CENTRE OF TESTING SERVICE INTERNATIONAL

OPERATE ACCORDING TO ISO/IEC 17025

FCC ID/IC TEST REPORT

TEST REPORT NUMBER : CGZ3140515-00496-EFI

CENTRE OF TESTING SERVICE CO., LTD.

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

TEST REPORT For FCC ID/IC

47 CFR PART 15 OCT, 2013
ICES-003 Issue 5

Report Reference No.	**CGZ3140515-00496-EFI**
Date of issue.....	19 May 2014
Testing Laboratory Name	**CENTRE OF TESTING SERVICE CO., LTD.**
Address.....	A101, No.65, Zhuji Highway,Tianhe District, Guangzhou, China
Testing location/ procedure	Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □
Applicant's name.....	TECHSIGNO S.R.L.
Address.....	Via Selvuzzis, 53 Udine 33100 Italy
Test specification	
Standard	**47 CFR PART 15 OCT, 2013, ICES-003 Issue 5, ANSI C63.4-2009**
Test Report Form No.	CTSEMC-1.0
TRF Originator.....	CENTRE OF TESTING SERVICE CO., LTD.
Master TRF.....	Dated 2009-01

Test item description ..... :	Double Technology Scanner
Trade Mark	TECHSIGNO
Manufacturer.....	TECHSIGNO S.R.L.
Model/Type reference.....	PT2SCAN WIRED HF USB 1D
Ratings.....	DC 5V, 0.3AW
Operating Frequency.....	13.56MHz
Result	**PASSED**

Compiled by:	**Supervised by:**	**Approved by:**
Kate zhang / Fileadministrators	Duke yang / Technique principal	Vincent yao / Manager

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FCC ID/IC -- T E S T R E P O R T

Test Report No. :	CGZ3140515-00496-EFI	19 May 2014 Date of issue

Type / Model.....	PT2SCAN WIRED HF USB 1D
EUT.....	Double Technology Scanner
Applicant……	TECHSIGNO S.R.L.
Address.....	Via Selvuzzis, 53 Udine 33100 Italy
Telephone.....	+39-0432603604
Fax.....	+39-0432602905
Contact.....	Dr. Roberto Chiandussi
Manufacturer……	TECHSIGNO S.R.L.
Address.....	Via Selvuzzis, 53 Udine 33100 Italy
Telephone.....	+39-0432603604
Fax.....	+39-0432602905
Contact.....	Dr. Roberto Chiandussi
Factory……	TECHSIGNO S.R.L.
Address.....	Via Selvuzzis, 53 Udine 33100 Italy
Telephone.....	+39-0432603604
Fax.....	+39-0432602905
Contact.....	Dr. Roberto Chiandussi

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**
■**ICES-003 Issue5**
■ **ANSI C63.4-2009**

2. SUMMARY

2.1 GENERAL REMARKS

Date of receipt of test sample	15 May 2014
Testing commenced on	15~19 May 2014
Testing concluded on	19 May 2014

2.2 FINAL ASSESSMENT

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

■ - fulfilled.

□ - **not** fulfilled.

The equipment under test

■ - fulfils the FCC/IC requirements cited on page 1.

□ - **does not** fulfil the FCC/IC 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 PC
□ Other

3.2 Short description of the Equipment under Test (EUT)

Number of tested samples: **1**
Serial number: Prototype
EUT type: Transmitter

3.3 EUT operation mode

The equipment under test was operated during the measurement under the following conditions:
For Radiation emission:
■ –USB Mode

Operation mode 1: USB Mode
Note: X position of EUT is the worst case, so only these test results be recorded in the test report.

