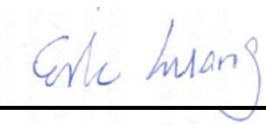
FCC SAR Test Report

APPLICANT	:	PEGATRON CORPORATION
EQUIPMENT	:	Tablet
BRAND NAME	:	TOSHIBA
MODEL NAME	:	TOSHIBA AT10-A、TOSHIBA AT15-A
FCC ID	:	VUIPDAPDAAT10-A
STANDARD	:	FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2003 FCC OET Bulletin 65 Supplement C (Edition 01-01)

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.



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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA322823-05	Rev. 01	Based on original SAR report. Report No. FA322823 Rev.01 includes simultaneous transmission and RF Exposure analysis with Bluetooth Keyboard cover.	May. 13, 2013

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **PEGATRON CORPORATION Tablet, TOSHIBA, TOSHIBA AT10-A、TOSHIBA AT15-A**, are as follows.

<Highest Simultaneous transmission SAR>

Wireless		Equipment Class	Exposure Position	Highest Reported Simultaneous Transmission 1g-SAR (W/kg)
Tablet PC	Bluetooth	DSS	Bottom (0 cm Gap)	0.43
Bluetooth Keyboard	Bluetooth	DSS		

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2003 and FCC OET Bulletin 65 Supplement C (Edition 01-01).

2. Administration Data

2.1 Testing Laboratory

Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978

2.2 Applicant

Company Name	PEGATRON CORPORATION
Address	No. 76, Ligong St., Beitou District, Taipei City 112

2.3 Manufacturer

Company Name	Toshiba Corporation
Address	1-1, Shibaura 1-chome, Minato-ku, Tokyo 105-8001, Japan

3. General Information

3.1 Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT	Tablet
Brand Name	TOSHIBA
Model Name	TOSHIBA AT10-A、TOSHIBA AT15-A
FCC ID	VUIPDAPDAAT10-A
TX Frequency	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz
Antenna Type	WLAN: Chip Antenna Bluetooth: Chip Antenna NFC: Loop Antenna
Modulations	802.11b: DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth : GFSK Bluetooth EDR : π/4-DQPSK, 8-DPSK Bluetooth 4.0 LE: GFSK NFC : ASK
Remark: 1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description. 2. Voice call is not supported. 3. 5600 MHz ~ 5650 MHz is notched. 4. Bluetooth keyboard cover will combination with this host. Max Bluetooth Average Power is -2.18dBm refer to FCC ID: O62U68B, Report No. FR341228. 5. Since WLAN function of the tablet cannot transmit simultaneously with the keyboard, the only possible simultaneous transmission is Bluetooth of tablet and the keyboard during user typing.	

Bluetooth Keyboard Cover Product Feature & Specification	
Brand Name	TOSHIBA
Model Name	U68B
FCC ID	O62U68B
TX Frequency	Bluetooth: 2402 MHz ~ 2480 MHz
Antenna Type	Bluetooth: PCB Antenna
Modulations	Bluetooth 2.1 BDR (1Mbps) : GFSK

3.2 Applied Standard

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

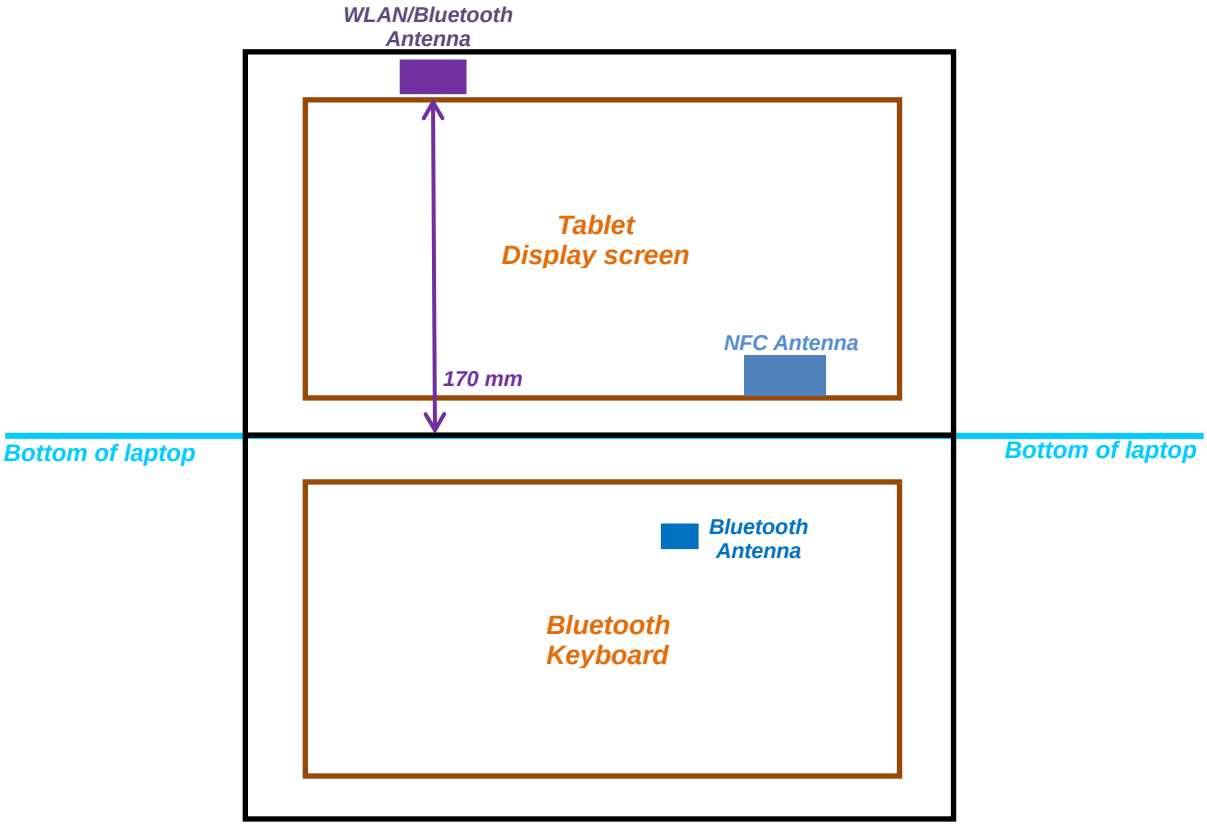
- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2003
- FCC OET Bulletin 65 Supplement C (Edition 01-01)
- FCC KDB 447498 D01 v05
- FCC KDB 248227 D01 v01r02
- FCC KDB 616217 D04 v01

