



Appendix A for Emission and Immunity test results

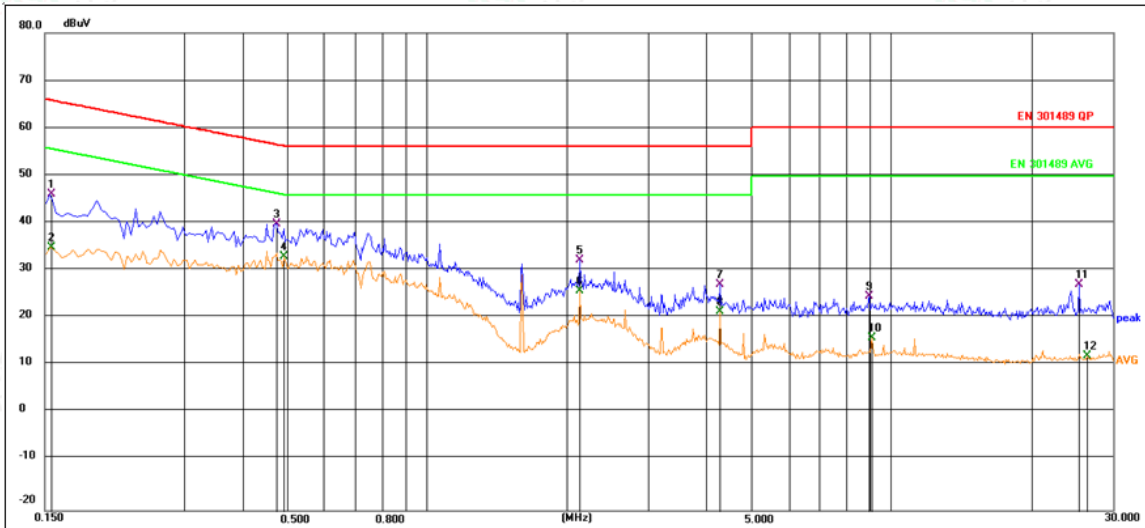
Product Name: Smart Light Switch

Test Model: LT-03

A.1 Line Conducted Emission

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

Test Model	LT-03	Test Mode	TM1
Environmental Conditions	22.5°C, 53.7% RH	Test Engineer	Monkey Li
Pol.	Line	Test Voltage	AC 230V/50Hz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1546	26.60	19.63	46.23	65.75	-19.52	QP
2	0.1548	15.41	19.63	35.04	55.74	-20.70	AVG
3	0.4741	20.33	19.64	39.97	56.44	-16.47	QP
4	0.4921	13.52	19.64	33.16	46.13	-12.97	AVG
5	2.1390	12.75	19.68	32.43	56.00	-23.57	QP
6	2.1390	6.34	19.68	26.02	46.00	-19.98	AVG
7	4.2811	7.65	19.70	27.35	56.00	-28.65	QP
8	4.2811	1.90	19.70	21.60	46.00	-24.40	AVG
9	8.9926	5.16	19.82	24.98	60.00	-35.02	QP
10	9.1006	-3.60	19.82	16.22	50.00	-33.78	AVG
11	25.3501	7.28	20.02	27.30	60.00	-32.70	QP
12	26.5516	-7.68	20.03	12.35	50.00	-37.65	AVG



Shenzhen LCS Compliance Testing Laboratory Ltd.

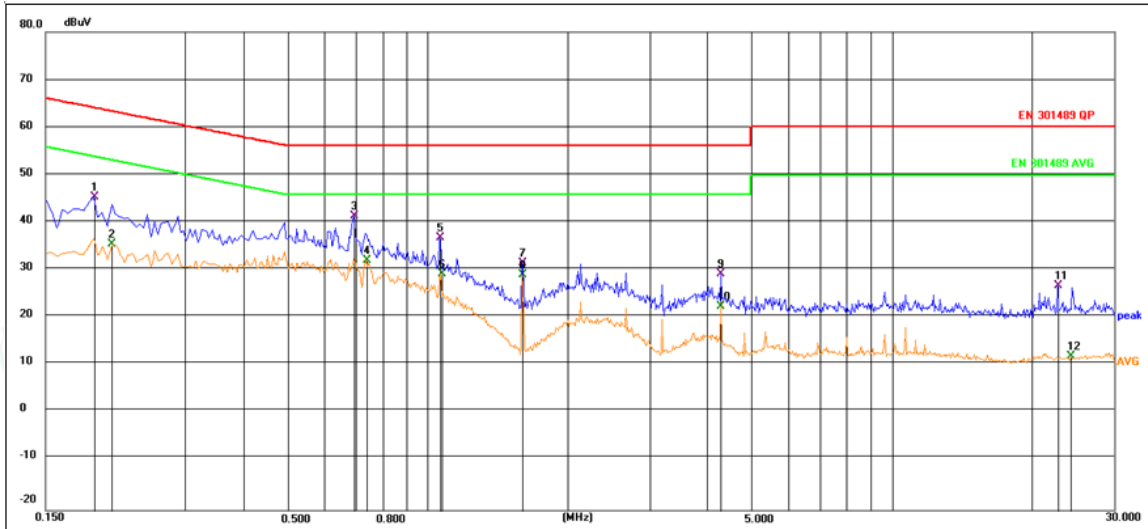
Add: Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity