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3.4 EUT configuration

3.4.1. Description of configuration (EUT)

Description	:	Double Technology Scanner
Model Number	:	PT2SCAN WIRED HF USB 1D
Operation frequency	:	13.56MHz
Antenna	:	PCB antenna, met requirement of FCC 15.203

3.4.2. Tested Supporting System Details

3.4.2.1. Monitor

M/N	:	ST2220LB
S/N	:	N/A
Manufacturer	:	DELL
Power Cord	:	Unshielded, Detachabled, 1.8m , 3Pin
FCC	:	By DoC

3.4.2.2.Personal Computer

M/N	:	Optiplex390MT
S/N	:	H3JGB3X
Manufacturer	:	DELL
Power Cord	:	Unshielded, Detachabled, 1.8m , 3Pin
FCC	:	By DoC

3.4.2.3. Keyboard

M/N	:	C5-02
S/N	:	N/A
Manufacturer	:	DELL
Data Cable	:	Shielded, Detachabled
FCC	:	By DoC

3.4.2.4. Mouse

M/N	:	MSIII-P
S/N	:	N/A
Manufacturer	:	DELL
Data Cable	:	Shielded, Detachabled, 1.8m
FCC	:	By DoC

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4. TEST ENVIRONMENT

4.1 Address of the test laboratory

A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, 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 June 6, 2011 .

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.791995, 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.

4.6 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Conduction disturbance	150kHz~30MHz	±1.22dB	(1)
Power disturbance	30MHz~300MHz	±1.38dB	(1)
Radiation emission (3m)	30MHz~300MHz	±3.14dB	(1)
	300MHz~1000MHz	±3.18dB	(1)
	1GHz~18GHz	±3.54dB	(1)

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

5. Summary of standards and results

5.1.Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	**Standard**	**Results**
Conducted Emission Test	ANSI C63.4-2009 FCC Part 15 B:15.107 ICES-003:6.1	PASSED
Radiated Emission Test	ANSI C63.4-2009 FCC Part 15 B:15.109 ICES-003:6.2	PASSED
N/A is an abbreviation for Not Applicable.		

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6. Power Line Conducted Emission Test

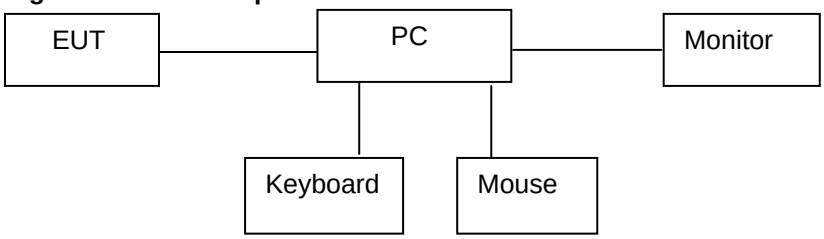
6.1.1 Description of the test location

Test location : Shielding Room

6.1.2Test Equipment

Conducted Disturbance					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESHS10	842884/012	2013/11
2	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z5	832479/025	2013/11
3	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z5	832479/026	2013/11
4	Pulse Limiter	ROHDE & SCHWARZ	ESHSZ2	100301	2013/11
5	EMI Test Software	ROHDE & SCHWARZ	Farad	N/A	N/A

6.2.1 Block Diagram of Test Setup



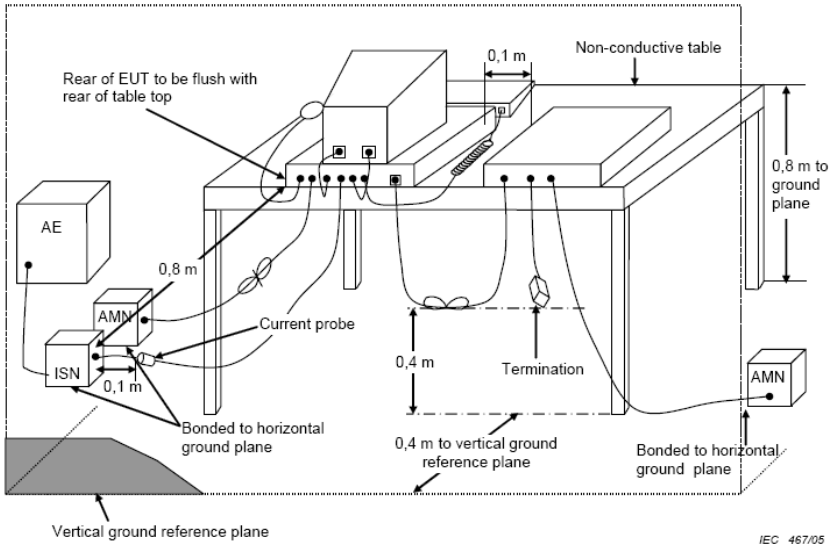
(EUT: Double Technology Scanner)

