



**CENTRE OF TESTING SERVICE
INTERNATIONAL**

OPERATE ACCORDING TO ISO/IEC 17025

FCC/IC ID TEST REPORT

TEST REPORT NUMBER : CGZ3110722-00585&00583-E



CENTRE OF TESTING SERVICE CO., LTD.

Building F, Dachuang industrial park, No.379, Zhongshan Dadao,
Guangzhou, China.



TEST REPORT For FCC ID 47 CFR PART 15 OCT, 2010 RSS-210 Issue 8	
Report Reference No.	CGZ3110722-00585&00583-E
Date of issue	19Jul~30 Jul 2011
Testing Laboratory Name	CETRE OF TESTING SERVICE CO., LTD
Address	Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China.
Testing location/ procedure	Full application of Harmonised standards <input checked="" type="checkbox"/> Partial application of Harmonised standards <input type="checkbox"/> Other standard testing method <input type="checkbox"/>
Applicant's name	Datel Design & Development, Inc
Address	33 N . Garden Avenue, Suite 900, Clearwater, FL 33755
Test specification	
Standard	47 CFR PART 15 OCT, 2010, RSS-210 Issue 8, RSS-Gen Issue 3
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	Power Racer270
Trade Mark	DATEL
Manufacturer	Datel Design & Development, Inc
Model/Type reference	ER251
Ratings	DC 3.7V
Operating Frequency	2402MMHz ~2480.00MHz/ GFSK
Result	Positive

Compiled by:

Violet Lee / File administrators

Supervised by:

Tom Xiao / Technique principal

Approved by:

Vincent yao / Manager

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FCC ID -- TEST REPORT

Test Report No. : CGZ3110722-00585&00583-E	<u>31 Jul 2011</u> Date of issue
---	-------------------------------------

Type / Model.....	ER251
EUT.....	Power Racer 270
Applicant.....	Datel Design & Development, Inc.
Address.....	33 N. Garden Avenue Suite 900 Clearwater, FL 33755 United States.
Telephone.....	+(727) 431-0651
Fax.....	/
Contact.....	Kenneth Tarolla
Manufacturer.....	DATEL DIRECT LIMITED
Address.....	Stafford Road,Stone,staffordshire,UK,ST15,0DG
Telephone.....	/
Fax.....	/
Contact.....	Emma.murray
Test report holder.....	Datel Design & Development, Inc.
Address.....	33 N. Garden Avenue Suite 900 Clearwater, FL 33755 United States.
Telephone.....	+(727) 431-0651
Fax.....	/
Contact.....	Kenneth Tarolla

Test Result according to the standards on page 3: **Positive**

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, 2010
- RSS-210 Issue 8
- RSS-Gen Issue 3
- ANSI C63.4-2009

2. SUMMARY

2.1 GENERAL REMARKS

Date of receipt of test sample	19~30 Jul 2011
Testing commenced on	30 Jul 2011
Testing concluded on	30 Jul 2011

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 requirements cited on page 3.
- - **does not** fulfil the FCC requirements cited on page 3.

3. EQUIPMENT UNDER TEST

3.1 Power supply system utilised

Power supply voltage : ■ DC 3.7V For TX, AC 120V For RX

3.2 Short description of the Equipment under Test (EUT)

Number of tested samples: 1

Serial number: Prototype

3.3 EUT operation mode

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

- - Standby
- TX- Y position
- TX- Z position
- TX- X position
- RX Normal link

Operation mode 1: TX-X Position Low (2403MHz) ,TX-X Position High (2479MHz)

Operation mode 2: RX Normal Link

Note: TX -X position and RX Normal Link 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	:	Power Racer 270
Model Number	:	ER251
Operation frequency	:	2402~ 2480MHz ISM Band
Radio Technology	:	GFSK
Modulation Technology	:	GFSK modulation
Antenna	:	Integral antenna, met requirement of FCC 15.203

3.4.2. Tested Supporting System Details

N/A



4. TEST ENVIRONMENT

4.1 Address of the test laboratory

Building F, Dachuang industrial park, No.379, Zhongshan Dadao, 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 21, 2009.

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)
Radiation emission (3m)	30MHz~300MHz	±3.14dB	(1)
	300MHz~1000MHz	±3.18dB	(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	RSS-Gen:7.2.4 FCC Part 15 : 15.207 ANSI C63.4-2009	PASSED
Radiated Emission Test	RSS-Gen:7.2 RSS-210 A2.9 FCC Part 15 C: 15.249 FCC Part 15 : 109 ANSI C63.4-2009	PASSED
Receiver Spurious Emission	RSS-Gen:7.2 RSS-210 A2.9 FCC Part 15 C: 15.249 FCC Part 15 : 109 ANSI C63.4-2009	PASSED
Band Edge Compliance Test	RSS-210 Annex 8 FCC Part 15 C: 15.249 ANSI C63.4-2009	PASSED
99% Bandwidth	RSS-210 Annex 8 RSS-Gen 4.6.1	PASSED
N/A is an abbreviation for Not Applicable.		

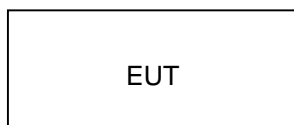


6. Power Line Conducted Emission Test

6.1. Test Equipment

Conducted Disturbance					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESHS10	842884/012	2010/12
2	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z5	832479/025	2010/12
3	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z5	832479/026	2010/12
4	Pulse Limiter	ROHDE & SCHWARZ	ESHSZ2	100301	2010/12
5	EMI Test Software	ROHDE & SCHWARZ	ESK1	N/A	2010/12

6.2. Block Diagram of Test Setup



(EUT: Power Racer 270)

6.3. Power Line Conducted Emission Test Limits

Standard: RSS-Gen:7.2.4, FCC Part 15 : 15.207, ANSI C63.4-2009

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

Notes: 1. * Decreasing linearly with logarithm of frequency.
 2. The lower limit shall apply at the transition frequencies.

6.4. Test Procedure

The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N.#2). This provides a 50 ohm coupling impedance for the EUT. Please refer the block diagram of the test setup and photographs. The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#1). Power on the PC and let it work normally, we use a keyboard test soft ware, 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 15C on Conducted Emission Test.

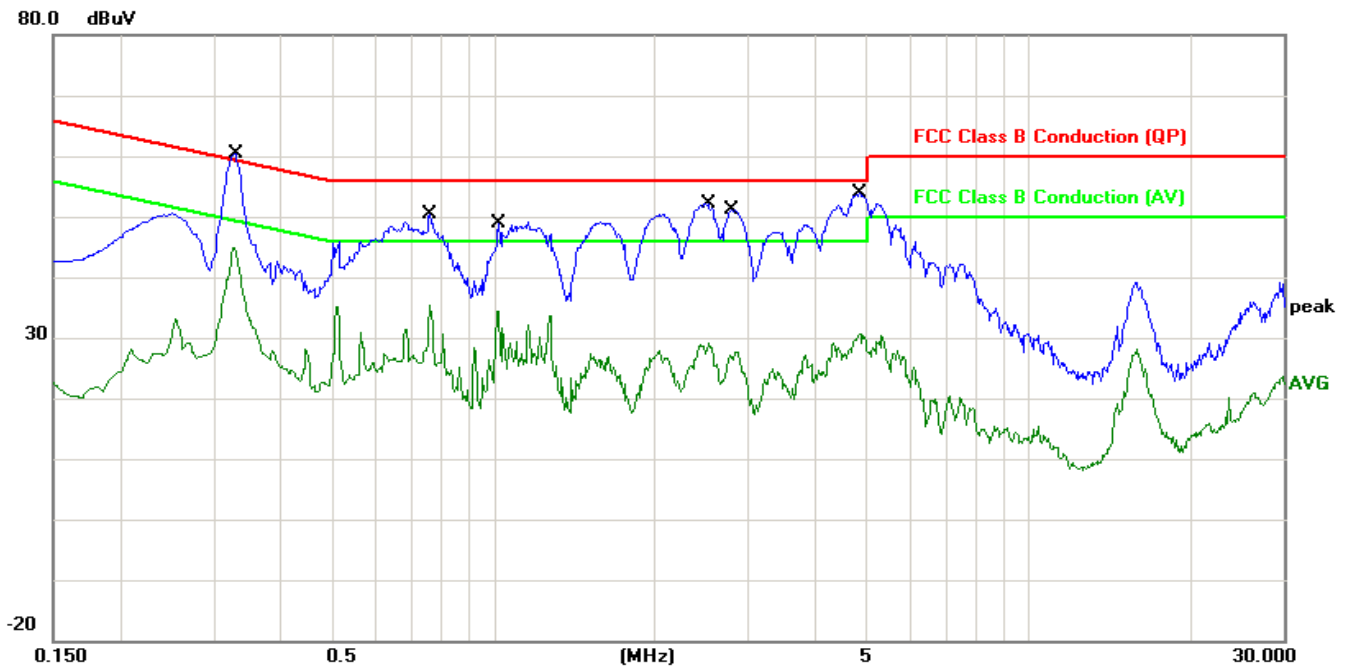
6.5. Power Line Conducted Emission Test Results

**Passed
 Test Result**



Channel:	RX Normal Link Mode	Result:	■ - passed □ - not passed
Test point:	L1		
Frequency range:	0.15MHz~30MHz		

EUT	Power Racer 270
Firm Name	Datel Design & Development, Inc
Operating Condition	DC 3.7V for TX AC 120V for RX
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	19 Jun~22 Jul 2011
Operator	Peter
MODEL NO	ER251



