

CENTRE OF TESTING SERVICE INTERNATIONAL

OPERATE ACCORDING TO ISO/IEC 17025

FCC ID TEST REPORT

TEST REPORT NUMBER: CGZ3141209-01383-EF-R1



CENTRE OF TESTING SERVICE CO., LTD.

A101, No.65, Zhuji Highway, Tianhe District, Guangzhou, Guangdong, China





	TEST REPORT FOR FCC ID 47 CFR PART 15 OCT, 2013 Radio frequency devices
Report Reference No:	CGZ3141209-01383-EF-R1
Date of issue	03 March 2015
Testing Laboratory Name	CENTRE OF TESTING SERVICE CO., LTD.
Address:	A101, No.65, Zhuji Highway, Tianhe District, Guangzhou, Guangdong, China
Testing location/ procedure:	Full application of Harmonised standards ■
	Partial application of Harmonised standards \square Other standard testing method \square
Applicant's name:	BIT4ID SRL
Address	VIA COROGLIO, 57 - 80125 NAPOLI (NA) - ITALY
Test specification:	
Standard:	47 CFR PART 15 B OCT, 2013
Test Report Form No:	CTSEMC-1.0
TRF Originator:	CENTRE OF TESTING SERVICE CO., LTD.
Master TRF	Dated 2009-01
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Test item description	smartTOKEN (PKI TOKEN)
Trade Mark:	bit4id
Manufacturer	BIT4ID SRL
Model/Type reference:	tokenME Fips
Ratings:	DC 5V by USB port

Compiled by:

Result

Supervised by:

Approved by:

Kate zhang / File administrators

Duke yang / Technique principal

Vincent yao / Manager

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FCCID-TEST REPORT

Test Report No. : CGZ3141209-01383-EF-R1

03 March 2015 Date of issue

Type / Model	tokenME Fips
EUT	smartTOKEN (PKI TOKEN)
Applicant	BIT4ID SRL
Address	VIA COROGLIO, 57 - 80125 NAPOLI (NA) - ITALY
Telephone	+39-081 7625600
Fax	+39-081 19731930
Contact	ANTONIO CHELLO
Manufacturer	BIT4ID SRL
Address	VIA COROGLIO, 57 - 80125 NAPOLI (NA) - ITALY
Telephone	+39-081 7625600
Fax	+39-081 19731930
Contact	ANTONIO CHELLO
Factory	MW. FEP S.p.a.
Address	Via M. Stoppani, 23 - 34077 Ronchi dei Legionari (GO) - ITALY
Telephone	+39 0481 757717
Fax	1
Contact	Luca Mizzau

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1 TEST STANDARDS

The tests were performed according to following standards:

- 47 CFR PART 15 OCT, 2013
- ANSI C63.4-2003

2 SUMMARY

2.1 GENERAL REMARKS

Date of receipt of test sample	09 December 2014	
Testing commenced on	09~12 December 2014	
Testing concluded on	03 March 2015	

2.2 FINAL ASSESSMENT

The FCC requirements pertaining to the technical standards and tested operation modes ar
--

	_	Fulfilled.
--	---	------------

□ - **Not** fulfilled.

The equipment under test

- - Fulfils the FCC ID requirements cited on page 1.
- □ **Does** not fulfil the FCC ID requirements cited on page 1.

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3 EQUIPMENT UNDER TEST

3.1 Power supply system utilised

Power supply voltage : ■ DC 5V by Notebook;

Notebook power supply by AC 120V/60Hz

□ Others

3.2 Short description of the Equipment under Test (EUT)

Number of tested samples: Serial number: Prototype

3.3 EUT operation mode

The equipment under test was operated during the measurement under the following conditions:

■ Normal	
Operating Mode:	Normal
☐ The equipment un Test program (cus	der test was operated during the measurement under the following conditions tomer specific)
Emissions tests	: According to 47 CFR PART 15 B , searching for the highest disturbance.

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3.4 EUT configuration

(The CDF filled by the applicant can be viewed at the test laboratory.)

