



CERTIFICATE OF CONFORMITY

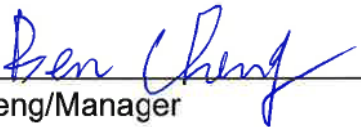
For the following information

Ref. File No.: C1M1503003

Product	Intel® Compute Stick
Test Model	STCK1A32WFC
Family Product Code	xSTCK1xFCx (Where x may be a combination of alphanumeric characters or blank)
Brand Name	Intel®
Applicant	INTEL CORP.
Test Report Number	EM-RF150019
Standards	EN 62311:2008

We hereby certify that the above product has been tested by us with the listed standards and found in compliance with the council R&TTE directive 1999/5/EC. The test data & results are issued on the EMF test report no. EM-RF150019.

Signature



Ben Cheng/Manager
Date: 2015. 03. 18

Test Laboratory:
AUDIX Technology Corporation, EMC Department
Web Site: www.audixtech.com

The statement is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo.

EMF TEST REPORT
INTEL CORP.
Intel® Compute Stick
Test Model: STCK1A32WFC
Family Product Code: xSTCK1xFCx
(Where x may be a combination of alphanumeric characters or blank)
Brand: Intel®

Prepared for : INTEL CORP.
HF3-96, 5200 NE ELAM YOUNG
PKY, HILLSBORO, OR 97124 USA

Prepared by : AUDIX Technology Corporation
EMC Department
No. 53-11, Dingfu, Linkou Dist.,
New Taipei City 244, Taiwan

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File Number : C1M1503003
Report Number : EM-RF150019
Date of Test : 2015. 03. 09
Date of Report : 2015. 03. 18

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EMF TEST REPORT

Applicant : INTEL CORP.
EUT Description : Intel® Compute Stick
(A) Test Model : STCK1A32WFC
(B) Family Product Code : xSTCK1xFCx
(Where x may be a combination of alphanumeric characters or blank)
(C) Serial No. : N/A
(D) Brand : Intel®
(E) Power Supply : DC 5V, 2A
(F) Test Voltage : AC 230V, 50Hz (Via AC Adapter)

Measurement Standard Used:

EN 62311:2008

Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz – 300 GHz)

The device described above is tested by AUDIX Technology Corporation, and found compliance with the requirement of the above standards. The client should not use it to claim product endorsement by any government agencies.

This report applies to above tested sample only and shall not be reproduced in part without written approval of AUDIX Technology Corporation.

Date of Test: 2015. 03. 09

Date of Report: 2015. 03. 18

Producer: Annie Yu
(Annie Yu/Administrator)

Signatory: Ben Cheng
(Ben Cheng/Manager)

1. DESCRIPTION OF REVISION HISTORY

Edition No.	Date of Rev.	Revision Summary	Report No.
0	2015. 03. 18	Original Report	EM-RF150019

2. SUMMARY OF MEASUREMENTS AND RESULTS

2.1. Description of Standards and Results

Clause (EN 62311)	Description of Item	Results
3.6	Electric field strength (E)	PASS

3. GENERAL INFORMATION

3.1. Description of Device (EUT)

Product	Intel® Compute Stick
Test Model	STCK1A32WFC
Family Product Code	xSTCK1xFCx (Where x may be a combination of alphanumeric characters or blank)
Serial Number	N/A
Brand	Intel®
Applicant	INTEL CORP. HF3-96, 5200 NE ELAM YOUNG PKY, HILLSBORO, OR 97124 USA
Power Supply Rating	Refer to AC adapter rating.
Fundamental Range	802.11b/g/n-HT20: 2412MHz ~ 2472MHz 802.11n-HT40: 2422MHz ~ 2462MHz Bluetooth and BLE: 2402MHz ~ 2480MHz
Frequency Channel	802.11b/g/n-HT20: 13 channels 802.11n-HT40: 7 channels Bluetooth: 79 channels BLE: 40 channels
Radio Technology	802.11b: DSSS Modulation (DBPSK/DQPSK/CCK) 802.11g: OFDM Modulation (BPSK/QPSK/16QAM/64QAM) 802.11n: OFDM Modulation (BPSK/QPSK/16QAM/64QAM) Bluetooth: FHSS (GFSK, $\pi/4$ DQPSK, 8-DPSK) BLE: GFSK
Data Transfer Rate	802.11b: 1/2/5.5/11Mbps 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 150Mbps Bluetooth: 1/2/3Mbps BLE: 1Mbps
Antenna Type	PIFA Antenna, Linking Technology Inc., M/N T-543-8321061
Antenna Gain	2.95dBi
Interface Ports	HDMI Port *1 USB 2.0 Port *1 Micro USB 2.0 *1 Micro SD Card Slot *1
Date of Receipt of Sample	2015. 02. 26

