

Prüfbericht - Nr.: Test Report No.		14016662 001		Seite 1 von 7 Page 1 of 7	
Auftraggeber: Applicant		LG Electronics USA 1000 Sylvan Avenue Englewood Cliffs NJ 07632 USA			
Gegenstand der Prüfung: Test item		Bluetooth Headphone			
Bezeichnung: Identification		HBS-200		Serien-Nr.: Serial No. Engineering sample	
Wareneingangs-Nr.: Receipt No.		070706012		Eingangsdatum: 06.07.2007 Date of receipt	
Prüfört: Testing location		TÜV Rheinland Hong Kong Ltd. 9th Floor, Oriental News Building, 7 Wang Tai Road, Kowloon Bay, Kowloon, Hong Kong Hong Kong Productivity Council HKPC Building, 78 Tat Chee Avenue, Kowloon, Hong Kong			
Prüfgrundlage: Test specification		FCC Part 15 Subpart C ANSI C63.4-2003 CISPR 22:1997			
Prüfergebnis: Test Result		Das vorstehend beschriebene Gerät wurde geprüft und entspricht oben genannter Prüfgrundlage. The above mentioned product was tested and passed.			
geprüft / tested by:			kontrolliert / reviewed by:		
06.07.2007 Sharon Li Datum Name Unterschrift Date Name Signature			06.07.2007 Thomas Berns Datum Name Unterschrift Date Name Signature		
Sonstiges: Other Aspects		FCCID: BEJHBS200 This report covers class II change of model LG HBS-200 in test report EF/2006/60002 issued by SGS Taiwan Ltd.. For details, please refer to "Remark" on page 3.			
Abkürzungen:		OK, Pass, P = entspricht Prüfgrundlage Fail, F = entspricht nicht Prüfgrundlage N/A = nicht anwendbar NT = nicht getestet		Abbreviations: OK, Pass, P = passed Fail, F = failed N/A = not applicable NT = not tested	
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicate in extracts. This test report does not entitle to carry any safety mark on this or similar products.					

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Product information

Manufacturers declarations

	Transceiver
Operating frequency range	2402 - 2480 MHz
Type of modulation	FHSS modulation
Number of channels	79
Channel separation	1 MHz
Type of antenna	Integral Antenna
Antenna gain (dBi)	1.2
Power level	fix
Type of equipment	stand alone, plug-in radio device
Connection to public utility power line	No
Nominal voltage	V _{nom} : 3.7 V
Independent Operation Modes	Page scan Inquiry scan Connection state - ACL Link Connection state - SCO Link

Product function and intended use

The test item is a Bluetooth Headset based on the Bluetooth technology. Bluetooth is a short-range radio link intended to be a cable replacement between portable and/or fixed electronic devices.

Bluetooth operates in the unlicensed ISM Band at 2.4 GHz. In the US a band of 83.5 MHz width is available. In this band, 79 RF channels spaced 1 MHz apart are defined.

The channel is represented by a pseudo-random hopping sequence through the 79 channels. The channel is divided into time slots, with a nominal slot length of 625 µs, where each slot corresponds to different RF hop frequencies. The nominal hop rate is 1600 hops/s. The symbol rate on the channel is 1 Ms/s.

Submitted documents

Circuit Diagram
Bill of material

Remark

Modification of previous model:

1. Change of the antenna
2. Adding 1.8V voltage regulator at the microphone bias

For the above mentioned changes, after review, spurious radiated emission and peak output power test were considered necessary