6.2.2 Description of the test set-up

6.1.2.1 Operating Condition

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

6.1.2.2 Block Diagram of Test Setup



6.2.3 Limits of disturbance (Class B)

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level 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.

6.2.4 Power Line Conducted Emission Test Results

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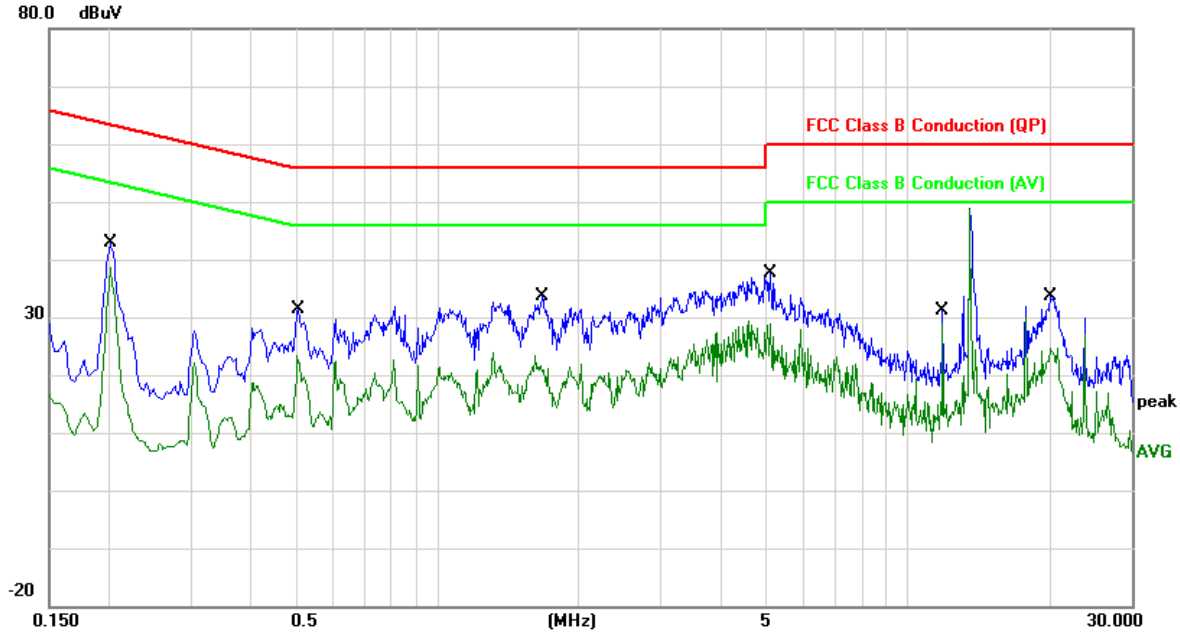
EUT	Double Technology Scanner
Operating Condition	DC 4.5V by PC
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	15~19 May 2014
Operator	**Duke**
MODEL NO	PT2SCAN WIRED HF USB 1D

Test point: Frequency range:	L 0.15~30MHz	Result:	■ - passed □ - not passed



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBμV/m)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.
1	0.2020	9.78	31.86	41.64	63.53	-21.89	QP
2	0.2020	9.78	27.49	37.27	53.53	-16.26	AVG
3	0.5100	9.84	16.39	26.23	56.00	-29.77	QP
4	0.5100	9.84	11.74	21.58	46.00	-24.42	AVG
5	1.6780	9.85	18.70	28.55	56.00	-27.45	QP
6	1.6780	9.85	10.83	20.68	46.00	-25.32	AVG
7	5.1180	9.92	22.79	32.71	60.00	-27.29	QP
8	5.1180	9.92	18.63	28.55	50.00	-21.45	AVG
9	11.9100	9.91	20.21	30.12	60.00	-29.88	QP
10	11.9100	9.91	19.53	29.44	50.00	-20.56	AVG
11	20.1620	10.01	20.84	30.85	60.00	-29.15	QP
12	20.1620	10.01	13.48	23.49	50.00	-26.51	AVG