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3300	9.99	45.88	55.87	59.45	-3.58	QP
2	0.3300	9.99	33.97	43.96	49.45	-5.49	AVG
3	0.7620	10.10	33.98	44.08	56.00	-11.92	QP
4	0.7620	10.10	23.99	34.09	46.00	-11.91	AVG
5	1.0260	10.12	33.30	43.42	56.00	-12.58	QP
6	1.0260	10.12	22.68	32.80	46.00	-13.20	AVG
7	2.5220	10.05	38.12	48.17	56.00	-7.83	QP
8	2.5220	10.05	18.12	28.17	46.00	-17.83	AVG
9	2.7860	10.04	37.03	47.07	56.00	-8.93	QP
10	2.7860	10.04	17.02	27.06	46.00	-18.94	AVG
11	4.8420	10.11	39.92	50.03	56.00	-5.97	QP
12	4.8420	10.11	20.19	30.30	46.00	-15.70	AVG

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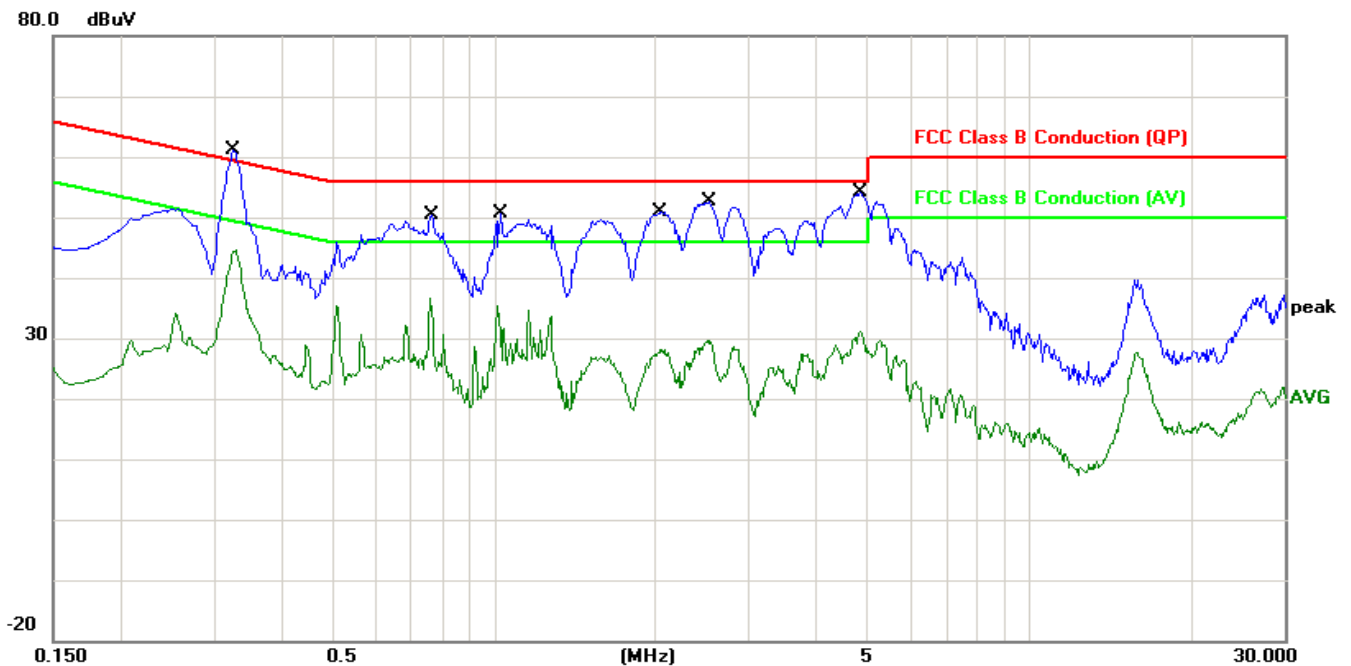
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Channel:	RX Normal link Mode	Result:	■ - passed □ - not passed
Test point:	L2		
Frequency range:	0.15MHz~30MHz		

EUT	Power Racer 270
Firm Name	Datel Design & Development, Inc
Operating Condition	DC 3.7V for TX AC 120V for RX
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	19 Jun~22 Jul 2011
Operator	Peter
MODEL NO	ER251



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3260	9.99	45.64	55.63	59.55	-3.92	QP
2	0.3260	9.99	34.69	44.68	49.55	-4.87	AVG
3	0.7660	10.10	34.04	44.14	56.00	-11.86	QP
4	0.7660	10.10	24.26	34.36	46.00	-11.64	AVG
5	1.0300	10.12	33.21	43.33	56.00	-12.67	QP
6	1.0300	10.12	20.04	30.16	46.00	-15.84	AVG
7	2.0540	10.07	36.89	46.96	56.00	-9.04	QP
8	2.0540	10.07	17.58	27.65	46.00	-18.35	AVG
9	2.5260	10.05	38.10	48.15	56.00	-7.85	QP
10	2.5260	10.05	18.17	28.22	46.00	-17.78	AVG
11	4.8260	10.11	39.59	49.70	56.00	-6.30	QP
12	4.8260	10.11	20.15	30.26	46.00	-15.74	AVG

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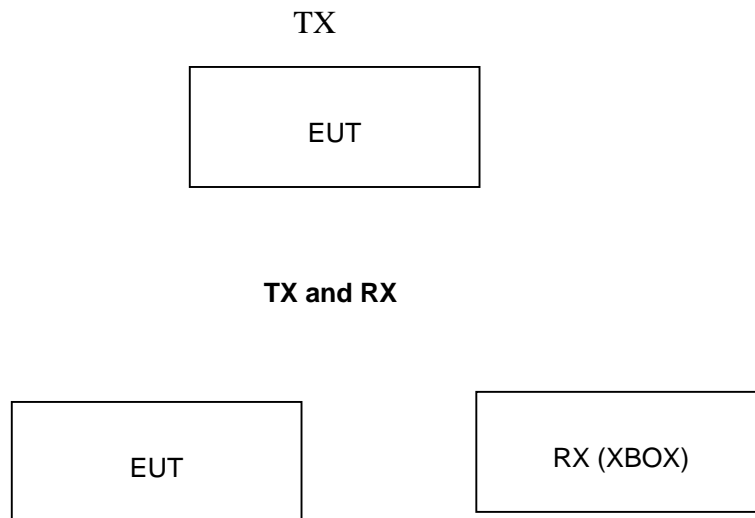
7. Radiated disturbance (electric field)

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	2010/12
2	Biconical Antenna	ROHDE & SCHWARZ	HK116	100221	2010/12
3	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2010/12
4	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	2010/12
5	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2010/12
6	Loop Antenna	A.R.A	PLA-1030/B	1030	2010/12

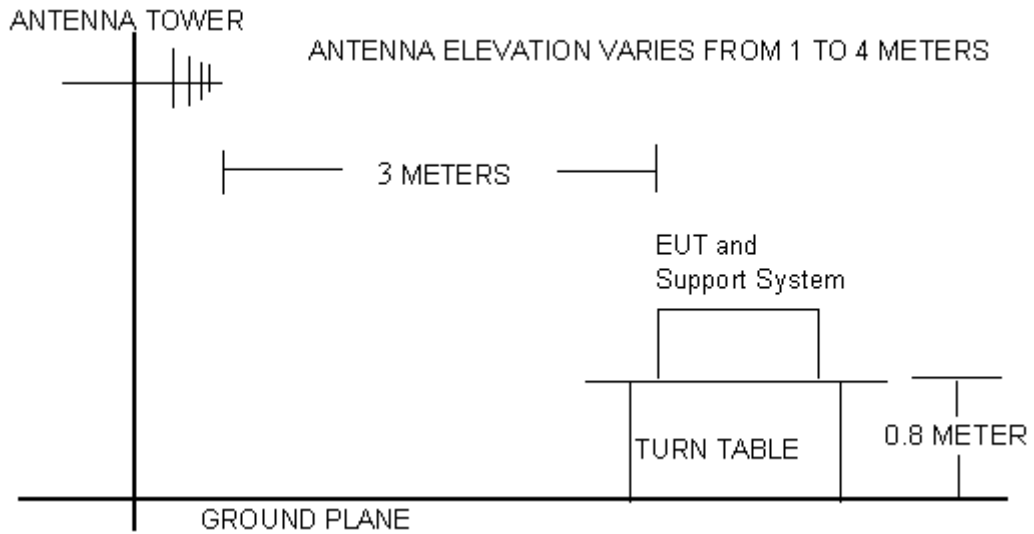
7.2. Block Diagram of Test Setup

7.2.1 Block Diagram of connection between EUT and simulators



(EUT: Power Racer 270)

7.2.2 Anechoic Chamber Setup Diagram



7.3. Radiated Emission Limit :

Standard: FCC 15.249 , FCC 15.209, RSS-Gen:7.2, RSS-210 A2.9

Except as provided in paragraph (a) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (mV/m)	Field Strength of Harmonics (µV/m)
902-928	50	500
2400-2483.5	50	500
5725-5875	50	500
24000-24250	250	2500

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 $dB_{\mu V} = 20 \log$ Emission level $\mu V/m$
 - (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.

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7.4. 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 ANSI C63.4-2009 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 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, A average detector with 10Hz VBW above 1GHz

Pretest x, y, z position of EUT, final, select the worst case x position test and record the test results in the report.

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

7.5. Radiated Emission Test Results

PASSED.

The frequency range from 9KHz~30MHz,30MHz to 230MHz, 230MHz to 1000MHz and above 1GHz. is investigated.

Please see the following pages.



