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EMI CERTIFICATION REPORT

LG Electronics Inc.

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Seoul, 153-023, Korea

Date of Issue: January 27, 2010

Test Report No.: HCTE1001FE22

Test Site: HCT CO., LTD.

HCT FRN: 0005-8664-21

FCC ID:

BEJLUM850T

Rule Part(s) / Standard(s) : FCC PART 15 Subpart B / CISPR 22 Class B

Equipment (EUT) Type : GSM/EDGE/WCDMA Module

Trade Name / Model(s) : LG Electronics Inc. / LUM-850T

Port / Connector(s) : DC In Port / USB Data Port

The device bearing the trade name and model specified above, has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-2003. (See Test Report if any modifications were made for compliance)

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

HCT certifies that no party to application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C 862.


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ATTACHMENT : TEST SETUP PHOTOGRAPHS

1. GENERAL INFORMATION

1.1 Product Description

The **LG Electronics Inc. Model: LUM-850T, GSM/EDGE/WCDMA Module.**

Its basic purpose is used for communications. It transmits from GSM 850 (824.20 MHz to 848.80 MHz), GSM 1 900 (1 850.20 MHz to 1 909.80 MHz), WCDMA 850 (826.40 MHz to 846.60 MHz), WCDMA 1 900 (1 852.40 MHz to 1 907.60 MHz) and receives from GSM 850 (869.20 MHz to 893.80 MHz), GSM 1 900 (1 930.20 MHz to 1 989.80 MHz), WCDMA 850 (871.40 MHz to 891.60 MHz) WCDMA 1 900 (1 932.40 MHz to 1 987.60 MHz).

Model	LUM-850T
FCC ID	BEJLUM850T
E.U.T Type	GSM/EDGE/WCDMA Module
TX Frequency	824.20 MHz - 848.80 MHz (GSM 850) 826.40 MHz - 846.60 MHz (WCDMA 850) 1 850.20 MHz - 1 909.80 MHz (GSM 1 900) 1 852.4 MHz - 1 907.6 MHz (WCDMA 1 900)
RX Frequency	869.20 MHz - 893.80 MHz (GSM 850) 871.40 MHz - 891.60 MHz (WCDMA 850) 1 930.20 MHz - 1 989.80 MHz (GSM 1 900) 1 932.40 MHz - 1 987.60 MHz (WCDMA 1 900)

1.2 Related Submittal(s) / Grant(s)

Original submittal only.

1.3 Tested System Details

All equipment descriptions used in the tested system (including inserted cards) are:

Device Type	Manufacturer	Model Number/ Part Number	FCC ID / DoC	Connected To
GSM/EDGE/ WCDMA Module	LG	LUM-850T	BEJLUM850T	Notebook PC
Travel adaptor	Phihong Electronics Co.,Ltd.	PSA15R-050P	-	E.U.T
JIG	LG	-	-	E.U.T, TA Notebook PC
Notebook PC	HP	Compaq 6730b	DoC	E.U.T
Notebook PC adaptor	Hipro Electronics Co.,Ltd.	PPP014Y-S	-	Notebook PC
Mouse	Microsoft	Intellimouse optical USB and PS/2 compatible	DoC	Notebook PC

1.4 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (M)
GSM/EDGE/WCDMA Module	DC in	Y	-	(P)1.7
	USB data	-	Y	(D)1.2
	USB data	-	Y	(D)1.8
Notebook PC	USB (Mouse)	-	Y	(D)1.8

* The marked "(D)" means the data cable and "(P)" means the power cable.