3.2. Descriptions of Key Components and Operating Modes

3.2.1. List of key components under test

Item	Supplier	Model / Type	Character
Mother Board	Intel	STCK1A32WFC-IS	With 32G eMMC and 2GB memory
		STCK1A8LFC-IS	With 8G Emmc and 1GB memory
CPU (Socket: BGA592)	Intel	Intel® Atom™ CPU Z3735F@1.33GHz	1.33 GHz
Memory	HYNIX	H5TC4G63AFR-PBA	2GB IC DDR3L SDRAM.256M*16
		H5TC2G63FFR	1GB IC DDR3L SDRAM.128M*16
	Micron	MT41K128M16JT	1GB IC DDR3L SDRAM.128M*16
eMMC	SAMSUNG	KLMBG4GEND-B031	32G
		KLM8G1GEAC-B031	8G
	TOSHIBA	THGBMBG8D4KBAIR	32G
		THGBMBG6D1KBAIL	8G
	KINGSTON	EMMC32G-S100-WB9	32G
		EMMC08G-S100	8G
Wi-Fi +BT Combo Module	REALTEK	RTL8723BS	802.11 b/g/n Wireless LAN Bluetooth 2.1+EDR/BT4.0 for BT peripherals
Antenna	Linking Technology Inc.	T-543-8321061	PIFA Antenna, 2.95dBi
AC Adapter	Asian Power Device Inc.	WB-10G05R (Wall-mount, 2C)	AC Input: 100-240V~, 50-60Hz, 0.4A Max. DC Output: 5V, 2A
Micro USB Cable	Shielded, Detachable, 1.0m		
HDMI Cable	Shielded, Detachable, 0.2m		

Remark: For a more detailed features description, please refer to the manufacturer’s specifications or the user manual.

3.2.2. List of operating modes under test

SKU #1 ~ 14		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Mother Board	Intel, STCK1A32WFC-IS	V	V	V	V	V	V	V	V	V	V	V	V	V	V
CPU	Intel, Z3735F	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Memory	HYNIX, H5TC4G63AFR-PBA	V	V	V	V	V	V	V	V	V	V	V	V	V	V
eMMC	SAMSUNG, KLMBG4GEND-B031	V			V	V	V	V	V	V	V	V	V	V	V
	TOSHIBA, THGBMBG8D4KBAIR		V												
	KINGSTON, EMMC32G-S100-WB9			V											
Wi-Fi +BT Combo Module	REALTEK, RTL8723BS	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Resolution	1920*1200 60Hz 32bit 200% Font Size	V	V	V							V	V	V	V	V
	1920*1080 60Hz 32bit 200% Font Size				V										
	1600*1200 60Hz 32bit 150% Font Size					V									
	1400*1050 60Hz 32bit 150% Font Size						V								
	1280*1024 75Hz 32bit 125% Font Size							V							
	1024*768 75Hz 32bit 100% Font Size								V						
	800*600 75Hz 32bit 100% Font Size									V					
Cable	with HDMI Cable	V	V	V	V	V	V	V	V	V		V	V	V	V
	without HDMI Cable										V				
AC Adapter	Asian, WB-10G05R	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Test Voltage	AC 100V, 50Hz											V			
	AC 110V, 60Hz	V	V	V	V	V	V	V	V	V					
	AC 120V, 60Hz												V		
	AC 220V, 60Hz													V	
	AC 230V, 50Hz														V

3.2.3. According to radiated emission pre-test result, the EUT collocates with following worst components (SKU #1), which are used to establish a basic configuration of system during test:

Item	Supplier	Model / Type	Character
Mother Board	Intel	STCK1A32WFC-IS	With 32G eMMC and 2GB memory
CPU (Socket: BGA592)	Intel	Intel® Atom™ CPU Z3735F@1.33GHz	1.33 GHz
Memory	HYNIX	H5TC4G63AFR-PBA	2GB IC DDR3L SDRAM.256M*16
eMMC	SAMSUNG	KLMBG4GEND-B031	32G
Wi-Fi +BT Combo Module	REALTEK	RTL8723BS	802.11 b/g/n Wireless LAN Bluetooth 2.1+EDR/BT4.0 for BT peripherals
Antenna	Linking Technology Inc.	T-543-8321061	PIFA Antenna, 2.95dBi
AC Adapter	Asian Power Device Inc.	WB-10G05R (Wall-mount, 2C)	AC Input: 100-240V~, 50-60Hz, 0.4A Max. DC Output: 5V, 2A
Micro USB Cable	Shielded, Detachable, 1.0m		
HDMI Cable	Shielded, Detachable, 0.2m		

3.2.4. The worst mode was reported for measurement.

Configuration Mode	Memory	eMMC	Resolution	Test Voltage
SKU #1	HYNIX, H5TC4G63AFR-PBA	SAMSUNG, KLMBG4GEND-B031	1920*1200 32bit 150% Font Size	AC 230V, 50Hz

3.3. Block Diagram of Test Setup

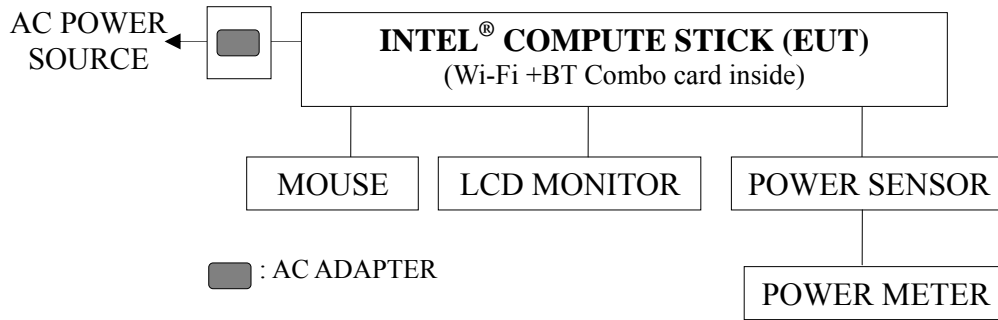
3.3.1. Support Peripheral Units

No.	Product	Brand	Model No.	Serial No.
1.	LCD Monitor	LG	22LK330-DB	N/A
2.	USB MOUSE	Targus	AMU94APZ-CN	N/A