Test Model	LT-03	Test Mode	TM1
Environmental Conditions	22.5°C, 53.7% RH	Test Engineer	Monkey Li
Pol.	Neutral	Test Voltage	AC 230V/50Hz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1906	25.87	19.63	45.50	64.01	-18.51	QP
2	0.2086	16.01	19.63	35.64	53.26	-17.62	AVG
3	0.6901	21.84	19.65	41.49	56.00	-14.51	QP
4	0.7351	12.67	19.65	32.32	46.00	-13.68	AVG
5	1.0636	17.27	19.65	36.92	56.00	-19.08	QP
6	1.0681	9.78	19.65	29.43	46.00	-16.57	AVG
7	1.5991	11.98	19.67	31.65	56.00	-24.35	QP
8	1.5991	9.63	19.67	29.30	46.00	-16.70	AVG
9	4.2766	9.78	19.70	29.48	56.00	-26.52	QP
10	4.2766	2.97	19.70	22.67	46.00	-23.33	AVG
11	22.7716	6.86	20.07	26.93	60.00	-33.07	QP
12	24.3196	-7.88	20.04	12.16	50.00	-37.84	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.

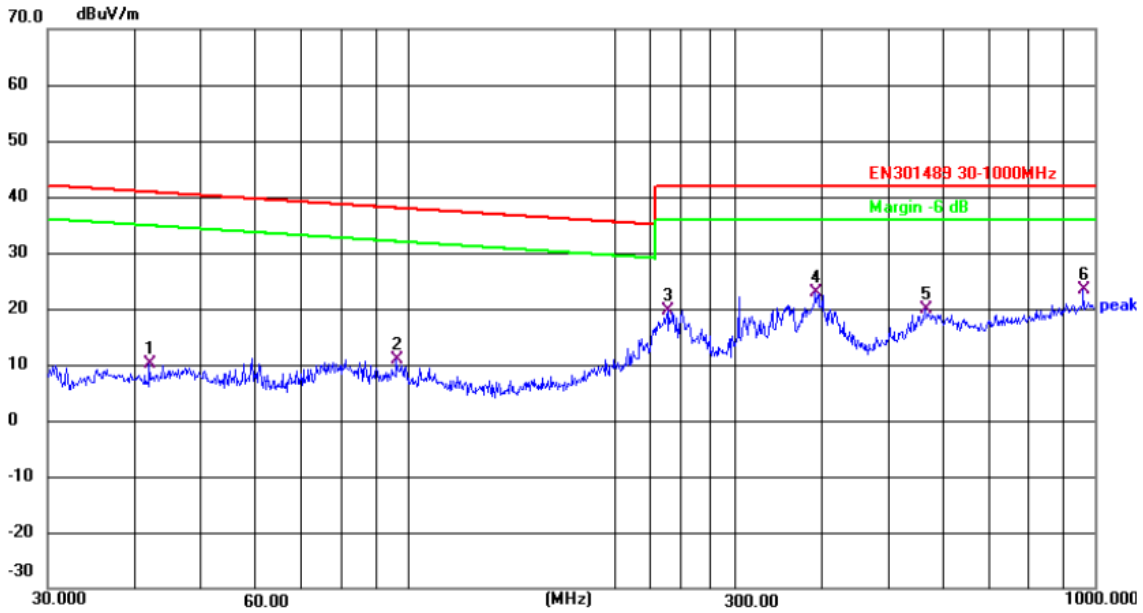
Margin= Reading level + Correct factor – Limit
 Correct Factor= Lisen Factor+Cable Factor