The following peripheral devices and interface cables were connected during the measurement: 3.4.1. Notebook

M/N	:	N/A
S/N		N/A
Manufacturer		Fujitsu
Power Cord		Unshielded, Detachabled, 1.5m , 3Pin
FCC		By DoC

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4 TEST ENVIRONMENT

4.1 Address of the test laboratory

A101, No.65, Zhuji Road, Tianhe District, Guangzhou, Guangdong, China Tel: +86-20-85543113 (32 lines) Fax: +86-20-38780406

4.2 Test facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L3394

CENTRE OF TESTING SERVICE CO., LTD. has been assessed and proved to be in compliance with CNAS-CL01: 2006 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

IC-Registration No.: 8374A

The 3m Alternate Test Site of **CENTRE OF TESTING SERVICE CO., LTD.** has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 8374A on May 22, 2014.

FCC-Registration No.: 971995

CENTRE OF TESTING SERVICE CO., LTD., EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration No.971995, July 13,2012.

4.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	25-75 %
Atmospheric pressure:	86-106 kPa

4.4 Definitions of symbols used in this test report

- - The black square indicates that the listed condition, standard or equipment is applicable for this report.
- □ The empty square indicates that the listed condition, standard or equipment is **not** applicable for this report.

4.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the CTS quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

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4.6 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Conduction disturbance	150kHz~30MHz	±1.22dB	(1)
Power disturbance	30MHz~300MHz	±1.38dB	(1)
	30MHz~300MHz	±3.14dB	(1)
Radiation emission	300MHz~1000MHz	±3.18dB	(1)
(3m)	1GHz~26.5GHz	±3.54dB	(1)

⁽¹⁾ This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

4.7 Test Description

4.7.1 Description of Standards and Results

EMISSION			
Description of Test Item	Results		
Conducted Emission Test	47 CFR PART 15.107 OCT, 2013 ANSI C63.4-2003	PASS Class B	
Radiated Emission Test	47 CFR PART 15.109 OCT, 2013 ANSI C63.4-2003	PASS Class B	

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5 TEST CONDITIONS AND RESULTS

5.1 Power Line Conducted Emission Test

For test instruments and accessories used see section 6 part 6.2.

5.1.1 Description of the test location

Test location : Shielding Room

5.1.2 Description of the test set-up

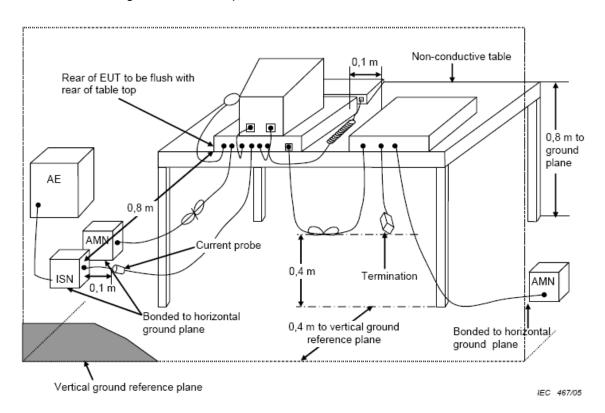
5.1.2.1 Test procedure

The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N). This provides a 50 ohm coupling impedance for the EUT. Please refer the block diagram of the test setup and photographs. let EUT working in test mode, then test it. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC Part 15 on Conducted Emission Test.

The frequency range from 150kHz to 30MHz is checked

The EUT is normal during the test, and the results of the maximum emanation are recorded

5.1.2.2 Block Diagram of Test Setup



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5.1.3 Limits of disturbance (FCC Part 15.107 Class B)

		Maximum RF Line Voltage	
Frequ	uency	Quasi-Peak Level	Average Level
	20.10)	dB(μV)	dB(μV)
150kHz	~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz	~ 5MHz	56	46
5MHz	~ 30MHz	60	50

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

5.1.4 Test result

The requirements are	Fulfilled
Band width	9kHz
Frequency range	0.15kHz - 30 MHz
Min. limit margin	>12.29 at 0.15MHz - 30 MHz

Remarks: The limits are kept. For detailed results, please see the following page(s).

