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EMI CERTIFICATION REPORT

CASIO HITACHI Mobile Communications Co., Ltd. **2-229-1, Sakuragaoka, Higashiyamato-shi, Tokyo 207-8501, Japan**	**Date of Issue: July 14, 2009** **Test Report No.: HCT-EF09-0709** **Test Site: HCT CO., LTD.** **HCT FRN: 0005-8664-21**

FCC ID: **TYKNX9290**

Classification / Standard(s)	: FCC PART 15 Subpart B / CISPR 22 Class B
Equipment type	: Dual-Band CDMA/EVDO Phone with Bluetooth
Trade name / Model(s)	: CASIO HITACHI Mobile Communications Co., Ltd. / C741
Port / Connector(s)	: DC Input Port / Ear Phone 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.

Report prepared by
: Kun Hyoung Kim
Test Engineer of EMC Tech. Part

Approved by
: Nam Wook Kang
Manager of EMC Tech. Part

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ATTACHMENT : TEST SETUP PHOTOGRAPHS

1. GENERAL INFORMATION

1.1 Product Description

The **CASIO HITACHI Mobile Communications Co., Ltd. Model: C741, Dual-Band CDMA/EVDO Phone with Bluetooth.**

Its basic purpose is used for communications. It transmits from CDMA 835 (824.70 ㎒ to 848.31 ㎒), PCS 1 900 (1 851.25 ㎒ to 1 908.75 ㎒) and receives from CDMA 835 (869.70 ㎒ to 893.31 ㎒), PCS 1 900 (1 931.25 ㎒ to 1 988.75 ㎒).

Model	C741
FCC ID	TYKNX9290
E.U.T type	Dual-Band CDMA/EVDO Phone with Bluetooth
TX frequency	824.70 ㎒ to 848.31 ㎒ (CDMA 835) 1 851.25 ㎒ to 1 908.75 ㎒ (PCS 1 900)
RX frequency	869.70 ㎒ to 893.31 ㎒ (CDMA 835) 1 931.25 ㎒ to 1 988.75 ㎒ (PCS 1 900)
Channel	Middle: 384 (CDMA 835) Middle: 600 (PCS 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
Dual-Band CDMA/EVDO Phone with Bluetooth	CASIO HITACHI	C741	TYKNX9290	Notebook PC
Travel adaptor	TIANJIN	CNR731	-	E.U.T
Notebook PC	TOSHIBA	PSMA2K-01D002	DoC	E.U.T, TA
Notebook PC adaptor	DELTA	SADP-65KB B	-	Notebook PC
Mouse	Microsoft	Intellimouse optical USB and PS/2 compatible	DoC	Notebook PC
Ear phone	-	-	-	E.U.T
USB cable	-	-	-	E.U.T Notebook PC

1.4 Cable Description

Product name	Port	Power cord shielded (Y/N)	I/O cable shielded (Y/N)	Length (M)
Dual-Band CDMA/EVDO Phone with Bluetooth	DC in	N	-	(P)1.5
	Ear jack	-	N	(D)1.3
	USB data	Y	Y	(P,D)0.8
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
Dual-Band CDMA/EVDO Phone with Bluetooth	DC in	N	-	Y	E.U.T end
	Ear jack	N	-	Y	E.U.T 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, Icheon-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 (㎒)	**Upper frequency of measurement range** (㎒)
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 ㎓, whichever is lower