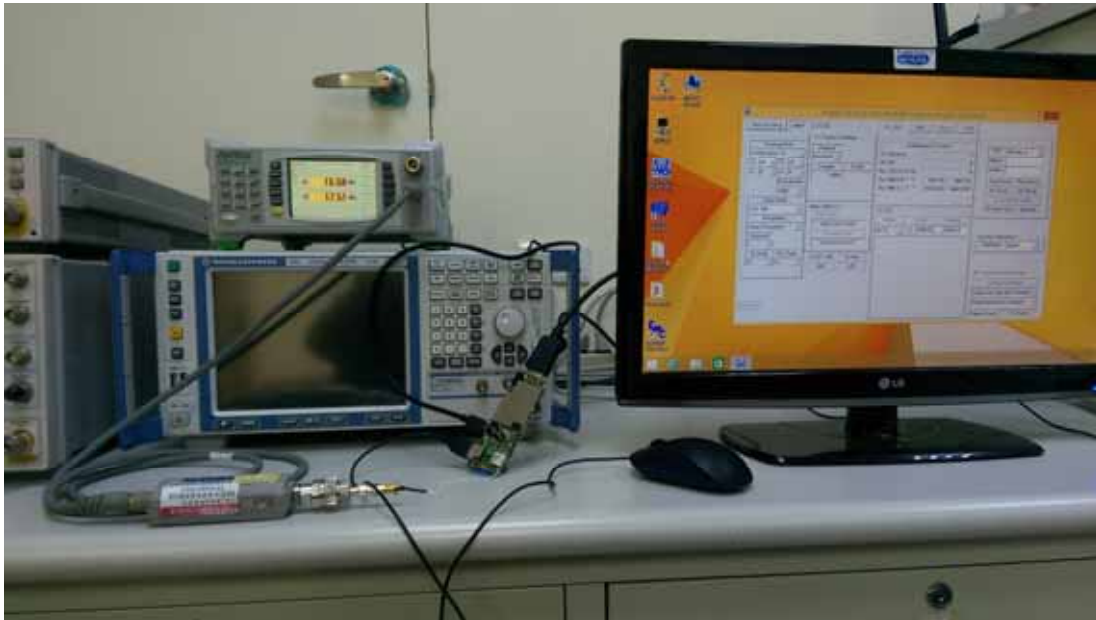
3.3.2. Used Cable Lists

No.	Cable Description Of The Above Support Units
1.	Non-Shielded, Detachable, 1.8m
2.	USB Cable: Non-Shielded, Undetachable, 1.0m

3.4. Block Diagram of Test Setup



3.5. View of Test Setup



3.6. Description of Test Facility

Name of Firm : **AUDIX Technology Corporation**
EMC Department
 No. 53-11, Dingfu, Linkou Dist.,
 New Taipei City 244, Taiwan

Test Site : Semi-Anechoic Chamber
 No. 53-11, Dingfu, Linkou Dist.,
 New Taipei City 244, Taiwan

NVLAP Lab. Code : 200077-0

TAF Accreditation No : 1724

3.7. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty
RF output power	2400MHz ~ 2483.5MHz	± 0.33dB

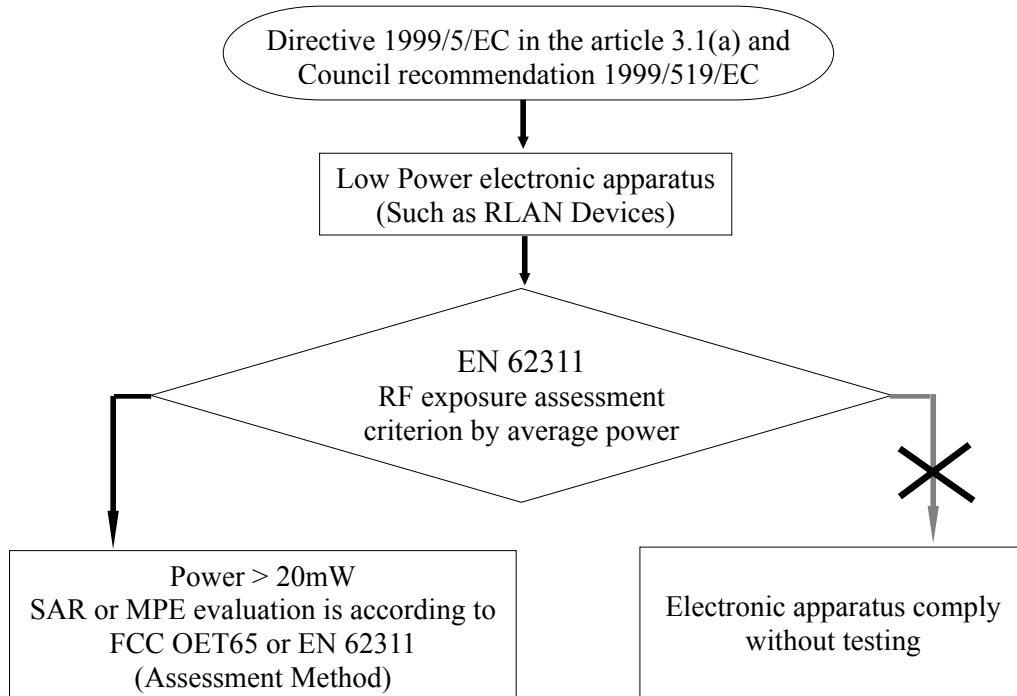
4. EN 62311 REQUIREMENT

4.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
1	Power Meter	Anritsu	ML2487A	6K00005406	2015. 02. 11	2016. 02. 10
2	Power Sensor	Anritsu	MA2491A	030873	2015. 02. 21	2016. 02. 20