A.3 Radiated Disturbance

Test Model	LT-03	Test Mode	TM1
Environmental Conditions	23.9°C, 52.1% RH	Test Engineer	Monkey Li
Pol.	Horizontal	Detector Function	Quasi-peak
Distance	3m	Test Voltage	AC 230V/50Hz

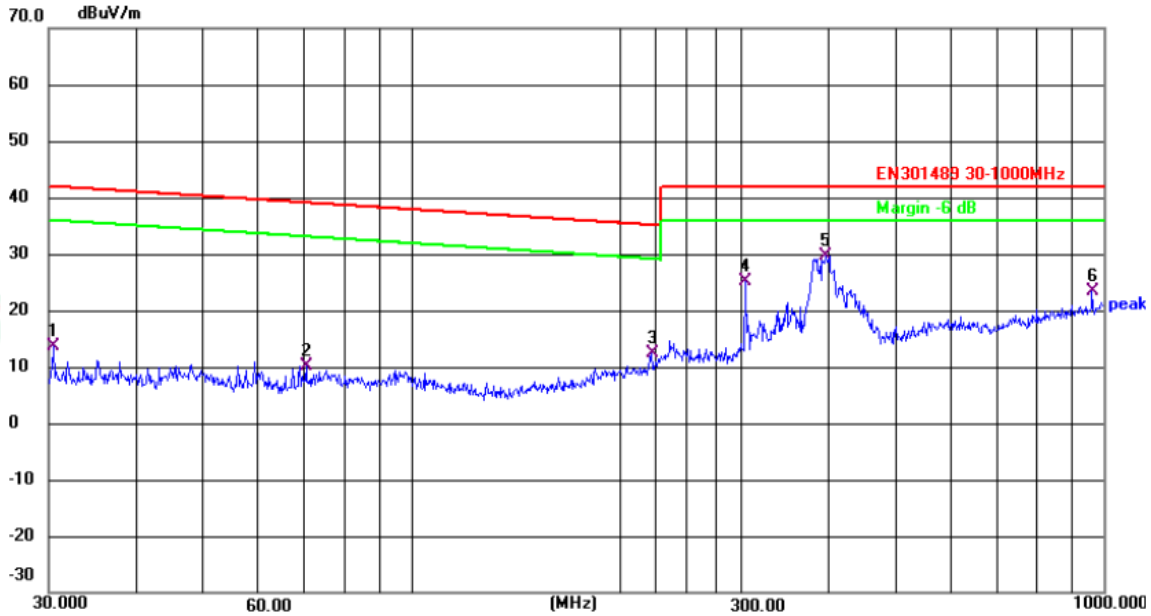


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	42.1542	27.28	-17.26	10.02	40.83	-30.81	QP
2	96.4362	29.36	-18.43	10.93	37.99	-27.06	QP
3	239.1473	35.81	-16.10	19.71	42.00	-22.29	QP
4	392.0951	37.31	-14.51	22.80	42.00	-19.20	QP
5	566.6223	31.03	-11.18	19.85	42.00	-22.15	QP
6	962.1623	30.96	-7.70	23.26	42.00	-18.74	QP





Test Model	LT-03	Test Mode	TM1
Environmental Conditions	23.9°C, 52.1% RH	Test Engineer	Monkey Li
Pol.	Vertical	Detector Function	Quasi-peak
Distance	3m	Test Voltage	AC 230V/50Hz