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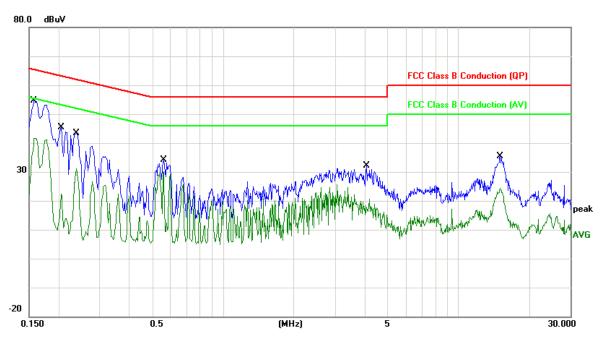




5.1.5 Test protocol

Test point:	L	Resu	ult:	■ - passed
Operation mode	Normal			□ - not passed
Remarks:				•

EUT	smartTOKEN (PKI TOKEN)
Power Supply	AC 120V/60Hz
Test Condition	Ambient Temperature: 24°C Humidity: 56%
Operator	Eric
Model No.:	tokenME Fips



No.	Frequency	Factor	Reading	Level	Limit	Margin	Detector
	(MHz)	(dB)	(dBμV)	(dBμV))	(dBμV)	(dB)	
1	0.1580	9.78	43.18	52.96	65.56	-12.60	QP
2	0.1580	9.78	27.81	37.59	55.56	-17.97	AVG
3	0.2060	9.78	26.85	36.63	63.36	-26.73	QP
4	0.2060	9.78	9.99	19.77	53.36	-33.59	AVG
5	0.2380	9.78	32.08	41.86	62.16	-20.30	QP
6	0.2380	9.78	18.14	27.92	52.16	-24.24	AVG
7	0.5620	9.84	21.38	31.22	56.00	-24.78	QP
8	0.5620	9.84	12.56	22.40	46.00	-23.60	AVG
9	4.0780	9.91	13.42	23.33	56.00	-32.67	QP
10	4.0780	9.91	2.29	12.20	46.00	-33.80	AVG
11	15.1340	9.94	18.86	28.80	60.00	-31.20	QP
12	15.1340	9.94	10.37	20.31	50.00	-29.69	AVG

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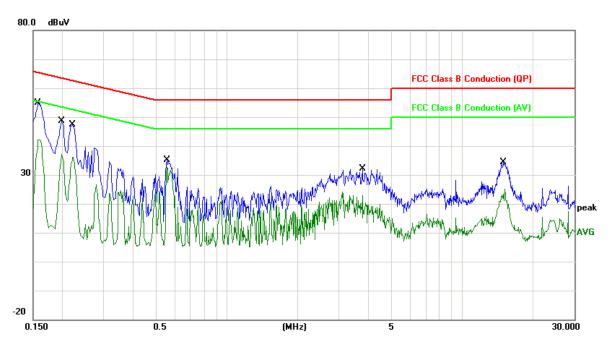
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No.	Frequency	Factor	Reading	Level	Limit	Margin	Detector
	(MHz)	(dB)	(dBμV)	(dBμV))	(dBμV)	(dB)	
1	0.1580	9.78	43.49	53.27	65.56	-12.29	QP
2	0.1580	9.78	28.58	38.36	55.56	-17.20	AVG
3	0.1980	9.78	37.53	47.31	63.69	-16.38	QP
4	0.1980	9.78	23.27	33.05	53.69	-20.64	AVG
5	0.2220	9.78	32.46	42.24	62.74	-20.50	QP
6	0.2220	9.78	15.35	25.13	52.74	-27.61	AVG
7	0.5580	9.84	22.75	32.59	56.00	-23.41	QP
8	0.5580	9.84	17.98	27.82	46.00	-18.18	AVG
9	3.7660	9.90	15.12	25.02	56.00	-30.98	QP
10	3.7660	9.90	6.34	16.24	46.00	-29.76	AVG
11	15.0300	9.94	18.34	28.28	60.00	-31.72	QP
12	15.0300	9.94	10.17	20.11	50.00	-29.89	AVG

Note:Level=Reading+Factor. Margin= Limit-Level

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5.2 Radiated disturbance (electric field)

For test instruments and accessories used see section 6 part 6.1.

