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EMI CERTIFICATION REPORT

SHARP CORPORATION

22-22 Nagaike-cho, Abeno-ku, Osaka
545-8522 Japan

Date of Issue: January 27, 2010
Test Report No.: HCTE1001FE20

Test Site: HCT CO., LTD.
HCT FRN: 0005-8664-21

FCC ID: **APYNAR0067**

Rule Part(s) / Standard(s)	: FCC PART 15 Subpart B / CISPR 22 Class B
Equipment (EUT) Type	: Slide Dual-band CDMA Phone with Bluetooth/WLAN
Trade Name / Model Name(s)	: SHARP CORPORATION / PB10ZU
Port / Connector(s)	: USB Data Port / Headset 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
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Approved by
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1. GENERAL INFORMATION

1.1 Product Description

The SHARP CORPORATION, Model: PB10ZU, Slide Dual-band CDMA Phone with Bluetooth/WLAN.

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

Model	PB10ZU
FCC ID	APYNAR0067
E.U.T Type	Slide Dual-band CDMA Phone with Bluetooth/WLAN
TX Frequency	824.70 ㎒ to 848.31 ㎒ (CDMA 835) 1 851.25 ㎒ to 1 908.75 ㎒ (CDMA 1 900)
RX Frequency	869.70 ㎒ to 893.31 ㎒ (CDMA 835) 1 931.25 ㎒ to 1 988.75 ㎒ (CDMA 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
Slide Dual-band CDMA Phone with Bluetooth/WLAN	Sharp	PB10ZU	APYNAR0067	TA
Notebook PC	Sam-Sung	NT-R519	DoC	E.U.T
Notebook PC adaptor	DELTA	ADP-60ZH D AD-6019R	-	Notebook PC
Mouse	Microsoft	Intellimouse optical USB and PS/2 compatible	DoC	Notebook PC
USB cable	-	-	-	E.U.T Notebook PC
Headset	-	-	-	E.U.T

1.4 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (M)
Slide Dual-band CDMA Phone with Bluetooth/WLAN	Headset jack	-	N	(D)1.2
	USB data	Y	Y	(P,D)1.4
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
Slide Dual-band CDMA Phone with Bluetooth/WLAN	Headset 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, 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 (㎒)	**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

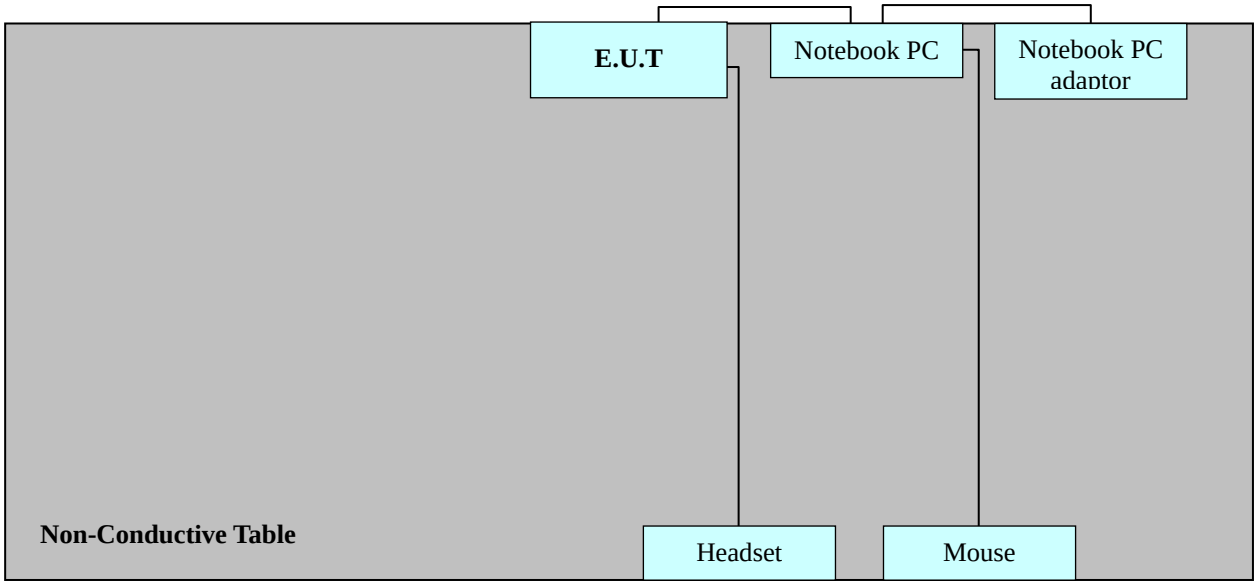
2. SYSTEM TEST CONFIGURATION

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
Data Communication	○

3. 2 Radiated Emission Test

During preliminary tests, the following operating mode was investigated:

Operation Mode	The Worst Operating Condition
Data Communication	○

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 10.1 dB
Operating condition : Data Communication mode
Detector : Quasi-Peak, Average (6 dB Bandwidth: 9 kHz)
Temperature : 22.0 °C
Humidity level : 38.0 %
Test date : January 21, 2010

Power Line Conducted Emissions			CISPR 22 Class B		
Frequency (MHz)	**Amplitude** (dBμV)	**Conductor**	**Result**	**Limit** (dBμV)	**Margin** (dB)
0.1500	54.2	NEUTRAL	Quasi-Peak	66.0	11.8
0.1500	55.9	HOT	Quasi-Peak	66.0	10.1
2.2280	30.9	NEUTRAL	Average	46.0	15.1
2.7200	33.2	HOT	Average	46.0	12.8

※ **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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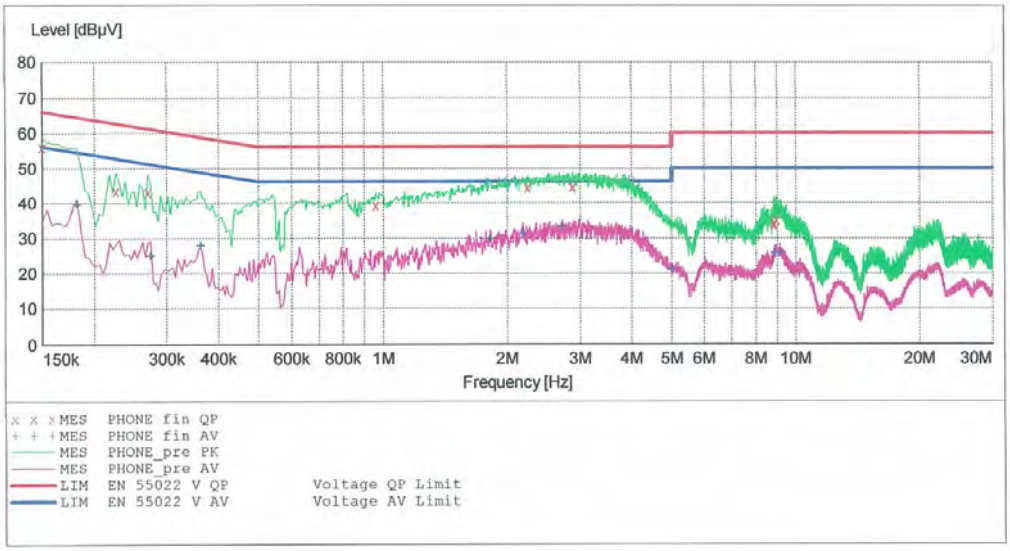
EUT: PB10ZU
Manufacturer: SHARP CORPORATION
Operating Condition: DATA MODE
Test Site: SHIELD ROOM
Operator: KH YOON
Test Specification: CISPR22 CLASS B
Comment: H

SCAN TABLE: "CISPR22 CLASS B"

Short Description:

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
0.150001	55.90	10.1	66	10.1	---	---
0.226001	43.40	10.1	63	19.2	---	---
0.270001	43.10	10.1	61	18.0	---	---
0.960000	39.30	10.1	56	16.7	---	---
2.244000	44.30	10.2	56	11.7	---	---
2.880000	44.50	10.2	56	11.5	---	---
8.852000	33.60	10.6	60	26.4	---	---
8.868000	34.20	10.6	60	25.8	---	---
8.992000	35.00	10.6	60	25.0	---	---

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MEASUREMENT RESULT: "PHONE_fin AV"

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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.182001	39.40	10.1	54	15.0	---	---
0.274001	24.90	10.1	51	26.1	---	---
0.362001	27.70	10.1	49	20.9	---	---
1.820000	29.70	10.2	46	16.3	---	---
2.184000	31.10	10.2	46	14.9	---	---
2.720000	33.20	10.2	46	12.8	---	---
5.000000	21.20	10.3	46	24.8	---	---
8.888000	25.70	10.6	50	24.3	---	---
9.152000	25.80	10.6	50	24.2	---	---