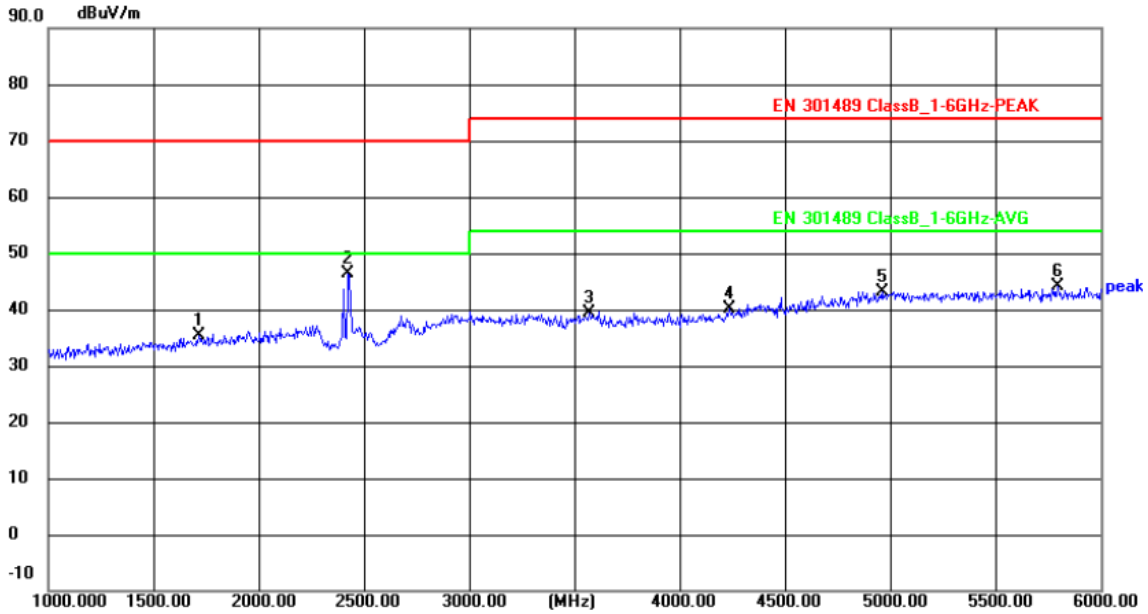
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.5306	31.97	-18.39	13.58	41.94	-28.36	QP
2	70.5836	29.67	-19.49	10.18	39.06	-28.88	QP
3	222.1698	29.09	-16.82	12.27	35.12	-22.85	QP
4	303.5437	40.65	-15.42	25.23	42.00	-16.77	QP
5	397.6334	44.19	-14.44	29.75	42.00	-12.25	QP
6	962.1623	31.46	-7.97	23.49	42.00	-18.51	QP

Note: Margin= Reading level + Correct factor – Limit
 Correct Factor=Antenna Factor+Cable Factor- Pre-amplifier Factor





Test Model	LT-03	Test Mode	TM1 (Above 1GHz)
Environmental Conditions	23.9°C, 52.1% RH	Test Engineer	Monkey Li
Pol.	Horizontal	Detector Function	Peak+Average
Distance	3m	Test Voltage	AC 230V/50Hz