1.5 Noise Suppression Parts on Cable. (I/O cable)

Product Name	Port	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
GSM/EDGE/WCDMA Module	DC in	Y	E.U.T End	Y	E.U.T End
	USB data	N	-	Y	Both End
	USB data	N	-	Y	Both End
Notebook PC	USB (Mouse)	Y	Notebook PC End	Y	Notebook PC End

1.6 Test Methodology

Both Conducted and Radiated testing was performed according to the procedures in ANSI C63.4/2003. Radiated testing was performed at an antenna to E.U.T distance of 3 m

1.7 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data are located at the 254-1, Maekok-ri, Hobup-myun, Ichon-si, Kyoungki-do, 467-701, KOREA. The site is constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated June 10, 2009. (Registration Number: 90661)

1.8 Frequency Range of Radiated Measurements

An unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a Radiated Emission limit is specified, up to the frequency shown in the following table

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 to 108	1 000
108 to 500	2 000
500 to 1 000	5 000
Above 1 000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

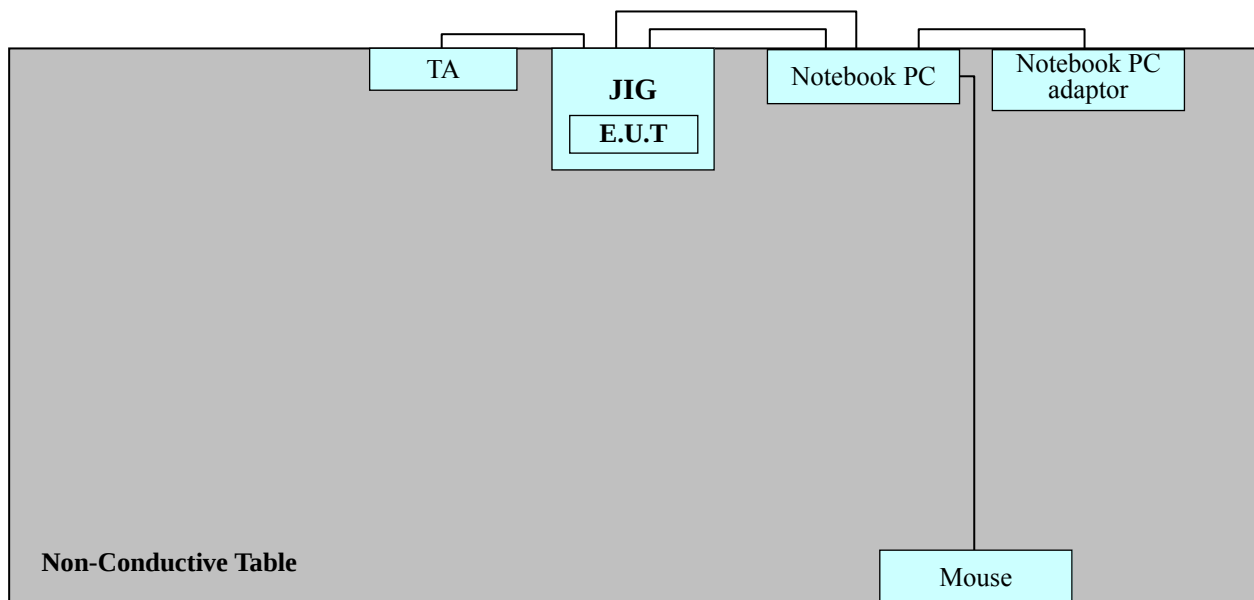
2. SYSTEM TEST CONFIGURATION

2.1 Configuration of Test System

Power Line Conducted test : E.U.T was connected to LISN, all other peripheral equipment were connected to another LISN. Preliminary Power Line Conducted Emission tests were performed by using the procedure in ANSI C63.4/2003 7.2.3 to determine the worst operating conditions.

Radiated Emission test : Preliminary Radiated Emission tests were performed by using the procedure in ANSI C63.4/2003 8.3.1.1 to determine the worst operating condition. Final Radiated Emission tests were performed at 3 m open area test site.

[Configuration of Tested System]



Power Line: 110 VAC

3. PRELIMINARY TEST

3.1 Conducted Emission Test

Test E.U.T link with laptop, after connecting all peripheral deices.