Test Mode:	TX -X Position Mode	Result:	<input checked="" type="checkbox"/> - passed
Frequency range:	9KHz~30MHz		<input type="checkbox"/> - not passed

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Det.
1	0.0236	18.08	11.35	29.43	peak
2	0.1590	18.51	11.71	30.22	peak
3	0.4242	18.53	6.13	24.66	peak
4	1.3754	18.63	4.19	22.82	peak
5	1.9813	18.69	7.42	26.11	peak
6	11.1514	19.65	2.71	22.36	peak

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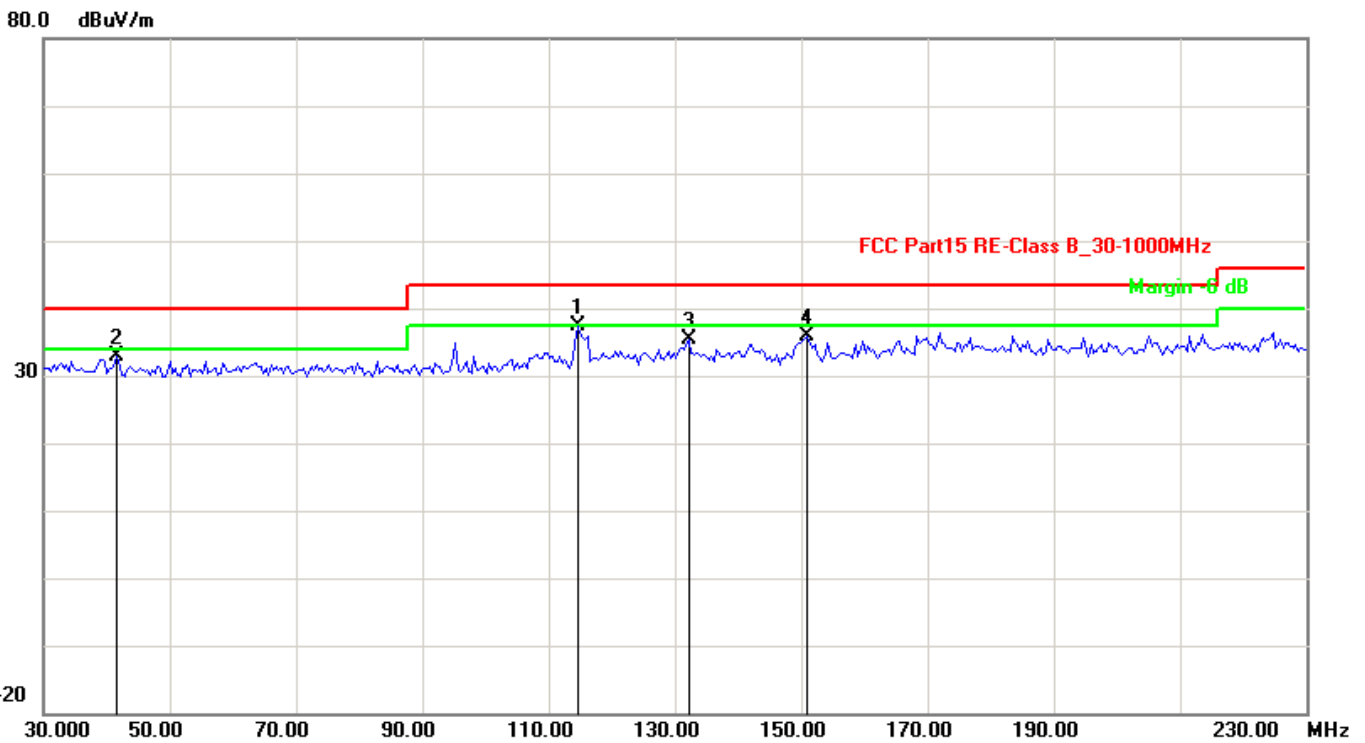
E-mail: cts@cts-lab.com.cn

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Channel:	TX -X Position Mode	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Horizontal		<input type="checkbox"/> - not passed
Frequency range:	30MHz~1000MHz		

EUT	Power Racer 270
Firm Name	Datel Design & Development, Inc
Operating Condition	DC 3.7V for TX
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	19 Jun~22 Jul 2011
Operator	Peter
MODEL NO	ER251



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	114.5691	6.09	31.30	37.39	43.50	-6.11	QP
2	41.6232	5.60	27.19	32.79	40.00	-7.21	QP
3	132.2044	6.56	28.72	35.28	43.50	-8.22	QP
4	151.0420	6.38	29.46	35.84	43.50	-7.66	QP

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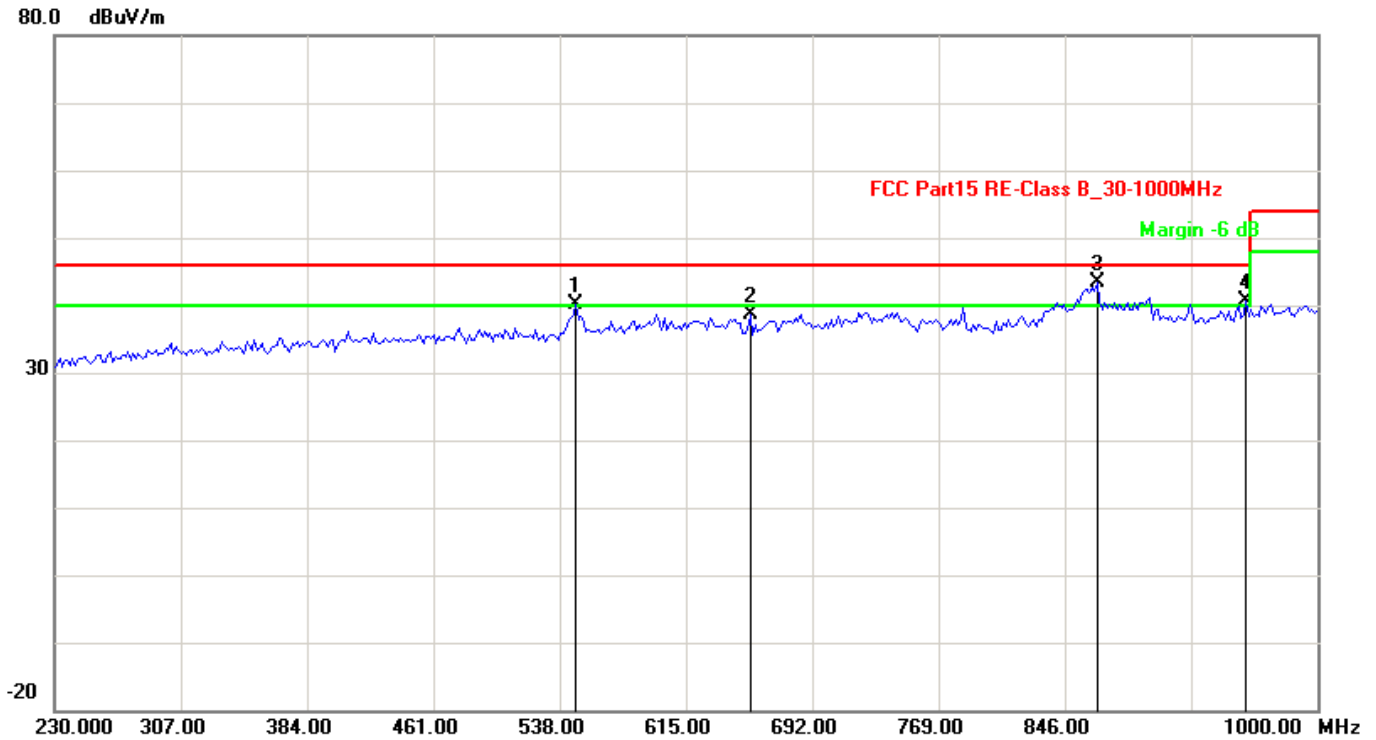
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No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	547.8757	8.88	31.31	40.19	46.00	-5.81	QP
2	654.3486	9.82	28.71	38.53	46.00	-7.47	QP
3	865.7515	10.41	31.95	42.36	46.00	-3.64	QP
4	956.7935	10.50	30.01	40.51	46.00	-5.49	QP

Note: 1. Emission level=Read level + Factor
 2. Factor=Antenna factor + Cable loss
 3. Margin=Level-Limit.

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Channel:	TX -X Position Mode Low 2402MHz	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Horizontal		<input type="checkbox"/> - not passed
Frequency range:	1GHz-40GHz		

EUT	Power Racer 270
Firm Name	Datel Design & Development, Inc
Operating Condition	DC 3.7V for TX
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test distance	3 Meter
Test Date:	19 Jun~22 Jul 2011
Operator	Peter
MODEL NO	ER251

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2402.211	17.87	68.96	86.83	114.00	-27.17	Peak
2	2402.211	17.87	54.50	72.37	94.00	-21.63	AVG
3	2587.174	18.58	30.38	48.96	74.00	-25.04	peak
4	5056.112	23.43	26.79	50.22	74.00	-23.78	peak
5	7921.844	26.74	16.27	43.01	54.00	-10.99	AVG
6	11008.016	28.33	17.23	45.56	54.00	-8.44	AVG
7	11713.427	29.67	17.60	47.27	54.00	-6.73	AVG
8	8539.078	27.02	17.59	44.61	54.00	-9.39	AVG

Remark: Other frequency mini margin all >10 dB of Limit

- Note: 1. Emission level=Read level + Factor
 2. Factor=Antenna factor + Cable loss
 3. Margin=Level-Limit.

