



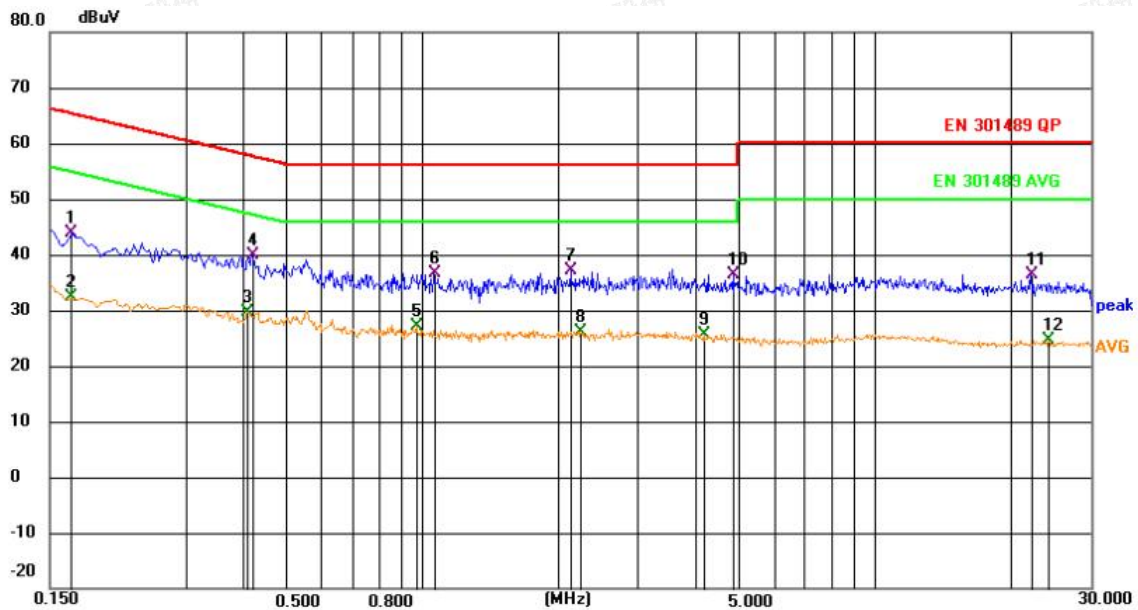
Appendix A for Emission and Immunity test results

Product Name: Bluetooth headset

Test Model: X7

A.1 Line Conducted Emission

Test Model	X7	Test Mode	TM1
Environmental Conditions	23.3°C, 53.7% RH	Test Engineer	Paddi Chen
Pol.	Line	Test Voltage	AC 230V/50Hz



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin		
		MHz	Level	Factor	ment			Detector	Comment
			dBuV	dB	dBuV	dBuV	dB		
1		0.1680	23.62	20.20	43.82	65.06	-21.24	QP	
2		0.1680	12.08	20.20	32.28	55.06	-22.78	AVG	
3		0.4111	9.37	20.26	29.63	47.63	-18.00	AVG	
4	*	0.4201	19.70	20.26	39.96	57.45	-17.49	QP	
5		0.9690	6.97	20.13	27.10	46.00	-18.90	AVG	
6		1.0635	16.42	20.14	36.56	56.00	-19.44	QP	
7		2.1300	16.95	20.21	37.16	56.00	-18.84	QP	
8		2.2335	5.98	20.23	26.21	46.00	-19.79	AVG	
9		4.1865	5.61	20.06	25.67	46.00	-20.33	AVG	
10		4.8661	16.35	19.92	36.27	56.00	-19.73	QP	
11		22.1101	15.80	20.59	36.39	60.00	-23.61	QP	
12		24.2026	4.26	20.38	24.64	50.00	-25.36	AVG	