During preliminary tests, the following operating mode was investigated:

Operation Mode	The Worst Operating Condition
GSM Idle (850, 1 900)	
WCDMA Idle (850, 1 900)	
Data Link	○

3. 2 Radiated Emission Test

Test E.U.T link with laptop, after connecting all peripheral deices.

During preliminary tests, the following operating mode was investigated:

Operation Mode	The Worst Operating Condition
GSM Idle (850, 1 900)	
WCDMA Idle (850, 1 900)	
Data Link	○

4. CONDUCTED AND RADIATED EMISSION TEST SUMMARY

4.1 Conducted Emission Test

The following table shows the highest levels of conducted emissions on both polarization of hot and neutral line.

Limit apply to	: CISPR 22 Class B
Result	: Passed by 18.0 dB
Operating condition	: Data Link mode
Detector	: Quasi-Peak, Average (6 dB Bandwidth: 9 kHz)
Temperature	: 20.8 °C
Humidity level	: 38.7 %
Test date	: January 26, 2010

Power Line Conducted Emissions			CISPR 22 Class B		
Frequency (MHz)	Amplitude (dB μ V)	Conductor	Result	Limit (dB μ V)	Margin (dB)
0.3540	29.9	HOT	Average	49.0	18.9
0.3540	30.9	NEUTRAL	Average	49.0	18.0
0.3540	34.3	HOT	Quasi-Peak	59.0	24.6
8.5920	36.8	NEUTRAL	Quasi-Peak	60.0	23.2

※ **NOTE:** Refer to page 10 to page 13 for details.

1. All modes of operation were investigated, and the worst-case emissions are reported.
2. Line H = Hot, Line N = Neutral

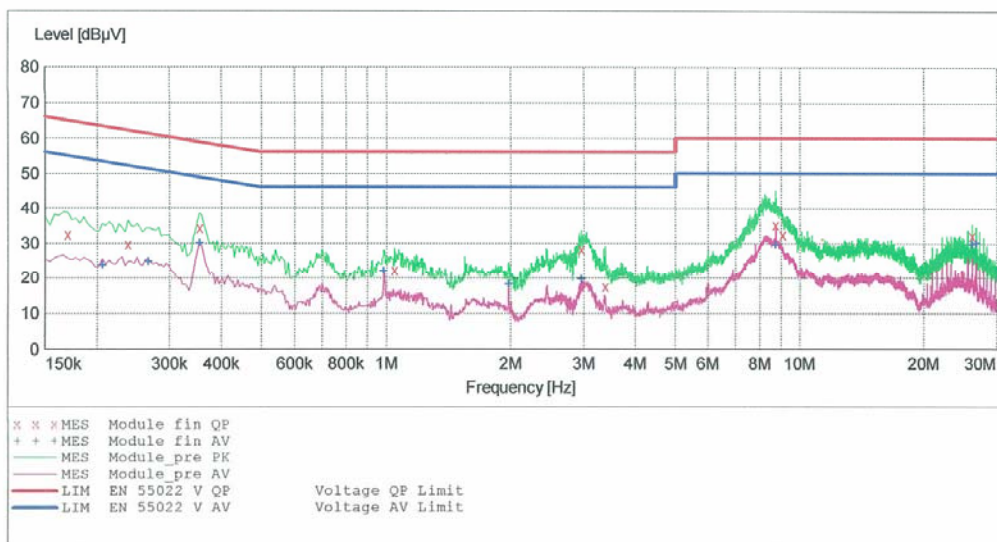
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EUT: LUM-850T
Manufacturer: LG
Operating Condition: DATA LINK MODE
Test Site: SHIELD ROOM
Operator: KH, YOON
Test Specification: CISPR22 CLASS B
Comment: H

SCAN TABLE: "CISPR22 CLASS B"

Short Description:			KN22 CLASS B			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
Frequency	Frequency	Width				
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			



MEASUREMENT RESULT: "Module_fin QP"