5.2.1 Description of the test location

Test location : Semi-Anechoic chamber

Test disturbance: 3 Meter

5.2.2 Description of the test set-up

5.2.2.1 Test procedure

The EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on Test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to FCC Part 15 on radiated emission Test.

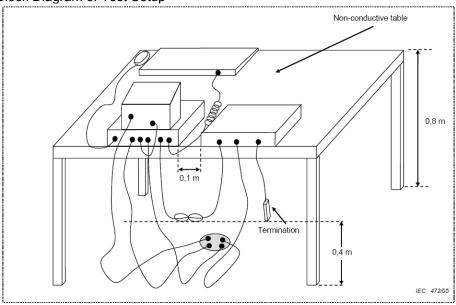
The frequency range from 30MHz to 1000MHz and above 1GHz. is investigated. Please see the following pages.

All measurements for radiated emissions within the restricted bands were performed using a Quasi-Peak detector with 120kHz RBW below 1GHz .1MHz for above 1GHz

All measurements for radiated emissions within the restricted bands were performed using a Quasi-Peak detector with 300kHz VBW below 1GHz. .1MHz for above 1GHz

The EUT is normal during the test, and the results of the maximum emanation are recorded

5.2.2.2 Block Diagram of Test Setup



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5.2.3 Limits of disturbance (FCC Part 15.109 Class B)

Frequency (MHz)	Distance (Motors)	Field Strengths Limits (dBµV/m)				
	Distance (Meters)	Peak	QP	Average		
30 ~ 88	3		40			
88 ~ 216	3		43.5			
216 ~ 960	3		46			
960 ~ 1000	3		54			
Above 1GHz	3	74		54		

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

5.2.4 Test result

The requirements are	Fulfilled
Band width	200Hz or Below 30MHz; 120kHz for below 1GHz, 1MHz for above 1MHz
Frequency range	9KHz- 18000 MHz
Min. limit margin	>3.75 dB at 9KHz - 18000 MHz

Remarks: The limits are kept. For detailed results, please see the following page(s).

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5.2.5 Test protocol

Test Mode:	TX –X Position Mode	Result:	■ - passed
Frequency range:	9KHz~30MHz		☐ - not passed

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.		
Rema	Remark: The test result reading value is to low, margin all > 10dB of the limit.								

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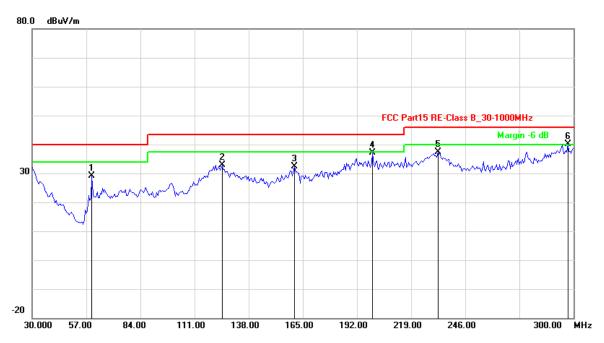
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EUT	smartTOKEN (PKI TOKEN)
Power Supply	AC 120V/60Hz
Test Condition	Ambient Temperature: 24°C Humidity: 56%
Operator	Eric
Model No.:	tokenME Fips



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBµV)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	59.7595	-28.86	57.93	29.07	40.00	-10.93	QP
2	124.6894	-24.74	57.68	32.94	43.50	-10.56	QP
3	160.9419	-26.70	59.08	32.38	43.50	-11.12	QP
4	199.8998	-21.31	58.42	37.11	43.50	-6.39	QP
5	232.3647	-21.37	58.79	37.42	46.00	-8.58	QP
6	297.2946	-15.45	55.58	40.13	46.00	-5.87	QP