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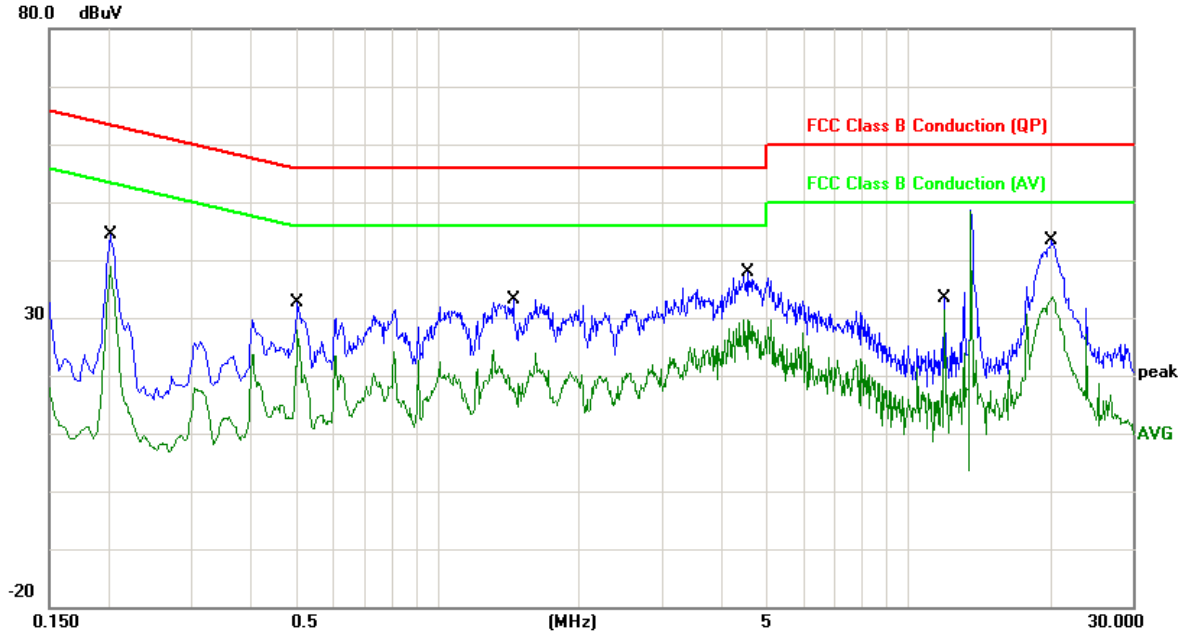
Test point: Frequency range:	N 0.15MHz ~30MHz	Result:	■ - passed □ - not passed



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBμV/m)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.
1	0.2020	9.78	33.03	42.81	63.53	-20.72	QP
2	0.2020	9.78	27.64	37.42	53.53	-16.11	AVG
3	0.5060	9.84	20.54	30.38	56.00	-25.62	QP
4	0.5060	9.84	17.90	27.74	46.00	-18.26	AVG
5	1.4540	9.85	15.03	24.88	56.00	-31.12	QP
6	1.4540	9.85	6.75	16.60	46.00	-29.40	AVG
7	4.5620	9.91	23.76	33.67	56.00	-22.33	QP
8	4.5620	9.91	18.75	28.66	46.00	-17.34	AVG
9	11.9620	9.91	7.17	17.08	60.00	-42.92	QP
10	11.9620	9.91	0.90	10.81	50.00	-39.19	AVG
11	20.1660	10.01	29.63	39.64	60.00	-20.36	QP
12	20.1660	10.01	22.49	32.50	50.00	-17.50	AVG

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

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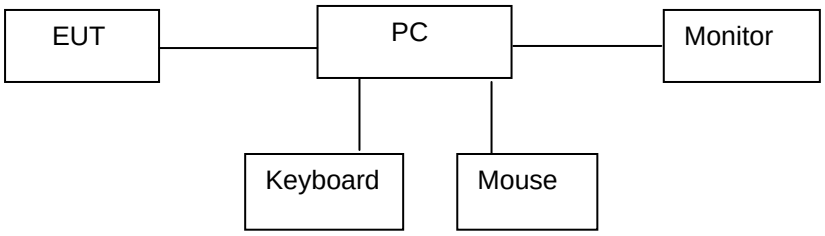
7. Radiated disturbance (electric field)

7.1.Test Equipment

Radiated disturbance (electric field)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100868	2013/11
2	Biconical Antenna	ROHDE & SCHWARZ	HK116	100221	2014/03
3	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2014/03
4	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	2014/03
5	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2014/03
6	Loop Antenna	A.R.A	PLA-1030/B	1030	2013/11
7	EMI Test Software	ROHDE & SCHWARZ	Farad	N/A	N/A

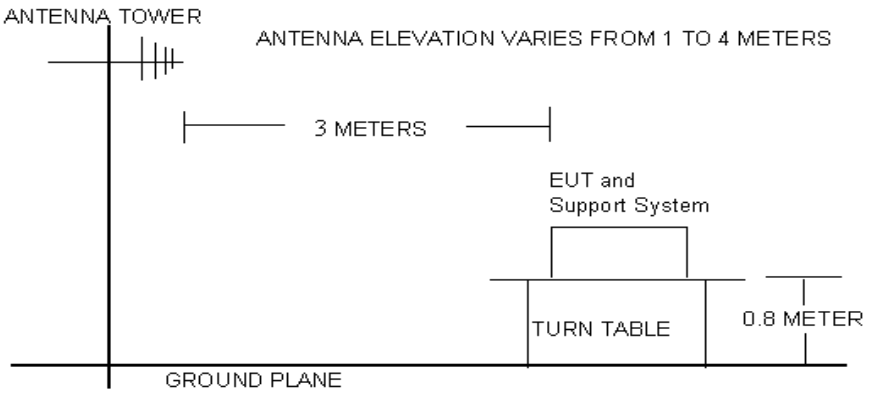
7.2.Block Diagram of Test Setup

7.2.1 Block Diagram of connection between EUT and simulators



*(EUT:*Double Technology Scanner *)*

7.2.2 Anechoic Chamber Setup Diagram



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7.3.Radiated Emission Limit Standard: FCC 109

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	Other:74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Remark： (1) Emission level dBμV = 20 log Emission level μV/m
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

7.4.Test Procedure

Set the transmitter on continued transmitting with amplitude mode.

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 ANSI C63.4-2009on 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 and a Peak and Average detector with 1MHz RBW above 1GHz,

All measurements for radiated emissions within the restricted bands were performed using a Quasi-Peak detector with 300kHz VBW below 1GHz and a Peak detector with 1MHz VBW above 1GHz, Pretest of EUT, final, select the worst case test and record the test results in the report.

The test modes is tested in Anechoic Chamber and all the scanning waveforms are reported on section 7.5

