

Testing for EM disturbances

Test modes during emission tests

1. Battery mode: Standby and moving
2. Use when charging: Standby

EM emission standards	Classification / levels
Conducted and radiated RF emissions CISPR 11	Group 1 Class B
Harmonic distortion IEC 61000-3-2	Class A
Voltage fluctuations and flicker IEC 61000-3-3	$d_{max} \leq 4\%$

Test modes during immunity tests

1. Battery mode: Standby
2. Use when charging: Standby

EM immunity standards	IEC 60601-1-2:2014 test levels	
Electrostatic discharge IEC 61000-4-2	± 8 kV contact ± 2 kV, ± 4 kV, ± 8 kV, ± 15 kV air	
Radiated RF EM fields IEC 61000-4-3	10 V/m 80 MHz - 2,7 GHz 80 % AM at 1 kHz	
Proximity fields from RF wireless communication equipment IEC 61000-4-3	Test frequency (MHz)	Test level (V/m)
	385	27
	450	28
	710	9
	745	
	780	
	810	28
	870	
	930	
	1720	
	1845	
	1970	
	2450	9
	5240	
5500		
5785		
Rated power frequency magnetic fields IEC 61000-4-8	30 A/m 50 Hz	
Electrical fast transients / bursts IEC 61000-4-4	± 2 kV 100 kHz repetition frequency	
Surges Line-to-line IEC 61000-4-5	$\pm 0,5$ kV, ± 1 kV	
Surges Line-to-ground IEC 61000-4-5	$\pm 0,5$ kV, ± 1 kV, ± 2 kV	
Conducted disturbances induced by RF fields IEC 61000-4-6	3 V 0,15 MHz – 80 MHz 6 V in ISM and amateur radio bands 80% AM at 1 kHz	
Voltage dips IEC 61000-4-11	0% U_T ; 0,5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270° 0% U_T ; 1 cycle 70 % U_T ; 25 cycles at 0°	
Voltage interruptions IEC 61000-4-11	0 % U_T ; 250 cycles at 0°	