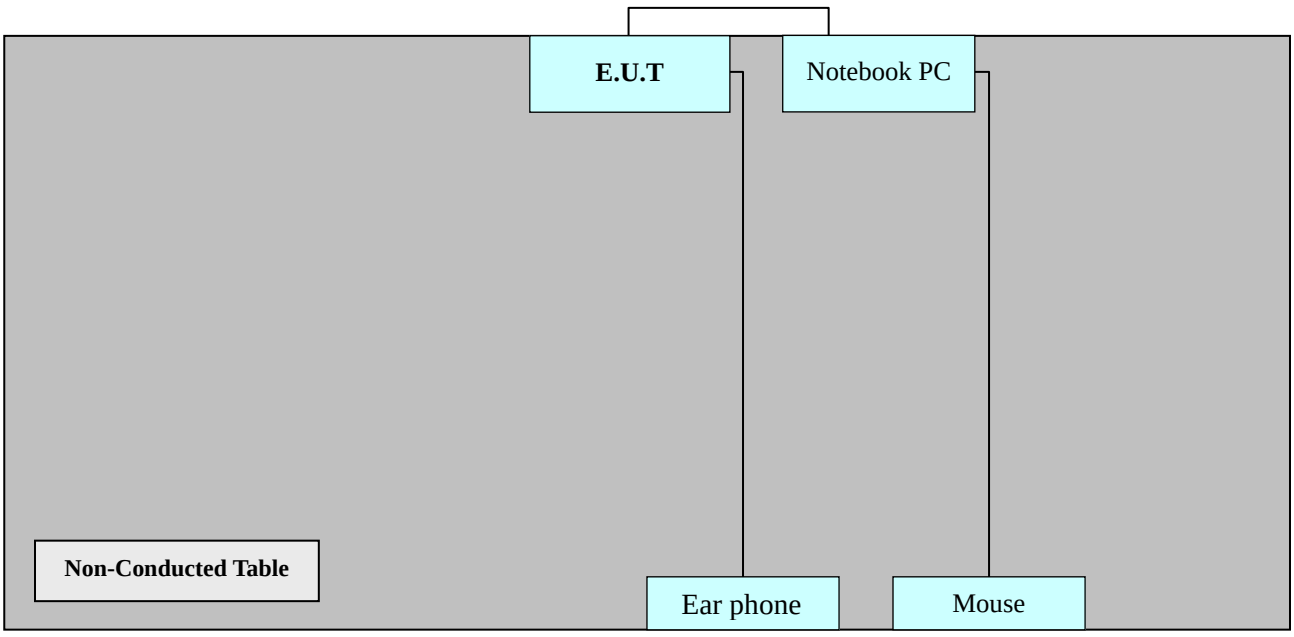
2. SYSTEM TEST CONFIGURATION

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

During preliminary tests, the following operating mode was investigated

Operation mode	The worst operating condition
CDMA Idle (835, 1 900)	
Data communication	○
Camera	

3. 2 Radiated Emission Test

During preliminary test, the following operation mode was investigated

Operation mode	The worst operating condition
CDMA Idle (835, 1 900)	
Data communication	○
Camera	

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 11.9 dB
Operating condition : Data communication mode
Detector : Quasi-Peak, Average (6 dB Bandwidth: 9 kHz)
Temperature : 23.2 °C
Humidity level : 45.3 %
Test date : July 02, 2009

Power Line Conducted Emissions			CISPR 22 Class B		
Frequency (MHz)	**Amplitude** (dBμV)	**Conductor**	**Result**	**Limit** (dBμV)	**Margin** (dB)
4.9280	40.7	HOT	Quasi-Peak	56.0	15.3
4.9920	34.1	HOT	Average	46.0	11.9
0.2020	49.5	NEUTRAL	Quasi-Peak	63.5	14.0
0.2020	41.5	NEUTRAL	Average	53.5	12.0

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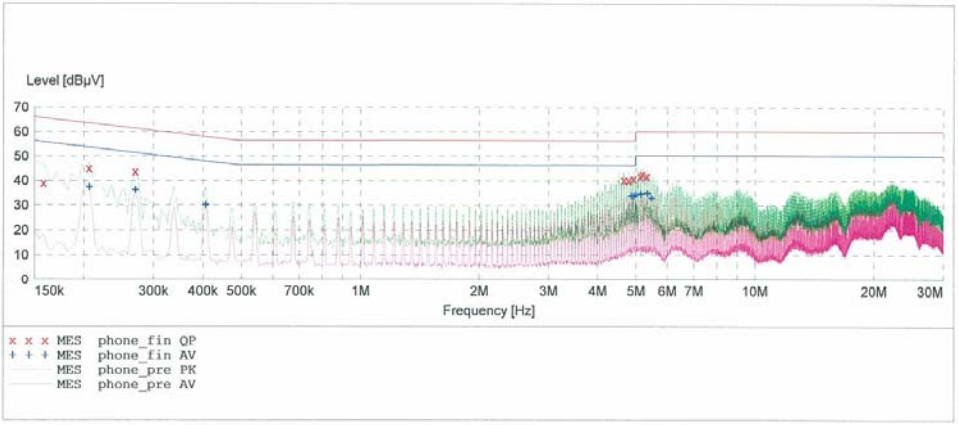
EUT: C741
Manufacturer: CASIO HITACHI Mobile Communications Co., Ltd.
Operating Condition: Data Communication
Test Site: SHIELD ROOM
Operator: KH-KIM
Test Specification: CISPR22 Class B
Comment: H

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 Average	10.0 ms	9 kHz	None
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None



MEASUREMENT RESULT: "phone_fin QP"

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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.158000	38.90	10.1	66	26.7	---	---
0.206000	44.90	10.1	63	18.5	---	---
0.270000	43.50	10.1	61	17.6	---	---
4.656000	40.10	10.3	56	15.9	---	---
4.788000	40.00	10.3	56	16.0	---	---
4.928000	40.70	10.3	56	15.3	---	---
5.128000	41.70	10.3	60	18.3	---	---
5.196000	42.50	10.4	60	17.5	---	---
5.332000	41.60	10.4	60	18.4	---	---

MEASUREMENT RESULT: "phone_fin AV"

7/2/2009 3:39PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.206000	37.30	10.1	53	16.1	---	---
0.270000	36.10	10.1	51	15.0	---	---

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MEASUREMENT RESULT: "phone_fin AV"

(continued)

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.406000	30.00	10.1	48	17.7	---	---
4.860000	33.70	10.3	46	12.3	---	---
4.928000	33.50	10.3	46	12.5	---	---
4.992000	34.10	10.3	46	11.9	---	---
5.128000	34.40	10.3	50	15.6	---	---
5.332000	34.90	10.4	50	15.1	---	---
5.464000	32.80	10.4	50	17.2	---	---