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Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.170001	32.40	10.1	65	32.6	---	---
0.238001	29.70	10.1	62	32.5	---	---
0.354001	34.30	10.1	59	24.6	---	---
1.048000	22.30	10.1	56	33.7	---	---
2.968000	28.20	10.2	56	27.8	---	---
3.388000	17.40	10.2	56	38.6	---	---
8.744000	35.30	10.6	60	24.7	---	---
9.108000	32.40	10.6	60	27.6	---	---
26.120000	32.10	11.7	60	27.9	---	---

MEASUREMENT RESULT: "Module_fin AV"

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Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.206001	23.80	10.1	53	29.5	---	---
0.266001	24.70	10.1	51	26.5	---	---
0.354001	29.90	10.1	49	18.9	---	---
0.988000	22.00	10.1	46	24.0	---	---
1.976000	18.10	10.2	46	27.9	---	---
2.968000	19.60	10.2	46	26.4	---	---
8.740000	29.50	10.6	50	20.5	---	---
26.120000	29.60	11.7	50	20.4	---	---
26.696000	30.00	11.7	50	20.0	---	---

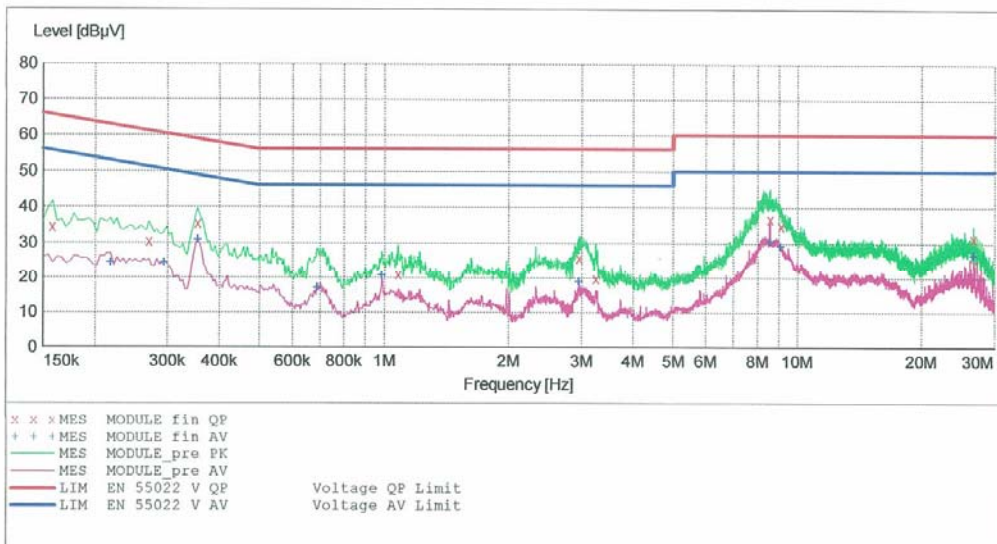
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EMC

EUT: LUM-850T
Manufacturer: LG
Operating Condition: DATA LINK MODE
Test Site: SHIELD ROOM
Operator: KH, YOON
Test Specification: CISPR22 CLASS B
Comment: N

SCAN TABLE: "CISPR22 CLASS B"

Short Description:			KN22 CLASS B			
Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			



MEASUREMENT RESULT: "MODULE_fin_QP"

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Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.158001	34.50	10.1	66	31.1	---	---
0.270001	30.50	10.1	61	30.6	---	---
0.354001	35.50	10.1	59	23.4	---	---
1.080000	21.00	10.1	56	35.0	---	---
2.972000	25.80	10.2	56	30.2	---	---
3.248000	19.80	10.2	56	36.2	---	---
8.592000	36.80	10.6	60	23.2	---	---
9.124000	34.70	10.6	60	25.3	---	---
26.692000	31.50	11.7	60	28.5	---	---

MEASUREMENT RESULT: "MODULE_fin AV"

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Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.218001	24.30	10.1	53	28.6	---	---
0.294001	24.30	10.1	50	26.1	---	---
0.354001	30.90	10.1	49	18.0	---	---
0.688000	17.10	10.1	46	28.9	---	---
0.988000	20.70	10.1	46	25.3	---	---
2.964000	18.90	10.2	46	27.1	---	---
8.592000	30.30	10.6	50	19.7	---	---
9.120000	29.10	10.6	50	20.9	---	---
26.692000	26.60	11.7	50	23.4	---	---

4.2 Radiated Emission Test

The following table shows the highest levels of Radiated Emissions on both polarization of horizontal and vertical.