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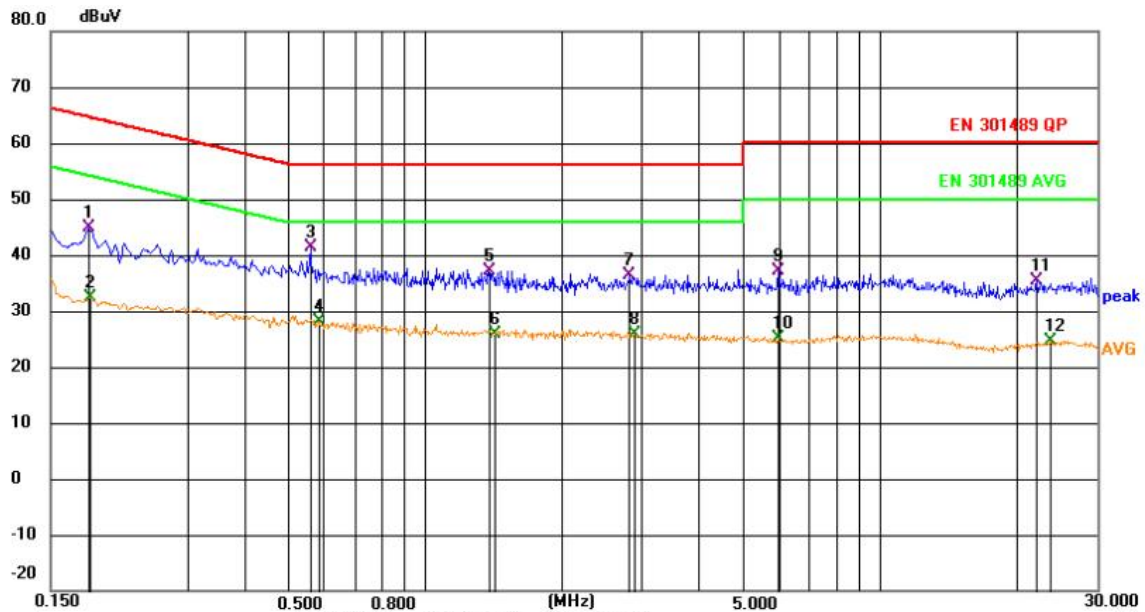
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Test Model	X7	Test Mode	TM1
Environmental Conditions	23.3℃, 53.7% RH	Test Engineer	Paddi Chen
Pol.	Neutral	Test Voltage	AC 230V/50Hz



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1816	24.94	20.01	44.95	64.41	-19.46	QP	
2		0.1825	12.31	20.02	32.33	54.37	-22.04	AVG	
3	*	0.5596	21.50	19.94	41.44	56.00	-14.56	QP	
4		0.5821	8.17	20.02	28.19	46.00	-17.81	AVG	
5		1.3786	16.97	20.15	37.12	56.00	-18.88	QP	
6		1.4236	5.83	20.15	25.98	46.00	-20.02	AVG	
7		2.8186	16.19	20.19	36.38	56.00	-19.62	QP	
8		2.8861	5.77	20.19	25.96	46.00	-20.04	AVG	
9		5.9686	16.83	20.18	37.01	60.00	-22.99	QP	
10		5.9686	4.95	20.18	25.13	50.00	-24.87	AVG	
11		22.1461	14.85	20.56	35.41	60.00	-24.59	QP	
12		23.6671	3.99	20.65	24.64	50.00	-25.36	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.