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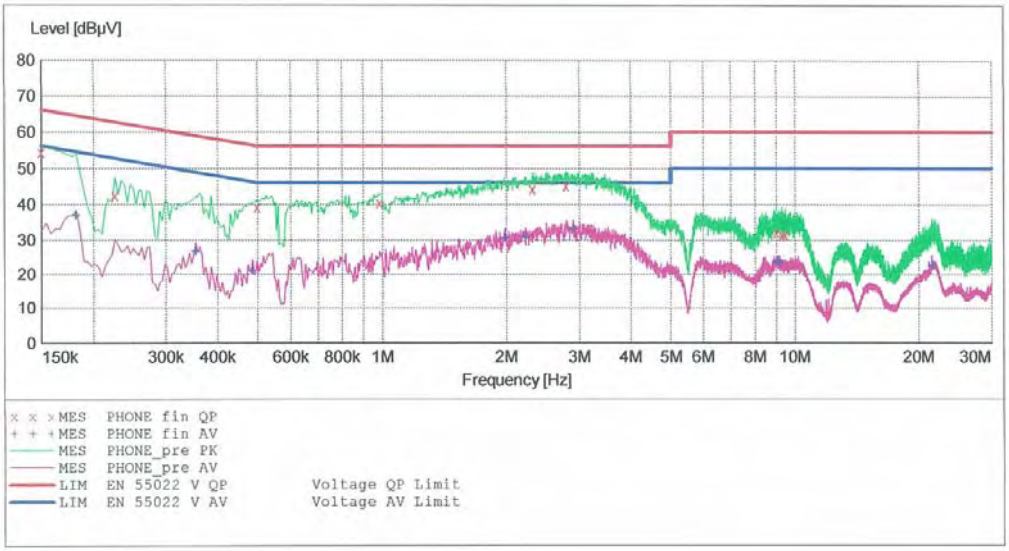
EUT: PB10ZU
Manufacturer: SHARP CORPORATION
Operating Condition: DATA MODE
Test Site: SHIELD ROOM
Operator: KH YOON
Test Specification: CISPR22 CLASS B
Comment: N

SCAN TABLE: "CISPR22 CLASS B"

Short Description:

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
0.150001	54.20	10.1	66	11.8	---	---
0.226001	42.60	10.1	63	20.0	---	---
0.498001	39.30	10.1	56	16.8	---	---
0.988000	40.50	10.1	56	15.5	---	---
2.316000	44.20	10.2	56	11.8	---	---
2.796000	45.10	10.2	56	10.9	---	---
9.028000	32.20	10.6	60	27.8	---	---
9.316000	31.30	10.7	60	28.7	---	---
9.500000	31.50	10.7	60	28.5	---	---

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MEASUREMENT RESULT: "PHONE_fin AV"

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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.182001	36.80	10.1	54	17.6	---	---
0.354001	26.60	10.1	49	22.2	---	---
0.486001	21.00	10.1	46	25.2	---	---
1.988000	30.60	10.2	46	15.4	---	---
2.228000	30.90	10.2	46	15.1	---	---
2.904000	33.20	10.2	46	12.8	---	---
9.076000	23.70	10.6	50	26.3	---	---
9.180000	23.40	10.6	50	26.6	---	---
21.488000	22.70	11.5	50	27.3	---	---

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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 6.8 dB
Operating condition : Data Communication mode
Detector : Quasi-Peak (6 dB Bandwidth: 120 ㎑)
Temperature : 12.0 °C
Humidity level : 42.3 %
Test date : January 21, 2010

Frequency	Reading	Ant. Factor	Cable Loss	Ant. POL	Total	Limit	Margin
㎒	dBμV	dB/m	dB	(H/V)	dBμV/m	dBμV/m	dB
389.0	17.7	15.1	2.2	H	35.0	46.0	11.0
400.5	16.4	15.4	2.2	H	34.0	46.0	12.0
500.6	19.1	17.3	2.5	V	38.9	46.0	7.1
720.0	15.1	21.2	2.9	H	39.2	46.0	6.8
749.7	14.1	22.0	3.0	H	39.1	46.0	6.9
800.0	9.8	22.2	3.1	H	35.1	46.0	10.9

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
Conducted Emission				
☒	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
Radiated Emission				
☒	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 **SHARP CORPORATION, Model: PB10ZU, Slide Dual-band CDMA Phone with Bluetooth/WLAN. FCC ID: APYNAR0067** complies with §15.107 and §15.109 of the FCC rules.