3.3 Device Category and SAR Limits

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. Limit for General Population/Uncontrolled exposure should be applied for this device, it is 1.6 W/kg as averaged over any 1 gram of tissue.

4. Exposure Positions Consideration

<Laptop Mode>



<SAR test exclusion of Bluetooth keyboard>

Exposure Position	Wireless Interface	**Bluetooth**
	Maximum power (dBm)	-2.18
	Tune-up Maximum rated power (mW)	0.61
Bottom	Antenna to user (mm)	5
	SAR exclusion threshold	0.19
	SAR testing required?	NO

<SAR test exclusion of Tablet PC>

Exposure Position	Wireless Interface	**802.11b**	**802.11a**	**Bluetooth**
	Maximum power (dBm)	13	12.5	3
	Tune-up Maximum rated power (mW)	19.95	17.78	2.00
Bottom	Antenna to user (mm)	170	170	170
	SAR exclusion threshold (mW)	1295.6	1262.15	1295.25
	SAR testing required?	NO	NO	NO

Note:

1. Maximum power is the source-based time-average power and represents the maximum RF output power among production units
2. Per KDB 447498 D01v05, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
3. Per KDB 447498 D01v05, standalone SAR test exclusion threshold is applied; If the distance of the antenna to the user is < 5mm, 5mm is used to determine SAR exclusion threshold
4. Per KDB 447498 D01v05, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:
   [(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] ·[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR
   - f(GHz) is the RF channel transmit frequency in GHz
   - Power and distance are rounded to the nearest mW and mm before calculation
   - The result is rounded to one decimal place for comparison
5. Per KDB 447498 D01v05, at 100 MHz to 6 GHz and for *test separation distances* > 50 mm, the SAR test exclusion threshold is determined according to the following
   a) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100 MHz to 1500 MHz
   b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz

5. Simultaneous Multi-band Transmission Analysis

Applicable Simultaneous Transmission Combination	
No.	**Transmitter on Tablet PC + Transmitter on Bluetooth Keyboard**
1.	**Bluetooth(data) + Bluetooth(data)**

Note:

1. Since WLAN function of the tablet cannot transmit simultaneously with the Keyboard, the only possible simultaneous transmission is Bluetooth of tablet and the keyboard during user typing
2. The Scaled SAR summation is calculated based on the same configuration and test position.
3. Per KDB 447498 D01v05, simultaneous transmission SAR is compliant if,
   i) Scalar SAR summation < 1.6W/kg.
   ii) SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (*min. separation distance, mm*), and the peak separation distance is determined from the square root of $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$, where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates of the extrapolated peak SAR locations in the zoom scan
   If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary
   iii) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg
4. For simultaneous transmission analysis, WLAN/Bluetooth SAR is estimated per KDB 447498 D01v05 based on the formula below.
   i) (*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)]·[$\sqrt{}$f(GHz)/*x*] W/kg for *test separation distances* ≤ 50 mm; where *x* = 7.5 for 1-g SAR, and *x* = 18.75 for 10-g SAR.
   ii) 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the *test separation distances* is > 50 mm.

<Estimated SAR of Laptop Mode>

Wireless Mode	Tablet PC	Bluetooth Keyboard
	Bluetooth Max Power 3dBm	Bluetooth Max Power -2.18dBm
Exposure Position	Bottom 0cm gap	Bottom 0cm gap
Test separation	0 mm	0 mm
Antenna to user distance	170 mm	5 mm
Estimated SAR (W/kg)	0.4 W/kg	0.025 W/kg

<Simultaneous Transmission>

	Tablet PC		Bluetooth Keyboard	**Tablet PC + Bluetooth Keyboard**
Position	Wireless	Estimated SAR (W/kg)	Estimated SAR (W/kg)	
Bottom at 0cm	Bluetooth	0.4	0.025	**0.43**

6. References

[1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”

[2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992

[3] IEEE Std. 1528-2003, “Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, December 2003

[4] FCC OET Bulletin 65 (Edition 97-01) Supplement C (Edition 01-01), “Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields”, June 2001

[5] SPEAG DASY System Handbook

[6] FCC KDB 248227 D01 v01r02, “SAR Measurement Procedures for 802.11 a/b/g Transmitters”, May 2007

[7] FCC KDB 447498 D01 v05, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, October 2012

[8] FCC KDB 616217 D04 v01, “SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers”, October 2012