Margin= Reading level + Correct factor – Limit

Correct Factor= Lisn Factor+Cable Factor



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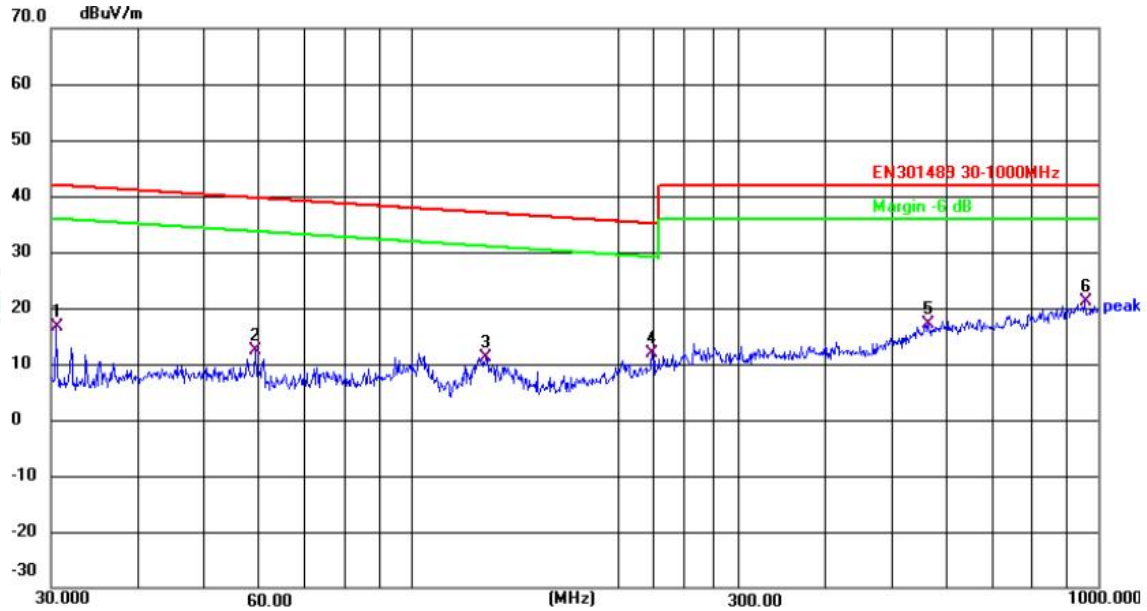
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A.3 Radiated Disturbance

Test Model	X7	Test Mode	TM1
Environmental Conditions	23.8°C, 52.1% RH	Test Engineer	Paddi Chen
Pol.	Horizontal	Detector Function	Quasi-peak
Distance	3m	Test Voltage	AC 230V/50Hz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.5306	34.93	-18.39	16.54	41.94	-25.40	QP
2	59.4405	31.01	-18.75	12.26	39.65	-27.39	QP
3	128.5629	31.66	-20.47	11.19	37.00	-25.81	QP
4	224.5192	28.70	-16.76	11.94	35.08	-23.14	QP
5	566.6221	28.40	-11.18	17.22	42.00	-24.78	QP
6	955.4381	29.04	-7.80	21.24	42.00	-20.76	QP



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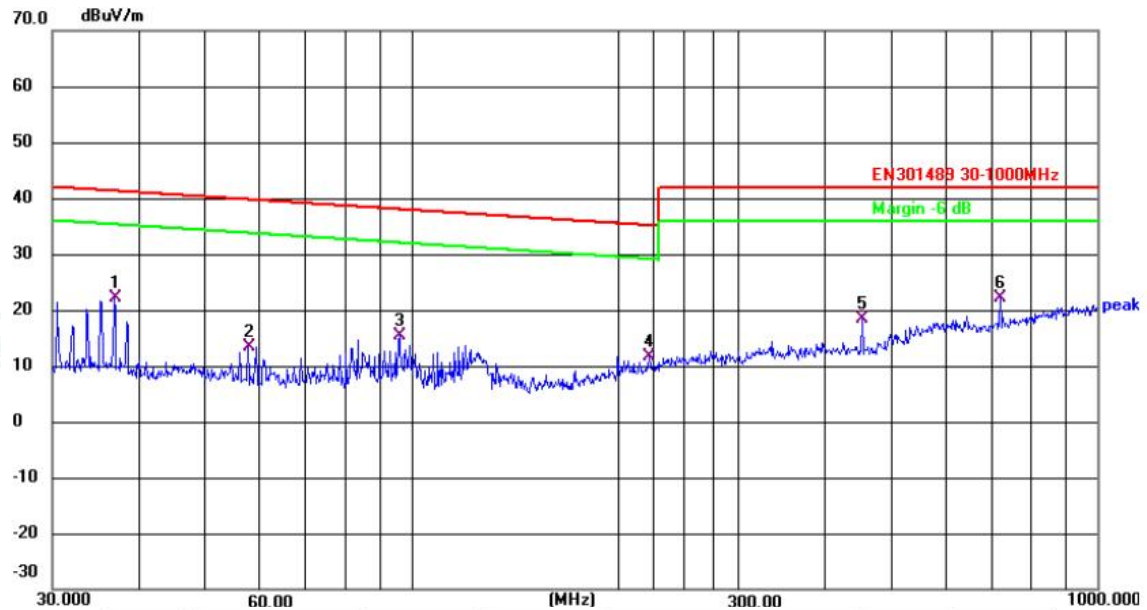
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Test Model	X7	Test Mode	TM1
Environmental Conditions	23.8°C, 52.1% RH	Test Engineer	Paddi Chen
Pol.	Vertical	Detector Function	Quasi-peak
Distance	3m	Test Voltage	AC 230V/50Hz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	36.8953	39.70	-17.69	22.01	41.29	-19.28	QP
2	57.7962	31.94	-18.45	13.49	39.75	-26.26	QP
3	96.0985	33.92	-18.45	15.47	38.00	-22.53	QP
4	222.1697	28.44	-16.82	11.62	35.12	-23.50	QP
5	454.3100	32.91	-14.46	18.45	42.00	-23.55	QP
6	721.7258	32.59	-10.58	22.01	42.00	-19.99	QP