Channel:	TX -X Position Mode Middle 2442MHz	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Horizontal		<input type="checkbox"/> - not passed
Frequency range:	1GHz-40GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2441.983	18.07	68.14	86.21	114.00	-27.79	peak
2	2441.983	18.07	54.66	72.73	94.00	-21.27	AVG
3	3050.100	20.40	30.09	50.49	74.00	-23.51	peak
4	5056.112	23.43	26.79	50.22	74.00	-23.78	peak
5	9112.224	27.38	17.57	44.95	54.00	-9.05	AVG
6	6973.948	25.16	21.77	46.93	54.00	-7.07	AVG
7	10523.046	28.78	17.91	46.69	54.00	-7.31	AVG
8	11713.427	29.67	17.60	47.27	54.00	-6.73	AVG

Remark: Other frequency mini margin all >10 dB of Limit

- Note: 1. Emission level=Read level + Factor
 2. Factor=Antenna factor + Cable loss
 3. Margin=Level-Limit.

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Channel:	TX -X Position Mode High 2480MHz	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Horizontal		<input type="checkbox"/> - not passed
Frequency range:	1GHz-40GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2480.017	18.11	72.18	89.29	114.00	-24.71	peak
2	2480.017	18.11	58.10	76.21	94.00	-17.79	AVG
3	2587.174	18.58	30.38	48.96	74.00	-25.04	peak
4	5717.435	24.41	19.98	44.39	54.00	-9.61	AVG
5	11316.633	28.91	20.36	49.27	54.00	-4.73	AVG
6	11713.427	29.67	17.51	47.18	54.00	-6.82	AVG
7	8935.872	27.12	16.22	43.34	54.00	-10.66	AVG
8	7503.006	26.03	16.38	42.41	54.00	-11.59	AVG

Remark: Other frequency mini margin all >10 dB of Limit

- Note: 1. Emission level=Read level + Factor
 2. Factor=Antenna factor + Cable loss
 3. Margin=Level-Limit.

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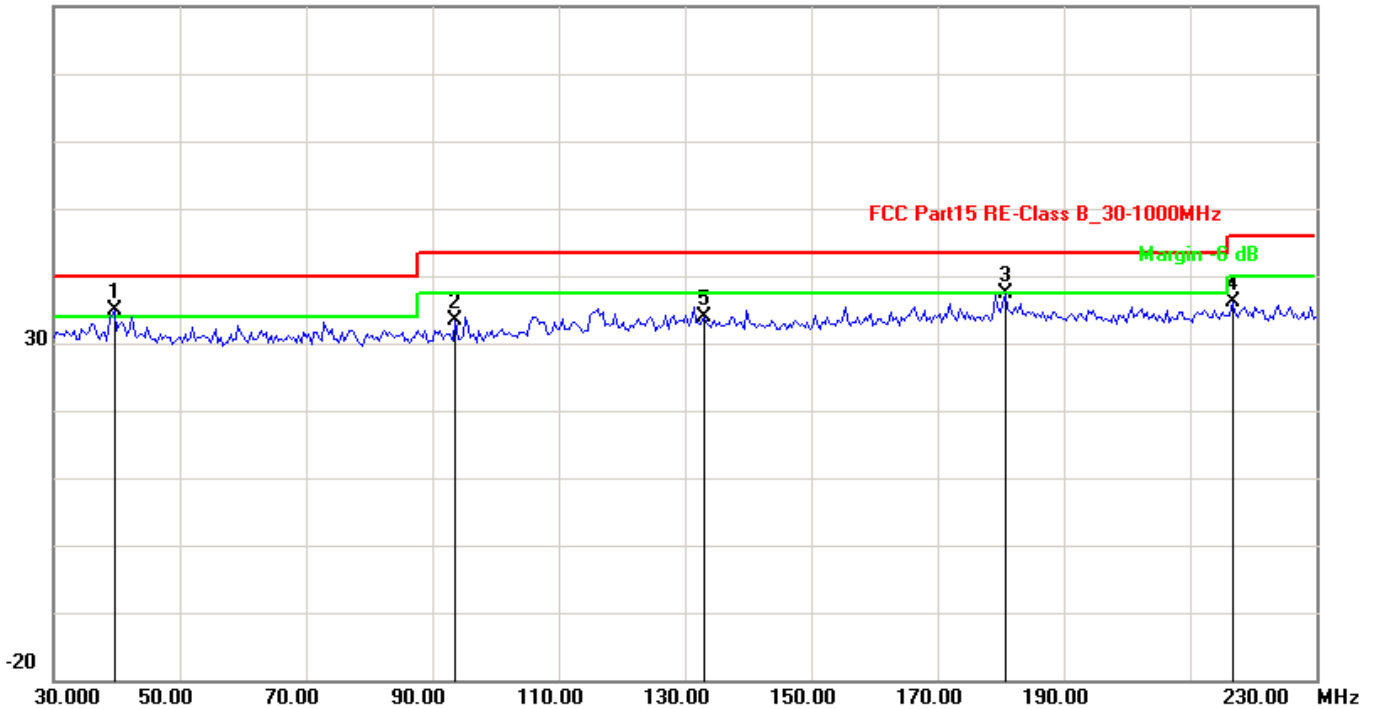
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Channel:	TX -X Position Mode	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Vertical		<input type="checkbox"/> - not passed
Frequency range:	30-230MHz and 230-1000MHz		

EUT	Power Racer 270
Firm Name	Datel Design & Development, Inc
Operating Condition	DC 3.7V for TX
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test distance	3 Meter
Test Date:	19 Jun~22 Jul 2011
Operator	Peter
MODEL NO	ER251

80.0 dBuV/m



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	39.6192	5.73	29.26	34.99	40.00	-5.01	QP
2	93.7274	4.96	28.39	33.35	43.50	-10.15	QP
3	180.7014	7.45	30.00	37.45	43.50	-6.05	QP
4	216.7735	7.74	28.50	36.24	46.00	-9.76	QP
5	133.0060	6.54	27.23	33.77	43.50	-9.73	QP

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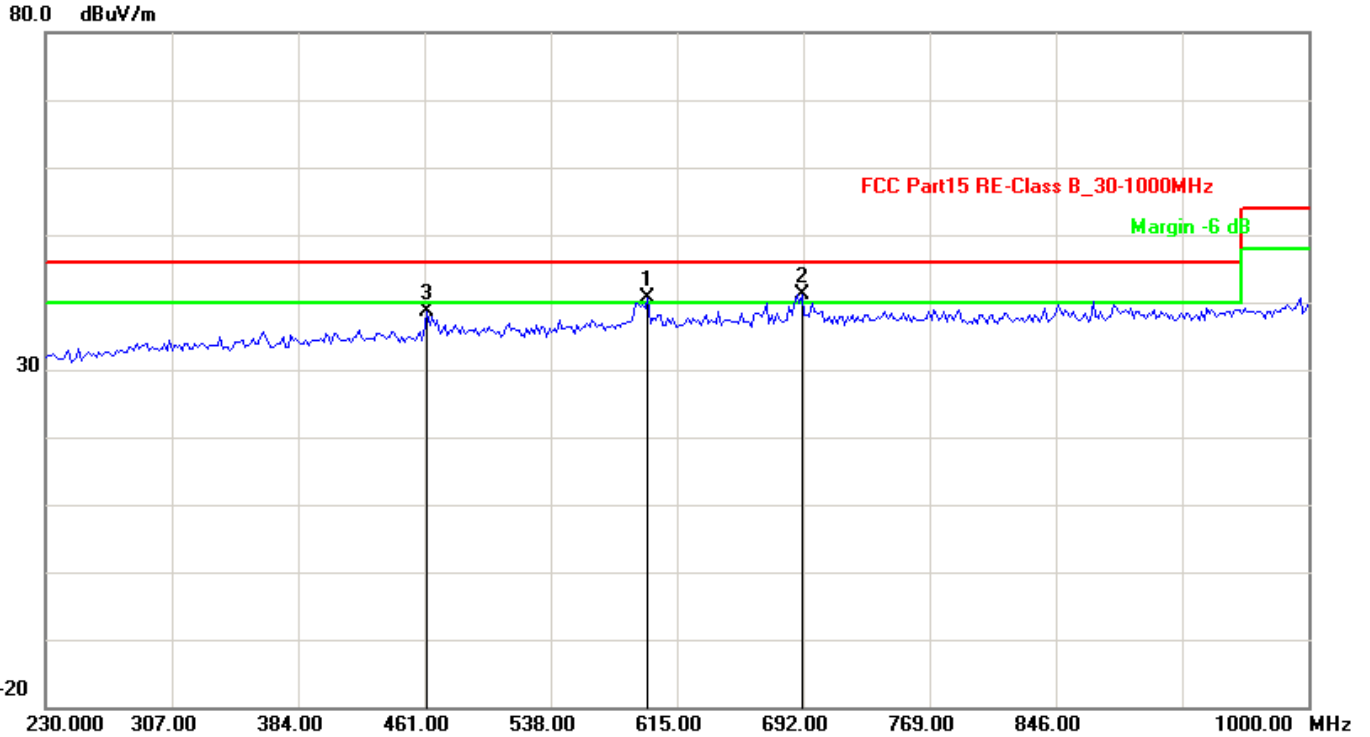
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No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	597.2545	9.28	31.34	40.62	46.00	-5.38	QP
2	691.3827	10.28	30.87	41.15	46.00	-4.85	QP
3	463.0060	8.30	30.29	38.59	46.00	-7.41	QP

Note: 1. Emission level=Read level + Factor
 2. Factor=Antenna factor + Cable loss
 3. Margin=Level- Limit.