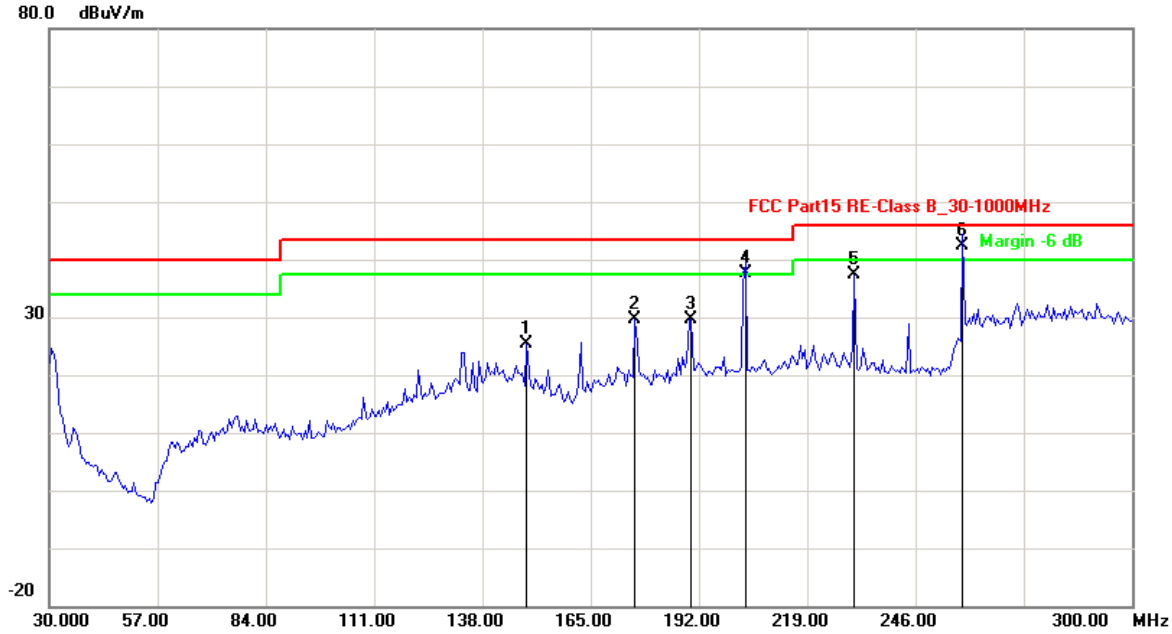
7.5.Radiated Emission Test Results

PASSED.

EUT	Double Technology Scanner
Operating Condition	DC 4.5V by PC
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	15~19 May 2014
Operator	**Duke**
MODEL NO	PT2SCAN WIRED HF USB 1D

Test point: Frequency range:	Horizontal 30MHz ~18GHz	Result:	■ - passed □ - not passed

Below 1GHz



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBμV/m)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.
1	149.0381	-17.25	42.53	25.28	43.50	-18.22	QP
2	176.0922	-15.97	45.58	29.61	43.50	-13.89	QP
3	190.1603	-12.02	41.62	29.60	43.50	-13.90	QP
4	203.6874	-12.44	50.05	37.61	43.50	-5.89	QP
5	230.7415	-12.40	49.80	37.40	46.00	-8.60	QP
6	257.7956	-12.65	55.03	42.38	46.00	-3.62	QP

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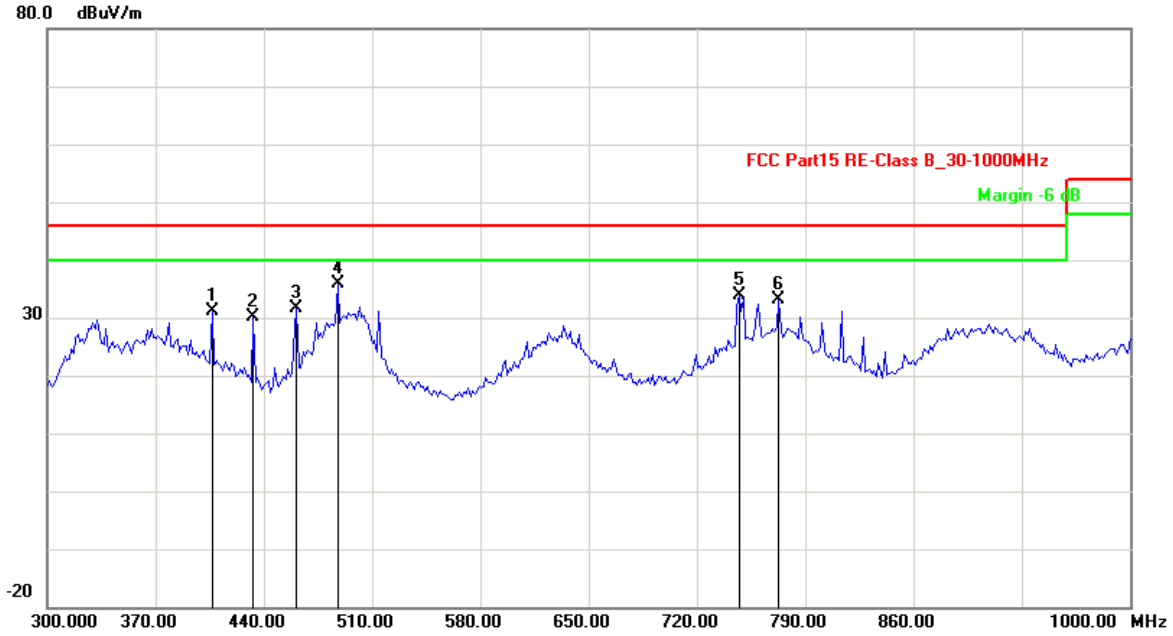