Note: Margin= Reading level + Correct factor – Limit

Correct Factor=Antenna Factor+Cable Factor- Pre-amplifier Factor



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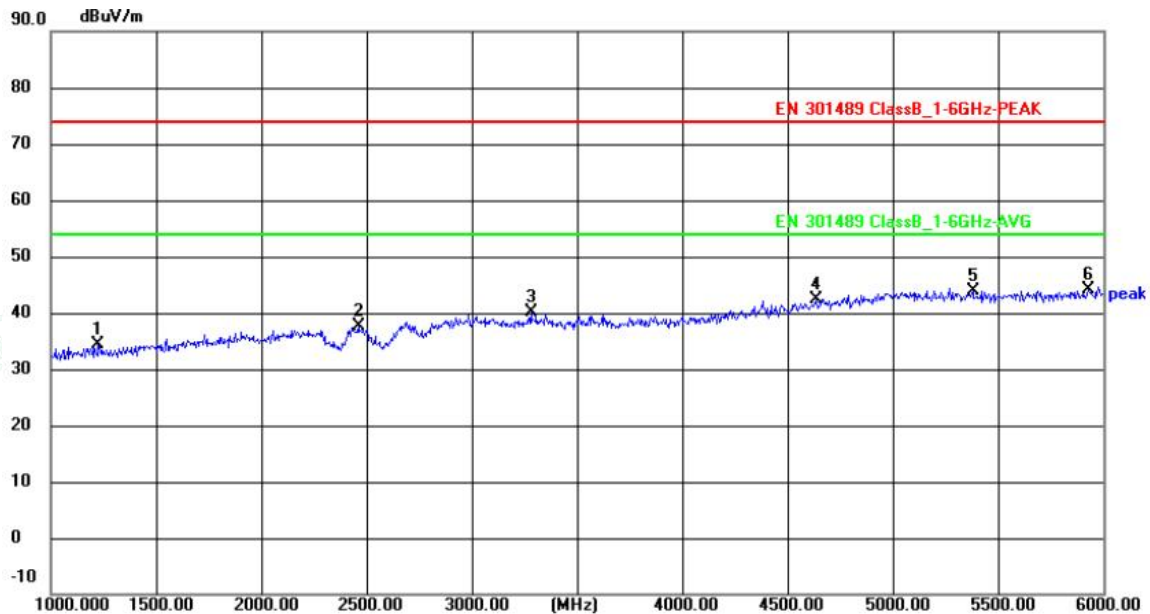
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Test Model	X7	Test Mode	TM1 (Above 1GHz)
Environmental Conditions	23.9℃, 52.1% RH	Test Engineer	Paddi Chen
Pol.	Horizontal	Detector Function	Peak + AV
Distance	3m	Test Voltage	AC 230V/50Hz