4.2. Evaluation Routine

4.2.1. Low Power Electronic Apparatus for RF exposure evaluation routine



4.2.2. Reference Levels

Council Recommendation 1999/519/EC Annex III
 Reference levels for electric, magnetic and electromagnetic fields
 (0 Hz to 300 GHz, unperturbed rms values)

Frequency range	E-field Strength (V/m)	H-field Strength (A/m)	B-field (μT)	Equivalent plane wave power density S_{eq} (W/m ²)
0-1 Hz	–	3.2×10^4	4×10^4	–
1-8 Hz	10000	$3.2 \times 10^4 / f^2$	$4 \times 10^4 / f^2$	–
8-25 Hz	10000	$4000 / f$	$5000 / f$	–
0.025-0.8 kHz	$250 / f$	$4 / f$	$5 / f$	–
0.8-3 kHz	$250 / f$	5	6.25	–
3-150 kHz	87	5	6.25	–
0.15-1 MHz	87	$0.73 / f$	$0.92 / f$	–
1-10 MHz	$87 / f^{1/2}$	$0.73 / f$	$0.92 / f$	–
10-400 MHz	28	0.073	0.092	2
400-2000 MHz	$1.375 f^{1/2}$	$0.0037 f^{1/2}$	$0.0046 f^{1/2}$	$f / 200$
2-300 GHz	61	0.16	0.20	10

Notes:

1. f as indicated in the frequency range column.
2. For frequencies between 100 kHz and 10 GHz, S_{eq} , E^2 , H^2 , and B^2 are to be averaged over any six-minute period.
3. For frequencies exceeding 10 GHz, S_{eq} , E^2 , H^2 , and B^2 are to be averaged over any $68/f^{1.05}$ - minute period (f in GHz).
4. No E-field value is provided for frequencies < 1 Hz, which are effectively static electric fields. For most people the annoying perception of surface electric charges will not occur at field strengths less than 25 kV/m. Spark discharges causing stress or annoyance should be avoided.

4.2.3. Human Exposure Assessment

Classification of the Assessment Methods

The antenna of the product, under normal use condition is at least 20cm away from the body of the user. Warning statement to the user for keeping at least 20cm separation distance and the prohibition of operating to a person has been printed on the user’s manual. So, this product under normal use is located on electromagnetic far field between the human body.

Far Field Calculation Formula:

$$E = \eta_0 H = \frac{\sqrt{30PG(\theta\Phi)}}{r}$$

G = antenna gain relative to an isotropic antenna

θ, Φ = elevation and azimuth angles to point of investigation

r = distance from observation point to the antenna

η_0 = Characteristic impedance of free space

4.3. Test Information

EUT Test Information	
EUT	Intel® Compute Stick
Test Model	STCK1A32WFC
Test Program	Wi-Fi: Realtek 11n 8723B SDIO WLAN MP Diagnostic Program 32.20141201
	BT/BLE: Realtek Bluetooth MP – RTK_BT_CHIP_ID_RTL8723B
Test Date	2015. 03. 09
Test Condition	Temperature: 23

4.4. Test Results

PASSED.

The test results presented was worse modes in each bandwidth.

Test Mode: 802.11b

Channel	Channel Frequency (MHz)	Output Power-EIRP (dBm)	Output Power EIRP (mW)	E-Field Strength (V/m)	E-Field Strength Limit (V/m)
CH 7	2442	18.93	78.1628	7.6565	61

Channel	Channel Frequency (MHz)	Output Power-EIRP (dBm)	Output Power EIRP (mW)	Safety Distance for complying with 1999/519/EC (m)
CH 7	2442	18.93	78.1628	0.0251

Test Mode: BT (8DPSK)

Channel	Channel Frequency (MHz)	Output Power-EIRP (dBm)	Output Power EIRP (mW)	E-Field Strength (V/m)	E-Field Strength Limit (V/m)
CH 39	2441	8.30	6.7608	2.2518	61

Channel	Channel Frequency (MHz)	Output Power-EIRP (dBm)	Output Power EIRP (mW)	Safety Distance for complying with 1999/519/EC (m)
CH 39	2441	8.30	6.7608	0.0074