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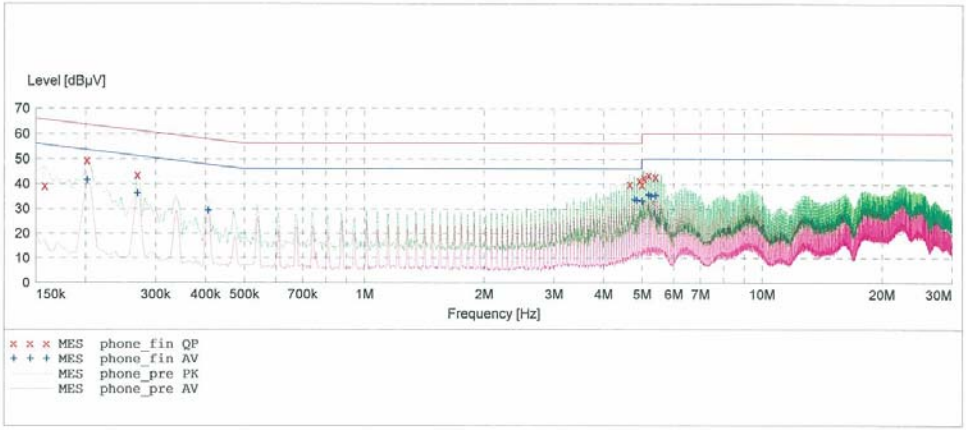
EUT: C741
Manufacturer: CASIO HITACHI Mobile Communications Co., Ltd.
Operating Condition: Data Communication
Test Site: SHIELD ROOM
Operator: KH-KIM
Test Specification: CISPR22 Class B
Comment: N

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 Average	10.0 ms	9 kHz	None
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None



MEASUREMENT RESULT: "phone_fin QP"

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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.158000	39.20	10.1	66	26.4	---	---
0.202000	49.50	10.1	64	14.0	---	---
0.270000	43.60	10.1	61	17.5	---	---
4.652000	39.90	10.3	56	16.1	---	---
4.920000	41.40	10.3	56	14.6	---	---
4.988000	39.80	10.3	56	16.2	---	---
5.056000	42.50	10.3	60	17.5	---	---
5.192000	43.70	10.4	60	16.3	---	---
5.396000	42.90	10.4	60	17.1	---	---

MEASUREMENT RESULT: "phone_fin AV"

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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.202000	41.50	10.1	54	12.0	---	---
0.270000	36.20	10.1	51	14.9	---	---

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MEASUREMENT RESULT: "phone_fin AV"

(continued)

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.406000	29.40	10.1	48	18.4	---	---
4.788000	33.70	10.3	46	12.3	---	---
4.856000	33.60	10.3	46	12.4	---	---
4.992000	33.20	10.3	46	12.8	---	---
5.192000	35.60	10.4	50	14.4	---	---
5.260000	35.10	10.4	50	14.9	---	---
5.396000	35.40	10.4	50	14.6	---	---

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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 5.2 dB
Operating condition	: Data communication mode
Detector	: Quasi-Peak (6 dB Bandwidth: 120 ㎑)
Temperature	: 27.8 °C
Humidity level	: 48.0 %
Test date	: July 10, 2009

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
㎒	dB ㎶	dB /m	dB	(H/V)	dB ㎶/m	dB ㎶/m	dB
47.0	18.4	12.5	0.7	V	31.6	40.0	8.4
86.2	16.2	8.3	1.0	H	25.5	40.0	14.5
151.0	19.8	12.6	1.3	H	33.7	43.5	9.8
233.9	28.3	10.9	1.6	H	40.8	46.0	5.2
233.9	21.7	10.9	1.6	V	34.2	46.0	11.8
480.0	15.9	17.0	2.4	V	35.3	46.0	10.7

Note)

For measurement over 1 ㎓, noise level was more than 10 dB below the limit.

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 dBμV is obtained. The antenna factor of 7.4 dB/m and a cable factor of 1.1 dB are added. The 30 dBμV/m value is mathematically converted to its corresponding level in μV/m.

FS = 21.5 + 7.4 + 1.1 = 30 dBμV/m

[Radiated Emission limits]

Frequency of emission (㎒)	Field strength	
	μV/m	dBμV/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

Type	Manufacturer	Model Number	Next CAL Date
EMI Test Receiver	Rohde & Schwarz	ESI40	2009.10.31
EMI Test Receiver	Rohde & Schwarz	ESCI	2010.06.02
LISN	Rohde & Schwarz	ESH3-Z5	2010.02.06
LISN	Rohde & Schwarz	ENV216	-
Attenuator	Rohde & Schwarz	ESH3-Z2	2009.10.30
Trilog Antenna	Schwarzbeck	VULB9160	2010.12.18
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	2010.01.09

7. CONCLUSION

The data collected shows that the **CASIO HITACHI Mobile Communications Co., Ltd. Model: C741, Dual-Band CDMA/EVDO Phone with Bluetooth. FCC ID: TYKNX9290** complies with §15.107 and §15.109 of the FCC rules.