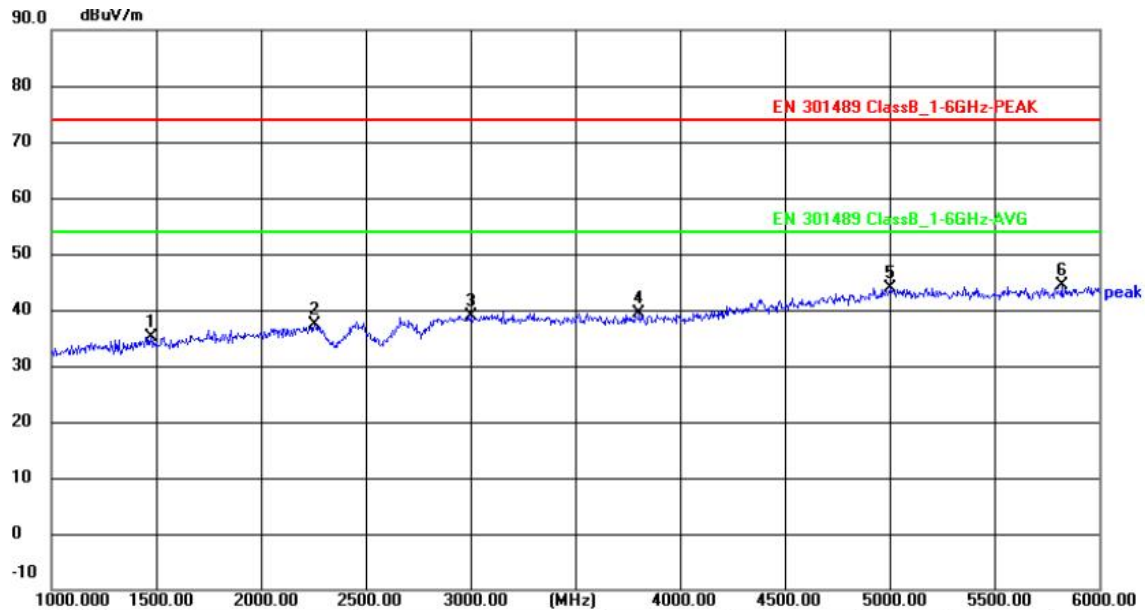


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1225.000	49.65	-15.21	34.44	74.00	-39.56	peak
2	2460.000	49.18	-11.49	37.69	74.00	-36.31	peak
3	3280.000	49.64	-9.49	40.15	74.00	-33.85	peak
4	4635.000	48.31	-5.92	42.39	74.00	-31.61	peak
5	5380.000	47.36	-3.43	43.93	74.00	-30.07	peak
6	5930.000	47.73	-3.62	44.11	74.00	-29.89	peak





Test Model	X7	Test Mode	TM1 (Above 1GHz)
Environmental Conditions	23.9°C, 52.1% RH	Test Engineer	Paddi Chen
Pol.	Vertical	Detector Function	Peak + AV
Distance	3m	Test Voltage	AC 230V/50Hz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1475.000	50.20	-15.01	35.19	74.00	-38.81	peak
2	2255.000	49.63	-12.21	37.42	74.00	-36.58	peak
3	3000.000	48.59	-9.59	39.00	74.00	-35.00	peak
4	3805.000	48.28	-8.88	39.40	74.00	-34.60	peak
5	5000.000	48.03	-4.12	43.91	74.00	-30.09	peak
6	5820.000	47.91	-3.52	44.39	74.00	-29.61	peak