Limit apply to	: FCC PART 15 Subpart B
Result	: Passed by 6.5 dB
Operating condition	: Data Link mode
Detector	: Quasi-Peak (6 dB Bandwidth: 120 kHz)
Temperature	: 10.0 °C
Humidity level	: 42.5 %
Test date	: January 26, 2010

Frequency	Reading	Ant. Factor	Cable Loss	Ant. POL	Total	Limit	Margin
MHz	dB μ V	dB/m	dB	(H/V)	dB μ V/m	dB μ V/m	dB
55.2	20.1	12.3	0.7	V	33.1	40.0	6.9
83.4	16.4	8.4	1.0	V	25.8	40.0	14.2
109.5	25.1	9.9	1.2	H	36.2	43.5	7.3
121.2	25.0	10.8	1.2	V	37.0	43.5	6.5
235.1	26.3	11.0	1.7	V	39.0	46.0	7.0
249.2	24.5	11.4	1.7	H	37.6	46.0	8.4

5. FIELD STRENGTH CALCULATION

The field strength is calculated by adding the antenna factor and cable factor.
The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF$$

Where FS = Field Strength

RA = Receiver Amplitude

AF = Antenna Factor

CF = Cable Attenuation Factor

Assume a receiver reading of 21.5 dB μ V is obtained. The antenna factor of 7.4 dB/m and a cable factor of 1.1 dB are added. The 30 dB μ V/m value is mathematically converted to its corresponding level in μ V/m.

$$FS = 21.5 + 7.4 + 1.1 = 30 \text{ dB}\mu\text{V/m}$$

[Radiated Emission Limits]

Frequency of Emission (MHz)	Field Strength	
	μ V/m	dB μ V/m
30 to 88	100	40.0
88 to 216	150	43.5
216 to 960	200	46.0
Above 960	500	54.0

6. TEST EQUIPMENT

<u>Type</u>	<u>Manufacturer</u>	<u>Model Number</u>	<u>Next CAL Date</u>
<u>Conducted Emission</u>			
☒ EMI Test Receiver	Rohde & Schwarz	ESCI	2010.06.02
☒ LISN	Rohde & Schwarz	ESH3-Z5	2010.02.06
☒ LISN	Rohde & Schwarz	ENV216	2010.04.01
☒ Attenuator	Rohde & Schwarz	ESH3-Z2	2010.10.30
<u>Radiated Emission</u>			
☒ EMI Test Receiver	Rohde & Schwarz	ESI40	2010.10.30
☒ Trilog Antenna	Schwarzbeck	VULB9160	2010.12.18
☒ Antenna Master	HD	MA240	-
☒ Turn Table	EMCO	1060	-
☐ Communication Antenna	TDK	LPDA-0802	-
☐ Antenna Position Tower	HD	240/520/00	-
☐ Base Station	Rohde & Schwarz	CMU 200	2010.02.17
☒ Horn Antenna	Schwarzbeck	BBHA 9120D	2010.03.26
☒ RF-Amplifier	MITEQ	AMF-6D-00101800-35. 20P.PS	2010.04.25
☐ Bluetooth Base Station	TESCOM	TC-3000A	2011.01.07

7. CONCLUSION

The data collected shows that the **LG Electronics Inc. Model: LUM-850T. GSM/EDGE/WCDMA Module. FCC ID: BEJLUM850T** complies with §15.107 and §15.109 of the FCC rules.