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Channel:	TX -X Position Mode Low 2402MHz	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Vertical		<input type="checkbox"/> - not passed
Frequency range:	1GHz-40GHz		

EUT	Power Racer 270
Firm Name	Datel Design & Development, Inc
Operating Condition	DC 3.7V for TX
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Distance	3 Meter
Test Date:	19 Jun~22 Jul 2011
Operator	Peter
MODEL NO	ER251

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2402.198	17.53	62.53	80.06	114.00	-33.94	peak
2	2402.198	17.53	49.76	67.29	94.00	-26.71	AVG
3	2430.822	18.85	28.69	47.54	74.00	-26.46	peak
4	4284.569	21.80	26.71	48.51	74.00	-25.49	peak
5	5739.479	24.44	18.21	42.65	54.00	-11.35	AVG
6	8539.078	27.02	16.70	43.72	54.00	-10.28	AVG
7	10412.826	28.89	17.90	46.79	54.00	-7.21	AVG
8	11669.339	29.59	18.13	47.72	54.00	-6.28	AVG

Remark: Other frequency mini margin all >10 dB of Limit

Channel:	TX -X Position Mode Middle 2442MHz	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Vertical		<input type="checkbox"/> - not passed
Frequency range:	1GHz-40GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2441.989	18.91	61.32	80.23	114.00	-33.77	peak
2	2441.989	18.91	48.66	67.57	94.00	-26.43	AVG
3	7525.050	26.06	17.59	43.65	54.00	-10.35	AVG
4	6665.331	25.06	20.29	45.35	54.00	-8.65	AVG
5	6026.052	24.84	19.63	44.47	54.00	-9.53	AVG
6	9442.886	28.09	16.54	44.63	54.00	-9.37	AVG
7	8120.240	26.90	17.69	44.59	54.00	-9.41	AVG
8	11933.868	30.09	16.37	46.46	54.00	-7.54	AVG

Remark: Other frequency mini margin all >10 dB of Limit

- Note: 1. Emission level=Read level + Factor
 2. Factor=Antenna factor + Cable loss
 3. Margin=Level-Limit.

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Channel:	TX -X Position Mode High 2480MHz	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Vertical		<input type="checkbox"/> - not passed
Frequency range:	1GHz-40GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2480.108	18.35	63.70	82.05	114.00	-31.95	peak
2	2480.108	18.35	50.98	69.33	94.00	-24.67	AVG
3	6907.816	25.14	21.51	46.65	54.00	-7.35	AVG
4	7304.609	25.69	16.44	42.13	54.00	-11.87	AVG
5	11669.339	29.59	17.41	47.00	54.00	-7.00	AVG
6	10192.385	29.10	18.53	47.63	54.00	-6.37	AVG
7	8120.240	26.90	17.69	44.59	54.00	-9.41	AVG
8	5056.112	23.43	26.34	49.77	74.00	-24.23	peak

Remark: Other frequency mini margin all >10 dB of Limit

- Note: 1. Emission level=Read level + Factor
 2. Factor=Antenna factor + Cable loss
 3. Margin=Level-Limit.

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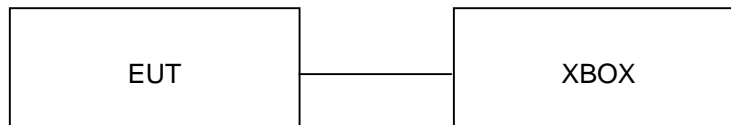
8. Receiver Spurious Emission (electric field)

8.1. Test Equipment

Radiated disturbance (electric field)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100868	2010/12
2	Biconical Antenna	ROHDE & SCHWARZ	HK116	100221	2010/12
3	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2010/12
4	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	2010/12
5	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2010/12
6	Loop Antenna	A.R.A	PLA-1030/B	1030	2010/12

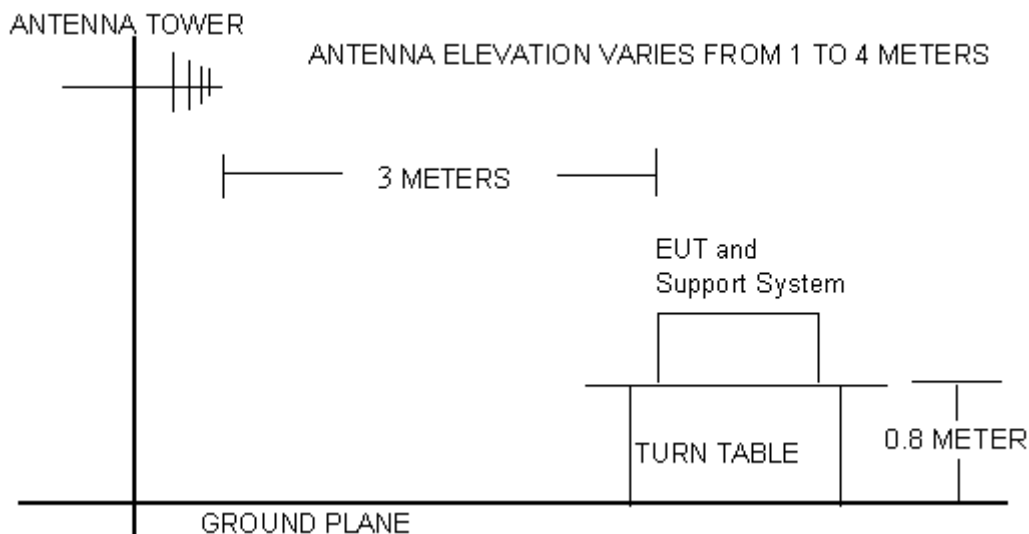
8.2. Block Diagram of Test Setup

7.2.1 Block Diagram of connection between EUT and simulators



(EUT: Power Racer 270)

8.2.2 Anechoic Chamber Setup Diagram



8.3. Receiver Spurious Emission Limit Standard:

Standard:FCC 15.249 , FCC 15.209, FCC 15.109,RSS-Gen:7.2,RSS-210 A2.9

Except as provided in paragraph (a) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{Db}(\mu\text{V})/\text{m}$
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 $\text{Db}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{Db}(\mu\text{V})/\text{m}$ (Average)	

Remark: (1) Emission level $\text{Db}\mu\text{V} = 20 \log$ Emission level $\mu\text{V}/\text{m}$

- 8. . The smaller limit shall apply at the cross point between two frequency bands.
- 8. . Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

8.4.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 ANSI C63.4-2009on radiated emission Test.

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

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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, A average detector with 10Hz VBW above 1GHz

Pretest x, y, z position of EUT, final, select the worst case x position test and record the test results in the report.

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

8.5. Receiver Spurious Emission Test Results

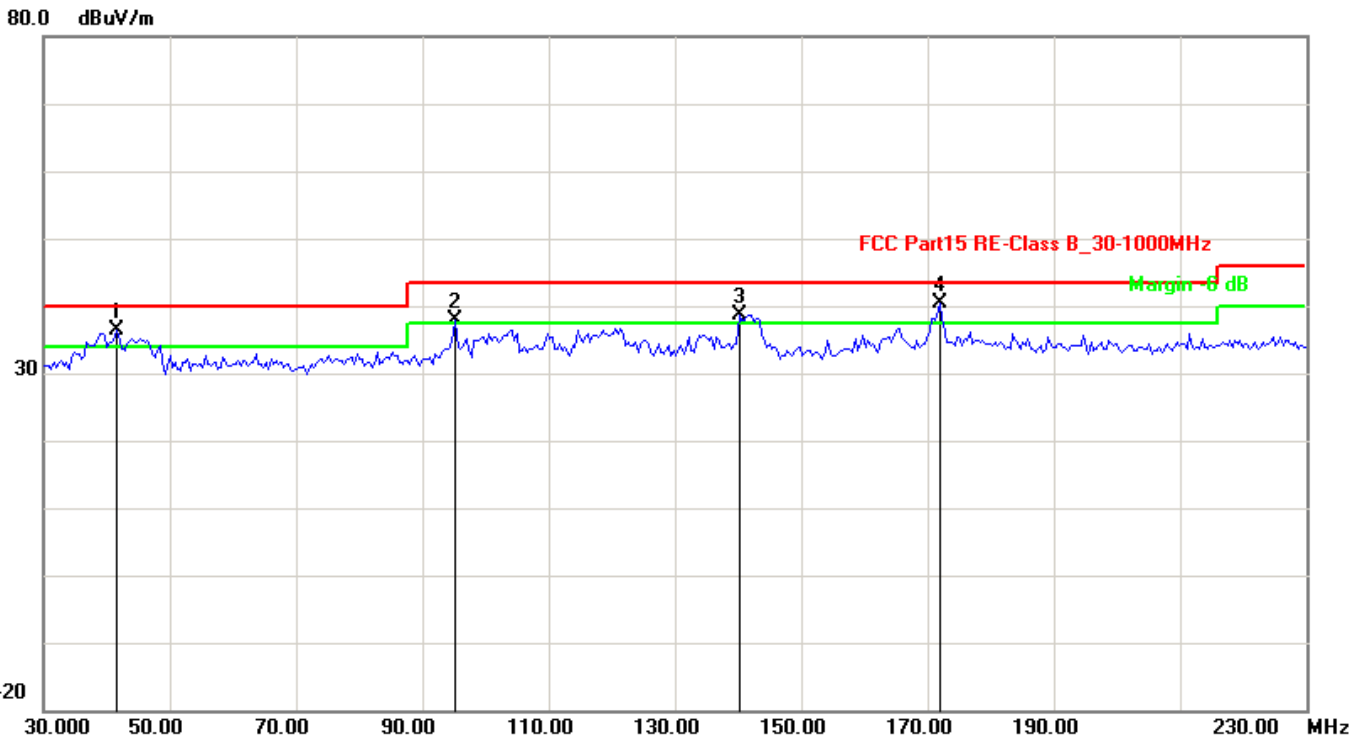
PASSED.

The frequency range from 9KHz~30MHz ,30MHz to 230MHz, 230MHz to 1000MHz and above 1GHz. Is investigated. Please see the following pages.