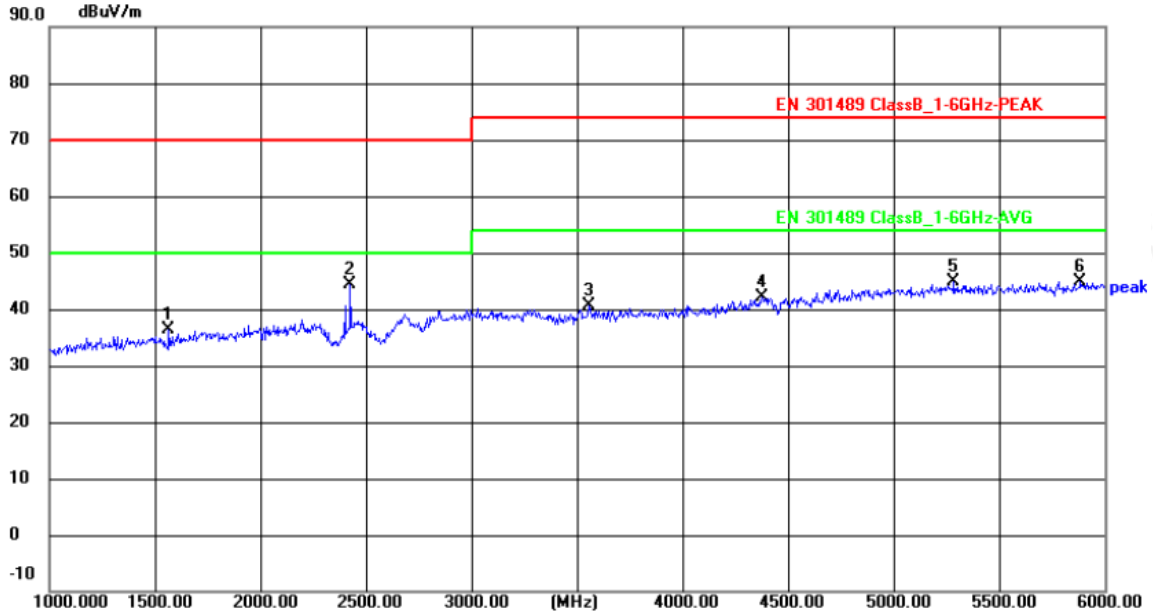


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1715.000	49.83	-14.35	35.48	70.00	-34.52	peak
2	2425.000	57.91	-11.61	46.30	70.00	-23.70	peak
3	3570.000	48.63	-9.29	39.34	74.00	-34.66	peak
4	4235.000	47.87	-7.62	40.25	74.00	-33.75	peak
5	4960.000	47.41	-4.32	43.09	74.00	-30.91	peak
6	5795.000	47.74	-3.49	44.25	74.00	-29.75	peak





Test Model	LT-03	Test Mode	TM1 (Above 1GHz)
Environmental Conditions	23.9°C, 52.1% RH	Test Engineer	Monkey Li
Pol.	Vertical	Detector Function	Peak+Average
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	1565.000	51.09	-14.73	36.36	70.00	-33.64	peak
2	2425.000	55.95	-11.61	44.34	70.00	-25.66	peak
3	3555.000	49.96	-9.32	40.64	74.00	-33.36	peak
4	4375.000	49.08	-7.07	42.01	74.00	-31.99	peak
5	5285.000	48.58	-3.60	44.98	74.00	-29.02	peak
6	5885.000	48.49	-3.57	44.92	74.00	-29.08	peak

Note:

1. 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.
2. Measurements above show only up to 6 maximum emissions noted.
3. 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.
4. Factor = Antenna Factor + Cable Loss + Amplifier Factor
Emission Level = Reading level + Factor
Margin = Emission Level - Limit