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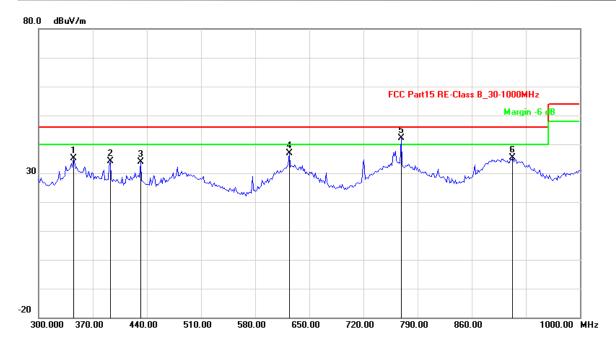
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No.	Frequency (MHz)	Factor (dB/m)	Reading (dBµV)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	344.8898	-23.19	58.31	35.12	46.00	-10.88	QP
2	392.5852	-24.41	58.57	34.16	46.00	-11.84	QP
3	431.8637	-24.65	58.54	33.89	46.00	-12.11	QP
4	624.0480	-15.70	52.62	36.92	46.00	-9.08	QP
5	768.5371	-14.11	56.36	42.25	46.00	-3.75	QP
6	913.0261	-12.01	47.39	35.38	46.00	-10.62	QP

Above 1GHz

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBµV)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	1947.896	-9.53	62.20	52.67	74.00	-21.33	peak
2	1947.896	-9.53	48.22	38.69	59.00	-20.31	AVG
3	2366.733	-5.81	58.67	52.86	74.00	-21.14	peak
4	2366.733	-5.81	44.99	39.18	59.00	-19.82	AVG
5	3975.952	1.25	59.05	60.30	74.00	-13.70	peak
6	3975.952	1.25	46.90	48.15	59.00	-10.85	AVG

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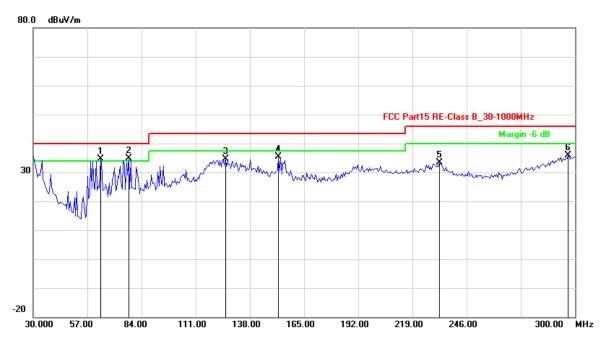
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Test point: Operation mode	Vertical Normal	Result:	■ - passed
Remarks:	. toma.		☐ - not passed

EUT	smartTOKEN (PKI TOKEN)
Power Supply	AC 120V/60Hz
Test Condition	Ambient Temperature: 24°C Humidity: 56%
Operator	Eric
Model No.:	tokenME Fips



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBµV)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	63.5471	-28.41	63.08	34.67	40.00	-5.33	QP
2	77.6151	-27.07	61.90	34.83	40.00	-5.17	QP
3	125.7715	-24.64	59.19	34.55	43.50	-8.95	QP
4	152.2846	-25.60	61.04	35.44	43.50	-8.06	QP
5	232.3647	-21.37	54.76	33.39	46.00	-12.61	QP
6	296.7535	-15.53	51.36	35.83	46.00	-10.17	QP

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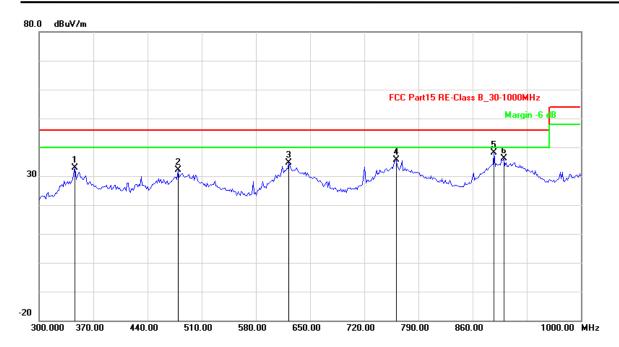
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No.	Frequency (MHz)	Factor (dB/m)	Reading (dBµV)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	346.2926	-23.21	56.00	32.79	46.00	-13.21	QP
2	479.5591	-18.79	51.00	32.21	46.00	-13.79	QP
3	622.6453	-15.66	50.26	34.60	46.00	-11.40	QP
4	761.5230	-13.92	49.53	35.61	46.00	-10.39	QP
5	887.7756	-11.87	50.12	38.25	46.00	-7.75	QP
6	900.4008	-11.39	47.54	36.15	46.00	-9.85	QP