Channel:	RX Normal link Mode	Result:	■ – passed
Test point:	Horizontal		□ – not passed
Frequency range:	30MHz~230MHz		

EUT	Power Racer 270
Firm Name	Datel Design & Development, Inc
Operating Condition	DC 3.7V for TX AC 120V for RX
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test distance	3 Meter
Test Date:	19 Jun~22 Jul 2011
Operator	Peter
MODEL NO	ER251



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	41.6232	5.60	30.69	36.29	40.00	-3.71	QP
2	95.3306	5.01	32.90	37.91	43.50	-5.59	QP
3	140.2204	6.40	32.24	38.64	43.50	-4.86	QP
4	171.8837	7.41	33.04	40.45	43.50	-3.05	QP

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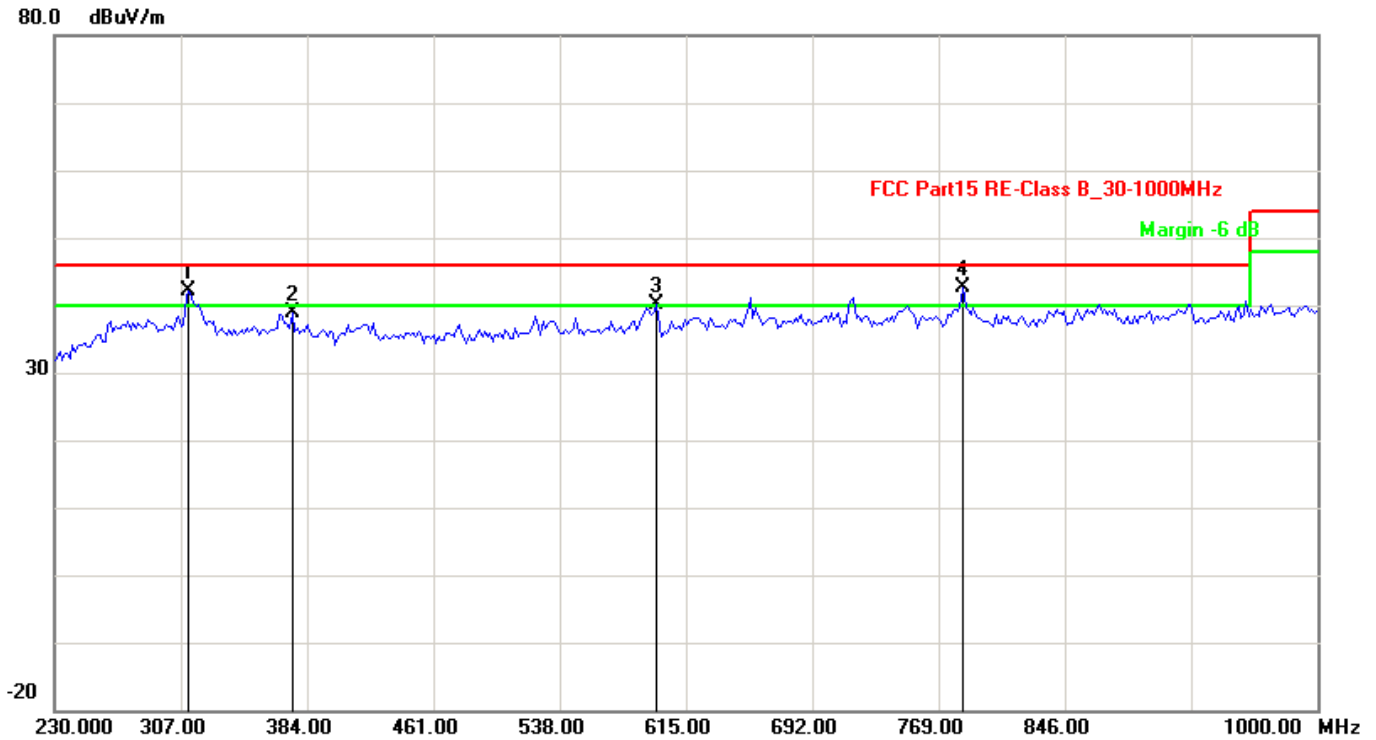
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No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	311.7835	6.49	35.63	42.12	46.00	-3.88	QP
2	375.0500	7.30	31.48	38.78	46.00	-7.22	QP
3	597.2545	9.28	30.96	40.24	46.00	-5.76	QP
4	783.9679	10.16	32.44	42.60	46.00	-3.40	QP

Note: 1. Emission level=Read level + Factor
 2. Factor=Antenna factor + Cable loss
 3. Margin=Level-Limit.

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Channel:	RX Normal link Mode	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Horizontal		<input type="checkbox"/> - not passed
Frequency range:	1GHz-40GHz		

EUT	Power Racer 270
Firm Name	Datel Design & Development, Inc
Operating Condition	DC 3.7V for TX AC 120V for RX
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test distance	3 Meter
Test Date:	19 Jun~22 Jul 2011
Operator	Peter
MODEL NO	ER251

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	9200.401	27.57	16.04	43.61	54.00	-10.39	AVG
2	11713.427	29.67	17.60	47.27	54.00	-6.73	AVG
3	10523.046	28.78	17.91	46.69	54.00	-7.31	AVG
4	5452.906	24.02	17.15	41.17	54.00	-12.83	AVG
5	6136.273	24.88	18.24	43.12	54.00	-10.88	AVG
6	7525.050	26.06	17.12	43.18	54.00	-10.82	AVG

Remark: Other frequency mini margin all >10 dB of Limit

- Note: 1. Emission level=Read level + Factor
 2. Factor=Antenna factor + Cable loss
 3. Margin=Level-Limit.

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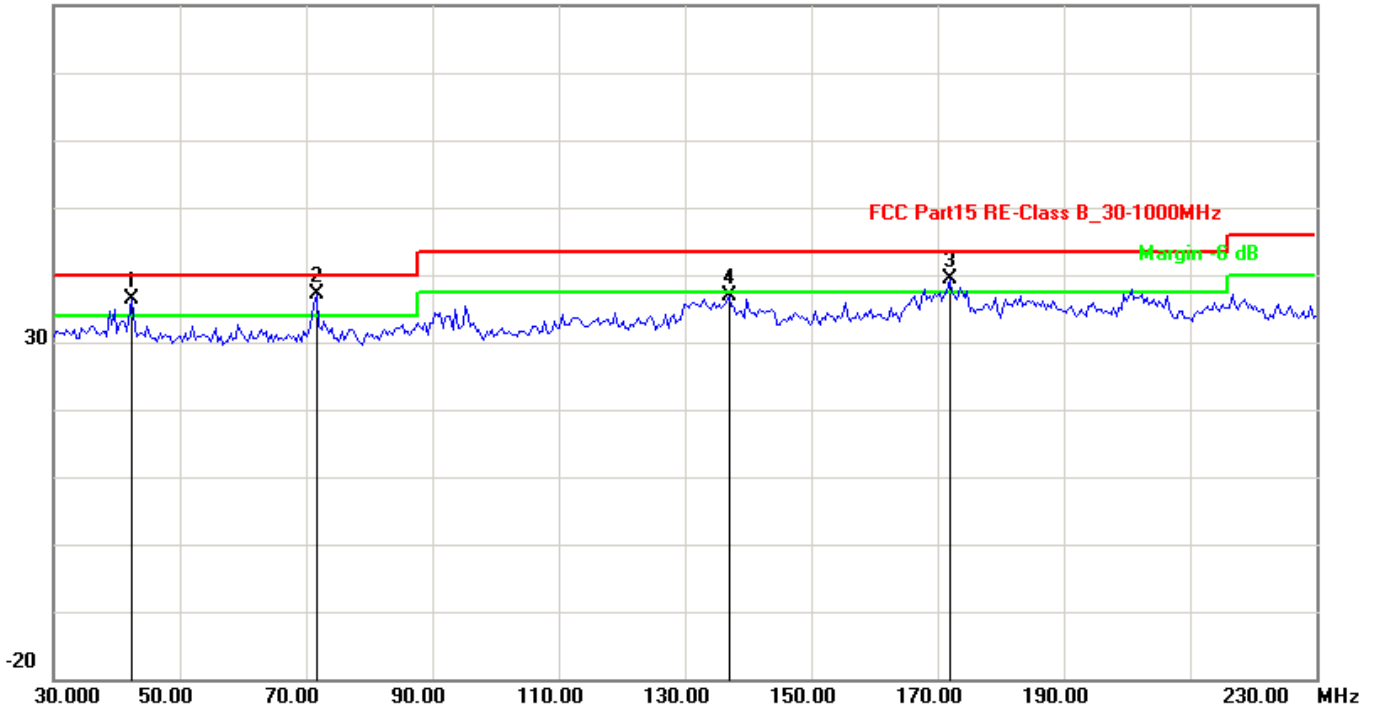
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Channel:	RX Normal link Mode	Result:	<input checked="" type="checkbox"/> - passed
Test point:	Vertical		<input type="checkbox"/> - not passed
Frequency range:	30-230MHz and 230-1000MHz		

EUT	Power Racer 270
Firm Name	Datel Design & Development, Inc
Operating Condition	DC 3.7V for TX AC 120V for RX
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test distance	3 Meter
Test Date:	19 Jun~22 Jul 2011
Operator	Peter
MODEL NO	ER251

80.0 dBuV/m



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	42.4248	5.55	30.84	36.39	40.00	-3.61	QP
2	71.6833	5.08	31.96	37.04	40.00	-2.96	QP
3	171.8837	7.41	31.99	39.40	43.50	-4.10	QP
4	137.0140	6.46	30.43	36.89	43.50	-6.61	QP