A.4 Harmonic Current Emissions

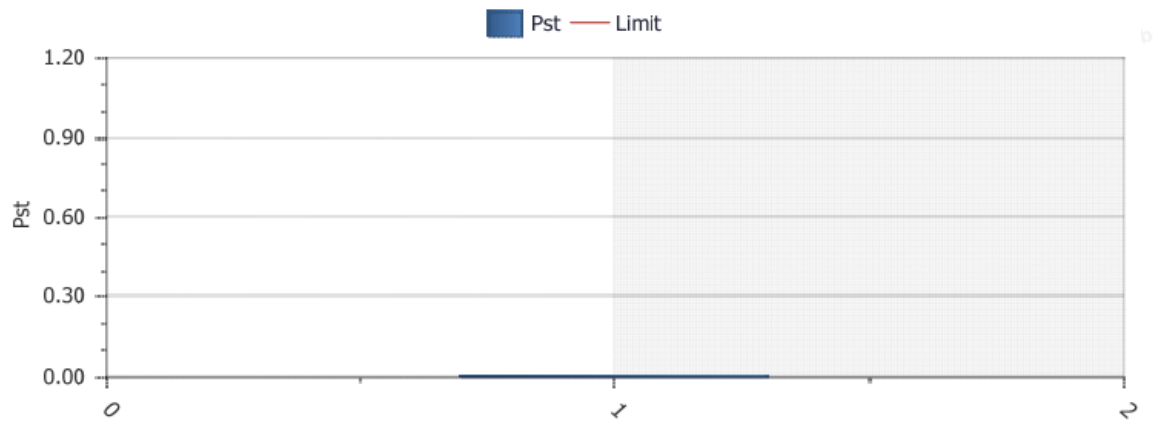
Pass

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

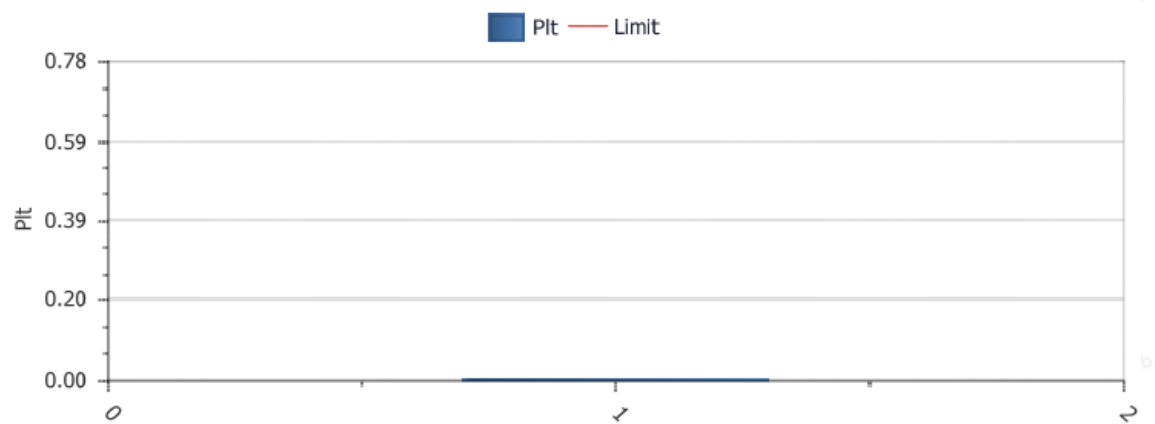
A.5 Voltage Fluctuation and Flicker

Test Model	LT-03	Test Engineer	Monkey Li
Environmental Conditions	25.1°C, 50.2% RH	Test Voltage	AC 230V/50Hz

Pst and Limit



Plt and Limit



Relevant Parameter and Judgement During Test Period

Vrms at the end of test (V)	229.90			
Error Max (%)		Test Limit (%)		
T-max (ms)	0.00	Test Limit (ms)	500	Pass
dc (%)	0.00	Test Limit (%)	3.30	Pass
dmax (%)	0.00	Test Limit (%)	4.00	Pass
Pst	0.00	Test Limit	1.00	Pass
Plt	0.00	Test Limit	0.65	Pass



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

Test Model	LT-03	Test Engineer	Monkey Li
Environmental Conditions	23.2°C, 52.4% 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	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



Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity



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	XonTel Technology Trd. Co. W.L.L		
EUT	Smart Light Switch	Temperature	22.4°C
M/N	LT-03	Humidity	52.2%
Criterion	B	Pressure	1021mbar
Test Mode	TM1-TM3	Test Engineer	Monkey Li
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.			



Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity



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	XonTel Technology Trd. Co. W.L.L		
EUT	Smart Light Switch	Temperature	22.6°C
M/N	LT-03	Humidity	52.4%
Test Mode	TM1-TM3	Criterion	B
Test Engineer	Monkey Li		

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	XonTel Technology Trd. Co. W.L.L		
EUT	Smart Light Switch	Temperature	21.2°C
M/N	LT-03	Humidity	53.5%
Test Mode	TM1-TM3	Criterion	A
Test Engineer	Monkey Li		

TEST RESULT OF TM1				
Frequency Range (MHz)	Strength (Unmodulated)	Injected Position	Observation	Result (Pass/Fail)
0.15 ~ 10	3V	AC Mains	CT, CR	Pass
10 ~ 30	3V to 1V			
30 ~ 80	1V			
TEST RESULT OF TM2-TM3				
Frequency Range (MHz)	Strength (Unmodulated)	Injected Position	Result (Pass/Fail)	
0.15 ~ 10	3V	AC Mains	Pass	
10 ~ 30	3V to 1V			
30 ~ 80	1V			
Remark:				
1. Modulation Signal:1kHz 80% AM				
2. Measurement Equipment :				
Simulator: CIT-10 (FRANKONIA)				
CDN : <input checked="" type="checkbox"/> CDN-M2 (FRANKONIA)				
<input type="checkbox"/> CDN-M3 (FRANKONIA)				

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



Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity



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	XonTel Technology Trd. Co. W.L.L		
EUT	Smart Light Switch	Temperature	23.2°C
M/N	LT-03	Humidity	52.3%
Test Mode	TM1-TM3	Criterion	B
Test Engineer	Monkey Li		

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)	Observation	Result (Pass/Fail)
L-N	+	0°, 90°, 180°, 270°	5	1.0		Pass
	-	0°, 90°, 180°, 270°	5	1.0		Pass



Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity

**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	XonTel Technology Trd. Co. W.L.L		
EUT	Smart Light Switch	Temperature	23.2°C
M/N	LT-03	Humidity	54.2%
Test Mode	TM1-TM3	Criterion	B&C
Test Engineer	Monkey Li		

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



Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity