27.62	42.00	-14.38	QP

<b>Test Mode:</b> TM1 (Above 1GHz)	<b>Tested by:</b> Diamond Lu
<b>Test Voltage:</b> DC 3.7V	<b>Test Distance:</b> 3m
<b>Detector Function:</b> Peak + AV	<b>Test Results:</b> Passed

Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol.
1126.02	49.66	1.14	50.80	70.00	-19.20	Peak	Horizontal
1126.02	31.21	1.14	32.35	50.00	-17.65	Average	Horizontal
1693.24	50.10	2.67	52.77	70.00	-17.23	Peak	Horizontal
1693.24	29.51	2.67	32.18	50.00	-17.82	Average	Horizontal
2396.19	50.25	5.75	56.00	70.00	-14.00	Peak	Horizontal
2396.19	31.39	5.75	37.14	50.00	-12.86	Average	Horizontal
3383.18	49.99	1.83	51.82	74.00	-22.18	Peak	Horizontal
3383.18	30.58	1.83	32.41	54.00	-21.59	Average	Horizontal
4189.36	51.29	3.17	54.46	74.00	-19.54	Peak	Horizontal
4189.36	30.98	3.17	34.15	54.00	-19.85	Average	Horizontal
5925.54	51.22	6.13	57.35	74.00	-16.65	Peak	Horizontal
5925.54	29.07	6.13	35.20	54.00	-18.80	Average	Horizontal

Freq. MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol.
1126.20	50.76	1.14	51.90	70.00	-18.10	Peak	Vertical
1126.20	30.46	1.14	31.60	50.00	-18.40	Average	Vertical
1558.39	50.64	2.67	53.31	70.00	-16.69	Peak	Vertical
1558.39	31.13	2.67	33.80	50.00	-16.20	Average	Vertical
2918.34	49.55	5.75	55.30	70.00	-14.70	Peak	Vertical
2918.34	28.75	5.75	34.50	50.00	-15.50	Average	Vertical
3734.54	51.50	1.83	53.33	74.00	-20.67	Peak	Vertical
3734.54	30.31	1.83	32.14	54.00	-21.86	Average	Vertical
4597.11	48.16	3.17	51.33	74.00	-22.67	Peak	Vertical
4597.11	31.13	3.17	34.30	54.00	-19.70	Average	Vertical
5978.96	50.35	6.13	56.48	74.00	-17.52	Peak	Vertical
5978.96	30.97	6.13	37.10	54.00	-16.90	Average	Vertical

Note:

- Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- Measurements above show only up to 6 maximum emissions noted.
- Data of measurement within this frequency range shown “ -- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- Factor = Antenna Factor + Cable Loss + Amplifier Factor  
Emission Level = Reading level + Factor  
Margin = Emission Level - Limit

**A.3 RF Electromagnetic Field (80 MHz - 6000 MHz)**

<b>Test Model</b>	TA1	<b>Test Engineer</b>	Diamond Lu
<b>Environmental Conditions</b>	23.2°C, 53.6% RH	<b>Test Voltage</b>	DC 3.7V

**TM1 Test Result:**

EUT Working Mode	Antenna Polarity	Frequency (MHz)	Fielded Strength (V/m)	Observation	Position	Conclusion
Operating Mode	Vertical	80-6000	3	CT, CR	Front, Right, Left, Back	Pass
	Horizontal	80-6000	3	CT, CR	Front, Right, Left, Back	Pass
Idle	Vertical	80-6000	3	See Note	Front, Right, Left, Back	Pass
	Horizontal	80-6000	3	See Note	Front, Right, Left, Back	Pass

**TM2-TM3 Test Result:**

EUT Working Mode	Antenna Polarity	Frequency (MHz)	Fielded Strength (V/m)	Observation	Position	Conclusion
Operating Mode	Vertical	80-6000	3	See Note	Front, Right, Left, Back	Pass
	Horizontal	80-6000	3	See Note	Front, Right, Left, Back	Pass
Idle	Vertical	80-6000	3	See Note	Front, Right, Left, Back	Pass
	Horizontal	80-6000	3	See Note	Front, Right, Left, Back	Pass

Note: The EUT performance complied with performance criteria for CT&CR Function and there is no any degradation of performance and function.

During the test, the Maximum Bit Error Ratio was less than 0.001

During the test, the Maximum Block Error Ratio was less than 0.01

## A.4 Electrostatic Discharge

Electrostatic Discharge Test Results			
<b>Standard</b>	<input type="checkbox"/> IEC 61000-4-2 <input checked="" type="checkbox"/> EN 61000-4-2		
<b>Applicant</b>	Shenzhen Yale Electronics Co., Ltd.		
<b>EUT</b>	Bluetooth Earphones	<b>Temperature</b>	24.2°C
<b>M/N</b>	TA1	<b>Humidity</b>	54.3%
<b>Criterion</b>	B	<b>Pressure</b>	1021mbar
<b>Test Mode</b>	TM1-TM3	<b>Test Engineer</b>	Diamond Lu
TEST RESULT OF TM1			
Test Voltage	Coupling	Observation	Result (Pass/Fail)
±2KV, ±4kV	Contact Discharge	TT, TR	Pass
±2KV, ±4kV, ±8kV	Air Discharge	TT, TR	Pass
±2KV, ±4kV	Indirect Discharge HCP	TT, TR	Pass
±2KV, ±4kV	Indirect Discharge VCP	TT, TR	Pass
TEST RESULT OF TM2-TM3			
Test Voltage	Coupling	Result (Pass/Fail)	
±2KV, ±4kV	Contact Discharge	Pass	
±2KV, ±4kV, ±8kV	Air Discharge	Pass	
±2KV, ±4kV	Indirect Discharge HCP	Pass	
±2KV, ±4kV	Indirect Discharge VCP	Pass	
Note: The EUT performance complied with performance criteria for TT&TR Function and there is no any degradation of performance and function.			