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBµV/m)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.
1	406.6132	-14.94	46.13	31.19	46.00	-14.81	QP
2	433.2665	-15.64	45.70	30.06	46.00	-15.94	QP
3	461.3226	-13.09	44.69	31.60	46.00	-14.40	QP
4	487.9760	-9.88	45.78	35.90	46.00	-10.10	QP
5	747.4950	-6.54	40.49	33.95	46.00	-12.05	QP
6	772.7455	-5.78	38.92	33.14	46.00	-12.86	QP

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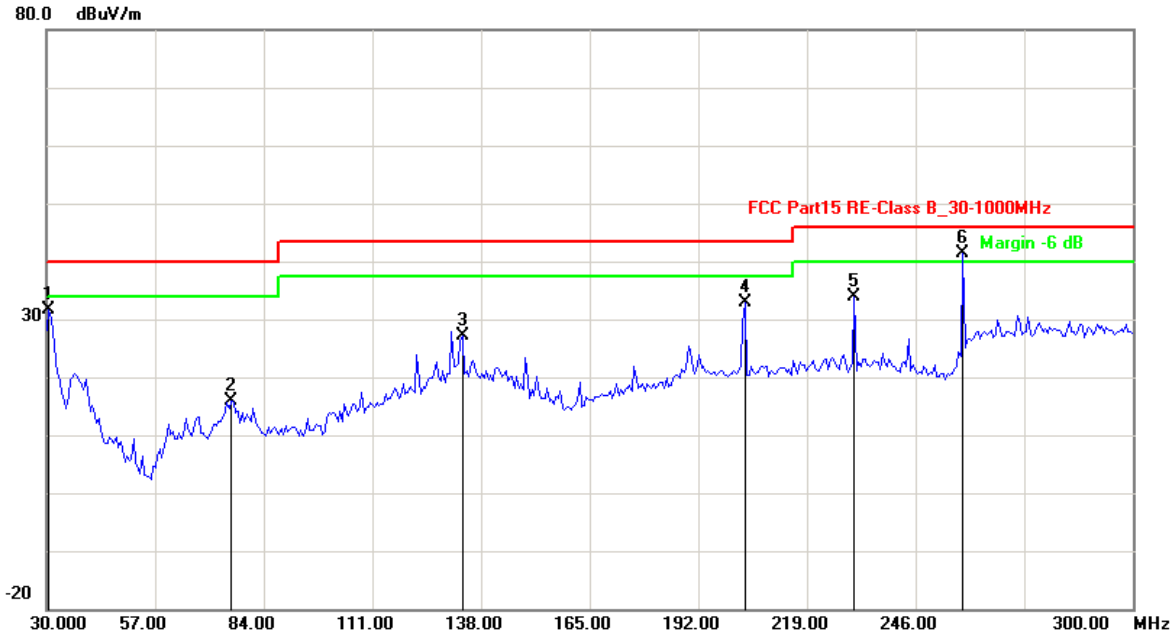
Test point: Frequency range:	Vertical 30MHz ~18GHz	Result:	■ - passed □ - not passed