Note: Margin= Reading level + Correct factor - Limit

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

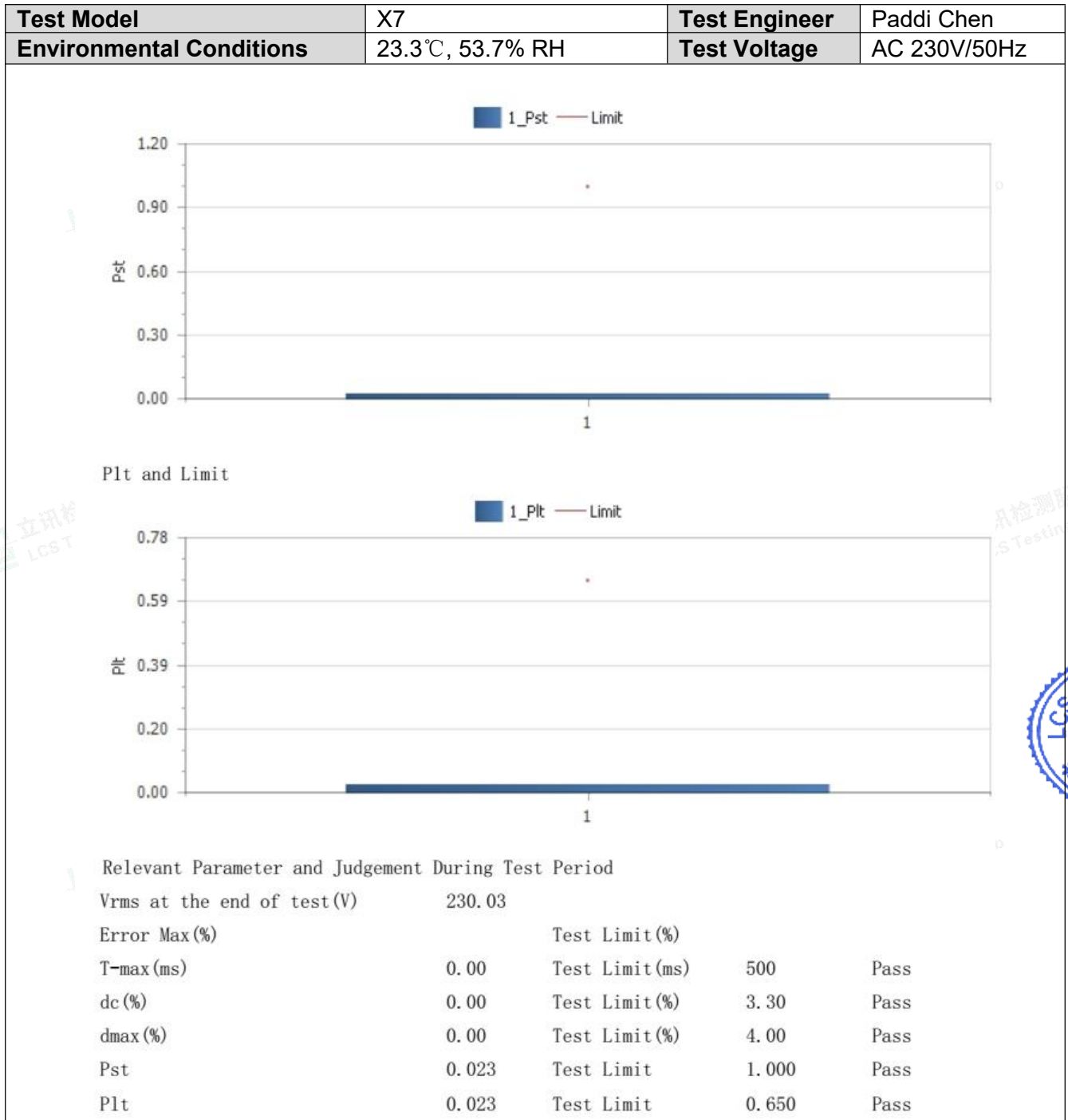




A.4 Harmonic Current Emissions

Because power of EUT less than 75W, according to standard EN 61000-3-2, Harmonic current unnecessary to test.

A.5 Voltage Fluctuation and Flicker





A.6 RF Electromagnetic Field (80 MHz - 6000 MHz)

Test Model	X7	Test Engineer	Paddi Chen
Environmental Conditions	23.2°C, 53.2% RH	Test Voltage	AC 230V/50Hz

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, Top, Bottom	Pass
	Horizontal	80-6000	3	CT, CR	Front, Right, Left, Back, Top, Bottom	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, Top, Bottom	Pass
	Horizontal	80-6000	3	See Note	Front, Right, Left, Back, Top, Bottom	Pass
Idle	Vertical	80-6000	3	See Note	Front, Right, Left, Back, Top, Bottom	Pass
	Horizontal	80-6000	3	See Note	Front, Right, Left, Back, Top, Bottom	Pass

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





A.7 Electrostatic Discharge

Electrostatic Discharge Test Results

Standard	<input type="checkbox"/> IEC 61000-4-2 <input checked="" type="checkbox"/> EN 61000-4-2		
Applicant	DongGuan Kemi Electronics Technology Co., Ltd		
EUT	Bluetooth headset	Temperature	22.5℃
M/N	X7	Humidity	52.2%
Criterion	B	Pressure	1021mbar
Test Mode	TM1-TM3	Test Engineer	Paddi Chen

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.