Above 1GHz

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBµV)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	1595.190	-11.59	65.71	54.12	74.00	-19.88	peak
2	1595.190	-11.59	53.17	41.58	59.00	-17.42	AVG
3	2410.822	-5.40	63.23	57.83	74.00	-16.17	peak
4	2410.822	-5.40	50.76	45.36	59.00	-13.64	AVG
5	3931.864	1.11	58.84	59.95	74.00	-14.05	peak
6	3931.864	1.11	44.11	45.22	59.00	-13.78	AVG

Remark: Other frequency mini margin all >6 dB of Limit

Note:Level=Reading+Factor. Margin= Level-Limit.

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6 USED TEST EQUIPMENT

	6.1								
Radia	Radiated disturbance (Electric field)								
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.				
1	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2014/03/25				
2	EMI Test Receiver	ROHDE & SCHWARZ	ESVS 10	842885/001	2014/11/04				
3	Loop Antenna	A.R.A	PLA-1030/B	1030	2014/11/04				
4	Biconical Antenna	ROHDE & SCHWARZ	HK116	100221	2014/03/30				
5	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2014/03/30				
6	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	2014/03/30				
7	Pre-Amplifier	EMC	EMC330	980113	2014/03/25				
8	Pre-Amplifier	EMC	EMC012645	980114	2014/03/25				
9	EMI Test Software	Farad	EZ-EMC	N/A	N/A				

	6.2							
Cond	Conducted Disturbance							
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.			
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100868	2014/11/04			
2	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z5	832479/025	2014/11/04			
3	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z6	100140	2014/11/04			
4	Pulse Limiter	ROHDE & SCHWARZ	ESHS-Z2	100301	2014/11/04			
5	EMI Test Software	Farad	EZ-EMC	N/A	N/A			

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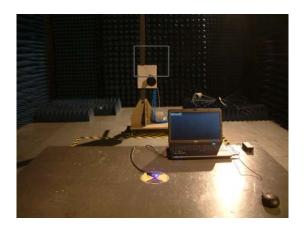




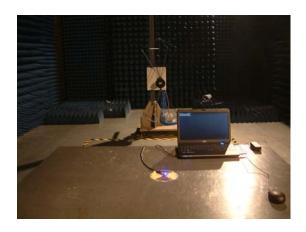
7 TEST PHOTOGRAPHS

7.1. Photos of TX Radiated Emission Test (In Anechoic Chamber)

Below 30MHz



Below 1GHz



Above 1GHz



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7.2. Photos of Conduction Emission Test



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8 External And Internal Photos of the EUT



External view 1



External view 2



External view 3

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External view 4



External view 5



External view 6

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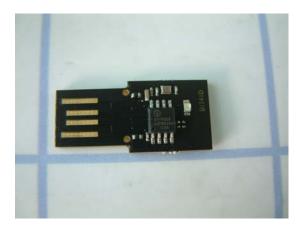
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Model: tokenME Fips FCC ID: 2ADTJ-TOKENMEFI

Label



PCB side 1 view



PCB side 2 view

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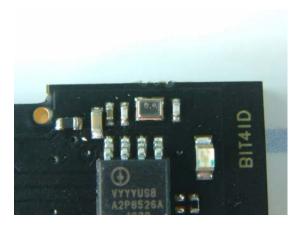
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Oscillator view

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Normative references 9

- 47 CFR PART 15 OCT, 2013 Radio Frequency Devices
- ANSI C63.4: 2003

American National Standard for Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

10 Manufacturer/ Approval holder Declaration

The following identical model(s):

N/A

Belong to the tested device:

Product description: smartTOKEN (PKI TOKEN) Model name: tokenME Fips

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