Below 1GHz



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBμV/m)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.
1	30.5411	-18.94	50.47	31.53	40.00	-8.47	QP
2	75.9920	-21.44	37.34	15.90	40.00	-24.10	QP
3	133.3467	-16.83	43.96	27.13	43.50	-16.37	QP
4	203.6874	-12.44	45.32	32.88	43.50	-10.62	QP
5	230.7415	-12.40	46.16	33.76	46.00	-12.24	QP
6	257.7956	-12.65	54.13	41.48	46.00	-4.52	QP

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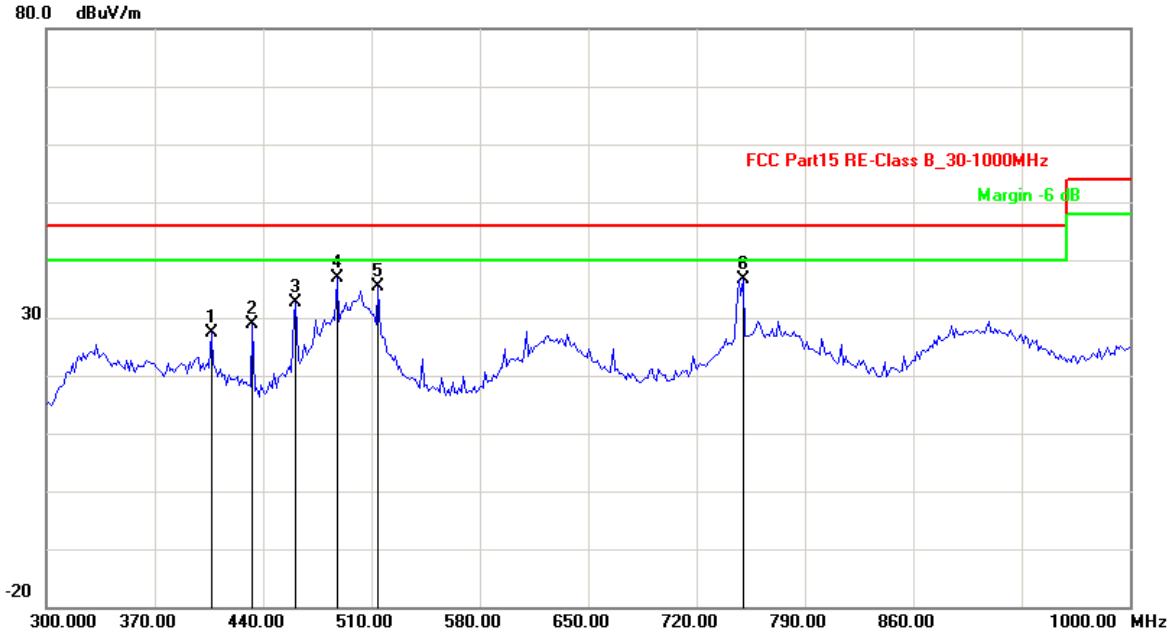

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBμV/m)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Det.
1	406.6132	-14.94	42.24	27.30	46.00	-18.70	QP
2	433.2665	-15.64	44.60	28.96	46.00	-17.04	QP
3	461.3226	-13.09	45.76	32.67	46.00	-13.33	QP
4	487.9760	-9.88	46.73	36.85	46.00	-9.15	QP
5	514.6293	-12.36	47.75	35.39	46.00	-10.61	QP
6	750.3006	-6.30	42.90	36.60	46.00	-9.40	QP

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

Remark: Others frequency Radiated Emission level margin all >10dB of Limit.

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8. Manufacturer/ Approval holder Declaration

The following identical model(s):

N/A

Belong to the tested device:

Product description: **Double Technology Scanner**
Model name: **PT2SCAN WIRED HF USB 1D**

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