List of Test and Measurement Instruments

	Kind of Equipment	Manufacturer	Type	S/N
☐	Test Receiver	Rohde & Schwarz	ESH-3	890173/033
☐	L/I/S/N	Rohde & Schwarz	ESH 3-Z5	849876/026
☐	Oscilloscope	HP	54713B	US34510455
☐	Test Receiver	Rohde & Schwarz	ESVP	882402/033
☐	Absorbing Clamp	Rohde & Schwarz	MDS-21	979 3/4
☐	Test Receiver	Rohde & Schwarz	ESVS30	842807/009
☐	Biconical Antenna	Rohde & Schwarz	HK116	841489/015
☐	Log.-Periodic Antenna	Rohde & Schwarz	HL223	841516/017
☐	Universal Power Analyzer	Voltech	PM3000A	9915
☐	Reference Impedance Network	Voltech	IEC 555 Standard	9946
☐	AC Power Source	California Instr.	4500L	HK51895
☐	Trip-Loop Antenna	Chase	LLA6142	1019
☐	Double Ridge Horn Antenna	EMCO	3115	9002-3351
☒	Double Ridge Horn Antenna	EMCO	3115	9002-3347
☐	RF Comms Test Set	HP	8920B	US36492628
☐	Spectrum Analyser + Tracking G.	HP	8596E	3639A00758
☐	Signal Generator	Rohde & Schwarz	SMY 01	844146/024
☐	Signal Generator	Rohde & Schwarz	SMY 01	844146/023
☐	BiLog Antenna	EMCO	3143	9607-1287
☐	Isotropic Field Probe	Holladay	HI-4422	90956
☐	Power Amplifier	Kalmus	757-LC	7620-1
☐	Power Amplifier	Kalmus	122-FC	7620-2
☐	Coupling Clamp	Schaffner	CDN 126	312
☐	Couple Device Network	Fischer	CDN-M2	9604
☒	Spectrum Analyzer	Rohde & Schwarz	FSP30	1093.4495K30
☐	Temperature Chamber	Binder	MK 240	9020-0028
☐	EFT,ESD,SURGE, DIPS tester	Schaffner	Best 96	IN3796-011
☐	Surge Generator	Schaffner	NSG650	280
☒	Active Loop Antenna	EMCO	6502	9107-2651

Result FCC Part 15 – Subpart C

Subclause 15.247 (b) – Peak Output Power					Pass
Test Specification : FCC Part 15 Subpart A – Subclause 15.31 Mode of operation : Tx mode (2402MHz, 2441MHz, 2480MHz), DH1 packet Port of testing : Temporary antenna port Detector : Peak RBW/VBW : 1 MHz / 3 MHz Supply voltage : 3.7VDC from DC power supply Temperature : 23°C Humidity : 50%					
Requirement: For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 Watt. For all other frequency hopping systems in the 2400 – 2483.5 MHz band: 0.125 Watts.					
Result All three transmit frequency modes comply with the maximum peak output power limit. For test protocols please refer to Appendix 1, page 2-3.					
Frequency (MHz)	Maximum peak output power (dBm)	Cable attenuation (dB)	Output power (dBm)	Limit (W/dBm)	Verdict
2402	-2.01	2.12	0.11	1 / 30.0	Pass
2441	-3.26	2.26	-1.0	1 / 30.0	Pass
2480	-4.68	2.27	-2.41	1 / 30.0	Pass

Subclause 15.247 (c) – Spurious Radiated Emissions		Pass
Test Specification : ANSI C63.4 - 2003 Mode of operation : Tx mode (2402MHz, 2441MHz, 2480MHz), DH1 packet Port of testing : Enclosure Detector : Peak RBW/VBW : 100 kHz / 300 kHz for $f < 1$ GHz 1 MHz / 3 MHz for $f > 1$ GHz Supply voltage : internal batteries has been activated Temperature : 23°C Humidity : 50%		
Requirement: In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.		
Result All three transmit frequency modes comply with the field strength within the restricted bands. There is no spurious found below 30MHz.		
Tx frequency 2402MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
-	-	43.5 / QP
-	-	74.0 / P
-	-	54.0 / A
Tx frequency 2402MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
-	-	43.5 / QP
-	-	74.0 / P
-	-	54.0 / A

Tx frequency 2441MHz			Vertical Polarization		
Freq MHz			Level dBuV/m		Limit/ Detector dBuV/m
-			-		43.5 / QP
4881.940			44.78		74.0 / P
4881.980			39.45		54.0 / A
Tx frequency 2441MHz			Horizontal Polarization		
Freq MHz			Level dBuV/m		Limit/ Detector dBuV/m
-			-		43.5 / QP
1628.120			33.97		74.0 / P
1627.920			30.26		54.0 / A
Tx frequency 2480MHz			Vertical Polarization		
Freq MHz			Level dBuV/m		Limit/ Detector dBuV/m
-			-		43.5 / QP
4960.000			49.03		74.0 / P
4960.000			42.88		54.0 / A
Tx frequency 2480MHz			Horizontal Polarization		
Freq MHz			Level dBuV/m		Limit/ Detector dBuV/m
-			-		43.5 / QP
1654.060			35.10		74.0 / P
4960.040			45.08		54.0 / A