A.8 Electrical Fast Transient Immunity

Electrical Fast Transient/Burst Test Results

Standard	<input type="checkbox"/> IEC 61000-4-4 <input checked="" type="checkbox"/> EN 61000-4-4		
Applicant	DongGuan Kemi Electronics Technology Co., Ltd		
EUT	Bluetooth headset	Temperature	22.7℃
M/N	X7	Humidity	52.4%
Test Mode	TM1-TM3	Criterion	B
Test Engineer	Paddi Chen		

TEST RESULT OF TM1

Line	Test Voltage	Polarity	Observation	Result (Pass/Fail)
L	1KV	+/-	TT, TR	Pass
N	1KV	+/-	TT, TR	Pass
L-N	1KV	+/-	TT, TR	Pass

TEST RESULT OF TM2-TM3

Line	Test Voltage	Polarity	Result (Pass/Fail)
L	1KV	+/-	Pass
N	1KV	+/-	Pass
L-N	1KV	+/-	Pass



**A.9 RF Common Mode**

Injected Currents Susceptibility Test Results			
Standard	<input type="checkbox"/> IEC 61000-4-6 <input checked="" type="checkbox"/> EN 61000-4-6		
Applicant	DongGuan Kemi Electronics Technology Co., Ltd		
EUT	Bluetooth headset	Temperature	21.2℃
M/N	X7	Humidity	53.5%
Test Mode	TM1-TM3	Criterion	A
Test Engineer	Paddi Chen		

TEST RESULT OF TM1				
Frequency Range (MHz)	Strength (Unmodulated)	Injected Position	Observation	Result (Pass/Fail)
0.15 ~ 80	3V	AC Mains	CT, CR	Pass
TEST RESULT OF TM2-TM3				
Frequency Range (MHz)	Strength (Unmodulated)	Injected Position	Result (Pass/Fail)	
0.15 ~ 80	3V	AC Mains	Pass	

Remark:

1. Modulation Signal:1kHz 80% AM

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



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**A.10 Surges, Line to Line and Line to Ground**

Surge Immunity Test Result			
Standard	<input type="checkbox"/> IEC 61000-4-5 <input checked="" type="checkbox"/> EN 61000-4-5		
Applicant	DongGuan Kemi Electronics Technology Co., Ltd		
EUT	Bluetooth headset	Temperature	23.2℃
M/N	X7	Humidity	52.1%
Test Mode	TM1-TM3	Criterion	B
Test Engineer	Paddi Chen		

TEST RESULT OF TM1						
Location	Polarity	Phase Angle	Number of Pulse	Pulse Voltage (KV)	Observation	Result (Pass/Fail)
L-N	+	0°, 90°, 180°, 270°	5	1.0	TT, TR	Pass
	-	0°, 90°, 180°, 270°	5	1.0	TT, TR	Pass

TEST RESULT OF TM2-TM3					
Location	Polarity	Phase Angle	Number of Pulse	Pulse Voltage (KV)	Result (Pass/Fail)
L-N	+	0°, 90°, 180°, 270°	5	1.0	Pass
	-	0°, 90°, 180°, 270°	5	1.0	Pass



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**A.11 Voltage Dips/Interruptions Immunity Test**

Voltage Dips And Interruptions Test Results			
Standard	<input type="checkbox"/> IEC 61000-4-11 <input checked="" type="checkbox"/> EN 61000-4-11		
Applicant	DongGuan Kemi Electronics Technology Co., Ltd		
EUT	Bluetooth headset	Temperature	23.2°C
M/N	X7	Humidity	54.1%
Test Mode	TM1-TM3	Criterion	B&C
Test Engineer	Paddi Chen		

TEST RESULT OF TM1				
Test Level % U _T	Voltage Dips & Short Interruptions % U _T	Duration (in periods)	Observation	Result (Pass/Fail)
0	100	0.5P	TT, TR	Pass
0	100	1P	TT, TR	Pass
70	30	25P	TT, TR	Pass
0	100	250P	TT, TR	Pass
TEST RESULT OF TM2-TM3				
Test Level % U _T	Voltage Dips & Short Interruptions % U _T	Duration (in periods)	Result (Pass/Fail)	
0	100	0.5P	Pass	
0	100	1P	Pass	
70	30	25P	Pass	
0	100	250P	Pass	



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