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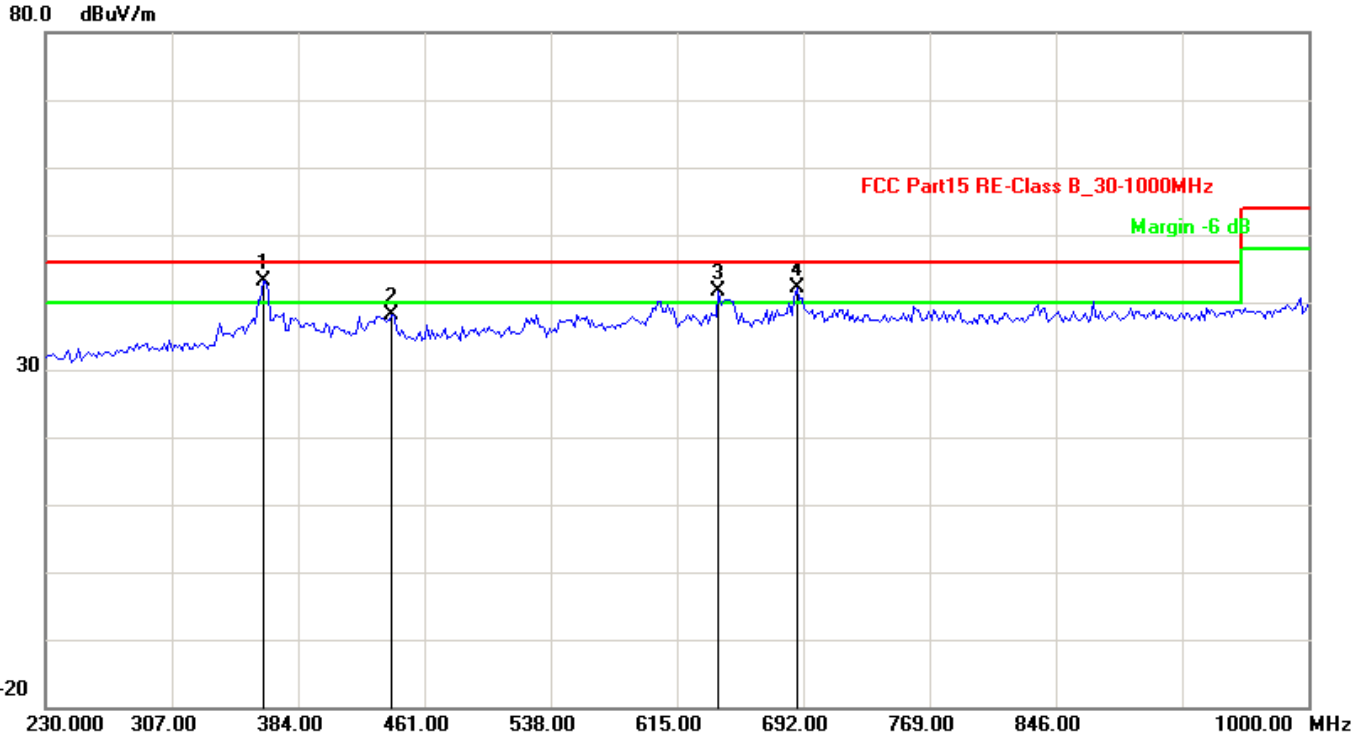
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No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	362.7054	7.20	35.65	42.85	46.00	-3.15	QP
2	441.4028	8.25	29.96	38.21	46.00	-7.79	QP
3	640.4609	9.75	31.98	41.73	46.00	-4.27	QP
4	688.2965	10.26	31.89	42.15	46.00	-3.85	QP

Note: 1. Emission level=Read level + Factor
 2. Factor=Antenna factor + Cable loss
 3. Margin=Level- Limit.

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Channel:	RX Normal link Mode	Result:	<input checked="" type="checkbox"/> - passed <input type="checkbox"/> - not passed
Test point:	Vertical		
Frequency range:	1GHz-26.5GHz		

EUT	Power Racer 270
Firm Name	Datel Design & Development, Inc
Operating Condition	DC 3.7V for TX AC 120V for RX
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test distance	3 Meter
Test Date:	19 Jun~22 Jul 2011
Operator	Peter
MODEL NO	ER251

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	8032.064	26.88	16.60	43.48	54.00	-10.52	AVG
2	4284.569	21.80	26.71	48.51	74.00	-25.49	peak
3	5298.597	23.79	26.52	50.31	74.00	-23.69	peak
4	9993.988	29.28	16.85	46.13	54.00	-7.87	AVG
5	10655.311	28.65	17.13	45.78	54.00	-8.22	AVG
6	11757.515	29.76	16.42	46.18	54.00	-7.82	AVG

Remark: Other frequency mini margin all >10 dB of Limit

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9. Band Edge Compliance test

9.1. Test Equipment

Band Edge Compliance test					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	10868	2010/12
2	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	2010/12
3	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2010/12

9.2. Test Information

EUT	Power Racer 270
Firm Name	Datel Design & Development, Inc
Operating Condition	DC 3.7V for TX
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test distance	3 Meter
Test Date:	19 Jun~22 Jul 2011
Operator	Peter
MODEL NO	ER251

9.3. Test procedure

- 1、 The EUT operates at hopping-off test mode. The lowest or highest channels are tested to verify the largest transmission and spurious emissions power at the continuous transmission mode.
- 2、 Max hold the trace of the setp 1, and the EUT operates at hopping-on test mode to verify the largest spurious emissions power.

9.4. Test Results

PASSED.

The EUT operates at hopping-off test mode. The lowest and highest channels are tested to verify the band edge emissions.

Test Mode	Channel Marked Frequency	Test Result Highest Emission (dBuv/m)			
		Horizontal		Vertical	
		Peak	Average	Peak	Average
Low Channel	2390MHz	38.54	27.33	37.62	26.96
	2400MHz	65.48	49.75	58.48	48.08
High Channel	2483.5MHz	49.52	42.07	43.73	30.32
	2500MHz	38.88	26.56	38.06	28.25

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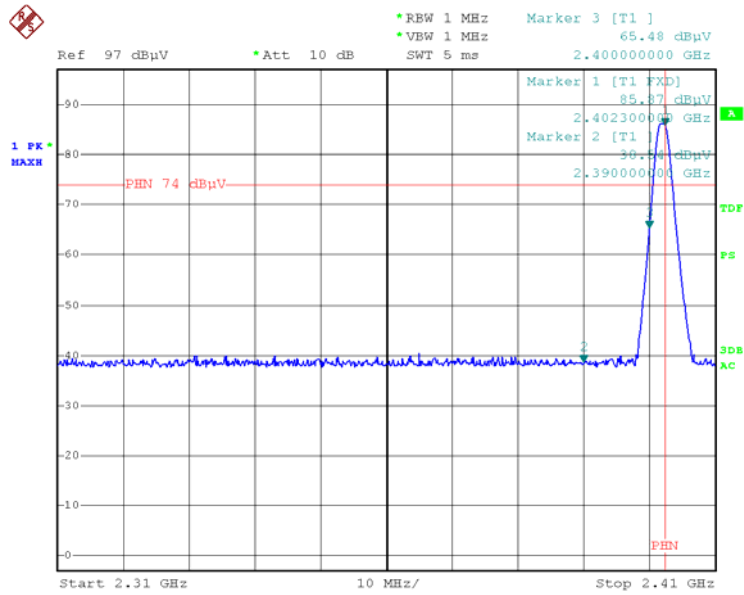
E-mail: cts@cts-lab.com.cn

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Band Edges(CH Low)
 Detector mode:Peak

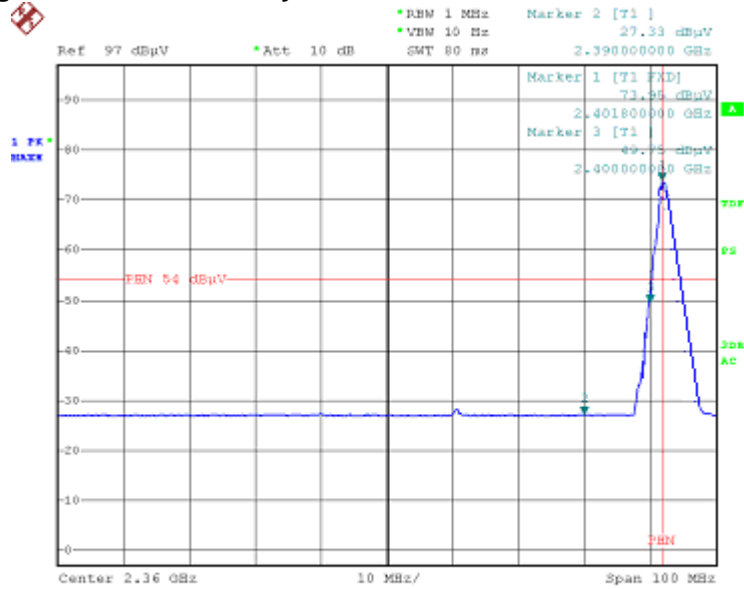
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Date: 19.JUL.2011 17:03:23

Band Edges(CH Low)
 Detector mode:Average

Polarity:Horizontal



Date: 19.JUL.2011 16:28:08

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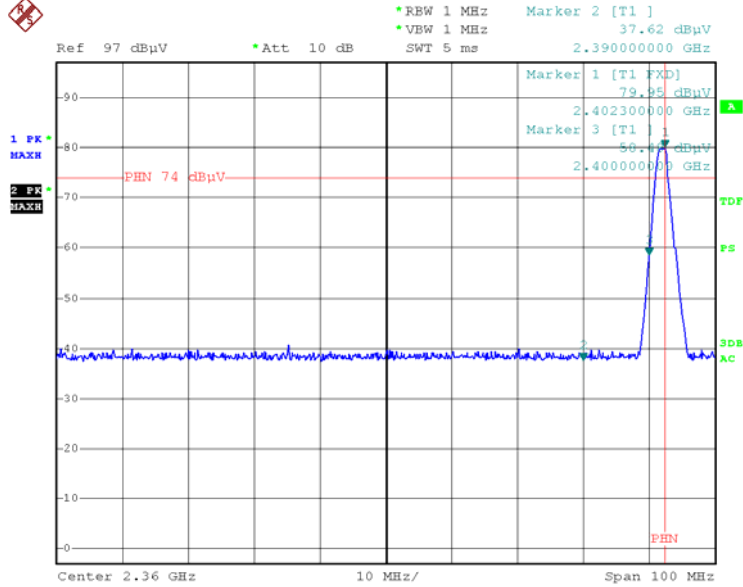
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Band Edges(CH Low)
Detector mode:Peak

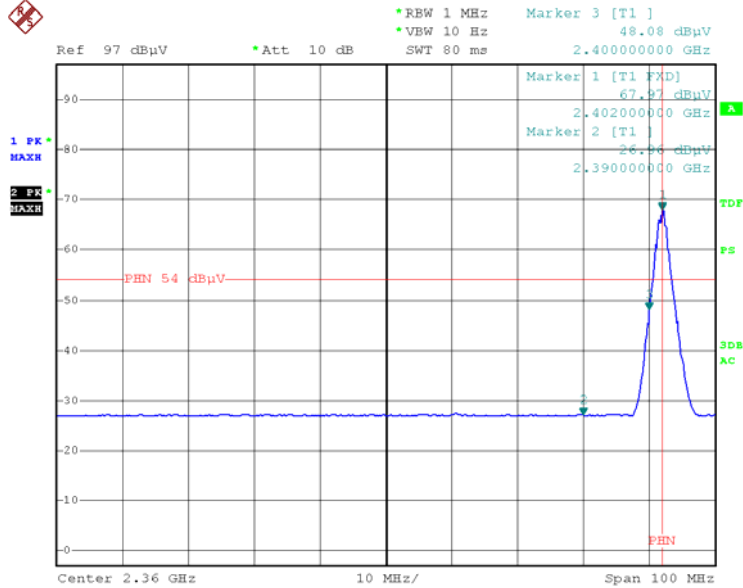
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Date: 19.JUL.2011 16:31:17

Band Edges(CH Low)
Detector mode:Average

Polarity:Vertical



Date: 19.JUL.2011 16:33:18

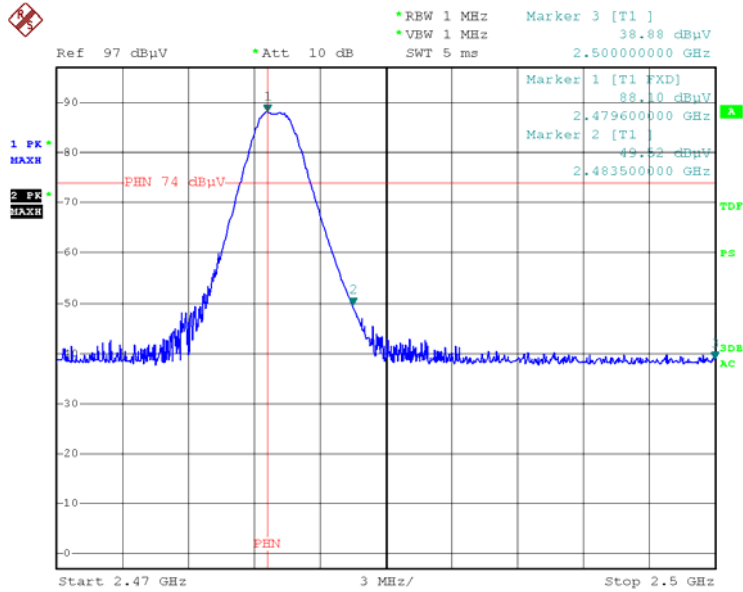
Band Edges(CH High)
Detector mode:Peak

Polarity:Horizontal

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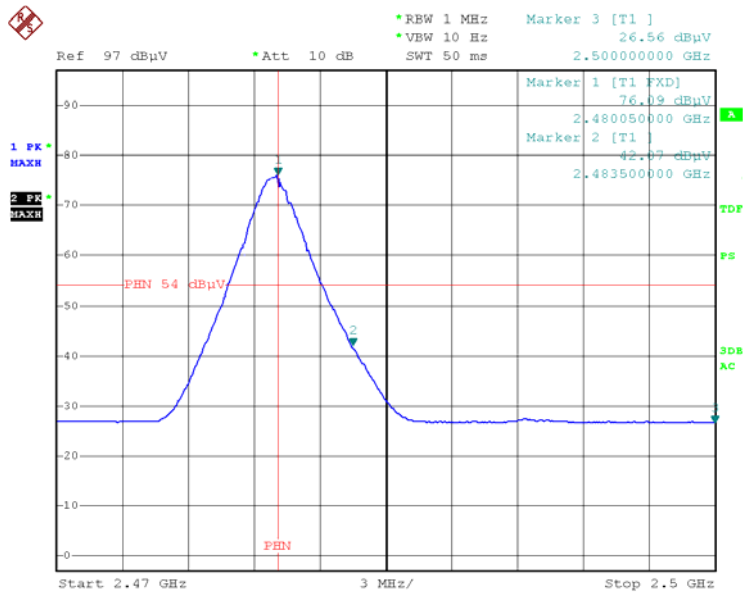
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Date: 19.JUL.2011 16:39:13

Band Edges(CH High)
Detector mode:Average

Polarity:Horizontal



Date: 19.JUL.2011 16:44:58

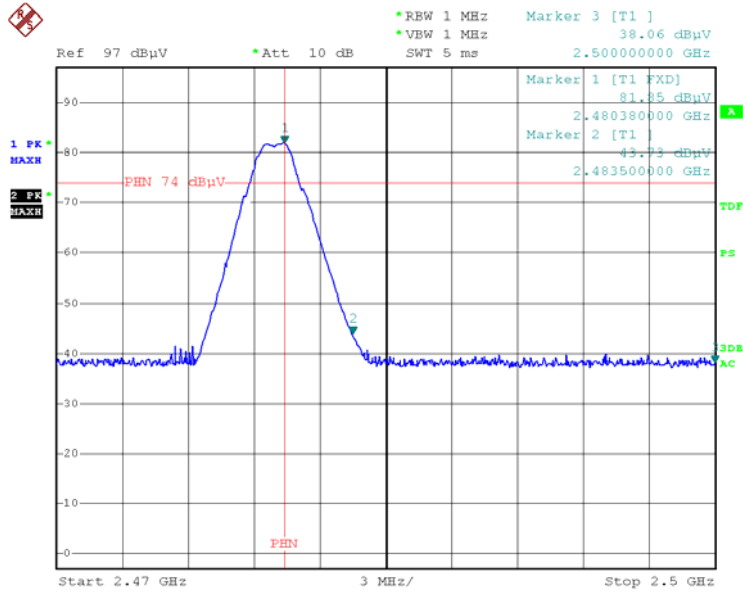
Band Edges(CH High)
Detector mode:Peak

Polarity:Vertical

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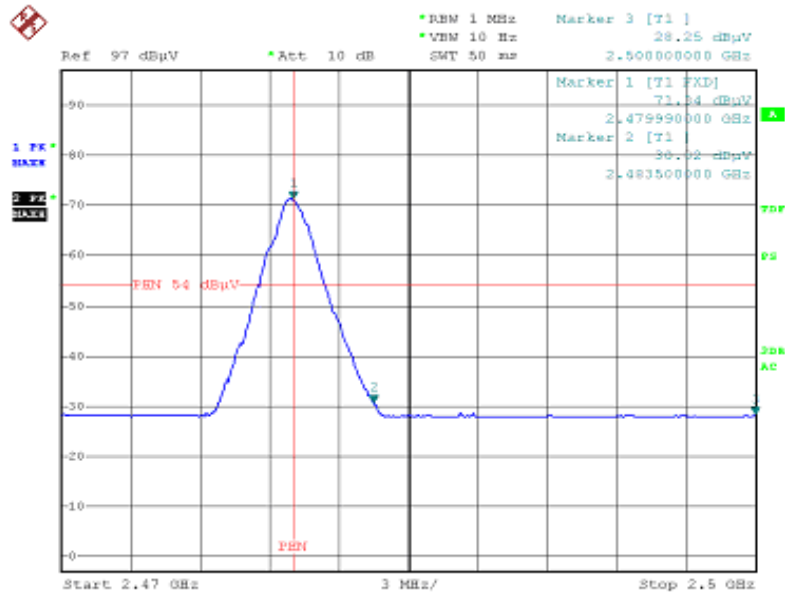
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Date: 19.JUL.2011 16:47:10

Band Edges(CH High)
 Detector mode:Average

Polarity:Vertical



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10. 99% bandwidth

10.1 Test procedure

According to RSS-210 Annex 8 and RSS-Gen 4.6.1 The transmitter output is connected to the spectrum analyzer. The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used given that a peak or peak hold may produce a wider bandwidth than actual. The sweep time is coupled.

10.2. Test Equipment

Band Edge Compliance test					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	10868	2010/12
2	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	2010/12
3	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2010/12

10.3. Test Information

EUT	Power Racer 270
Firm Name	Datel Design & Development, Inc
Operating Condition	DC 3.7V for TX
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	19 Jun~22 Jul 2011
Operator	Peter
MODEL NO	ER251

10.4. Test Results

PASSED.

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	2402	1.419
Middle	2442	1.440
High	2480	1.413

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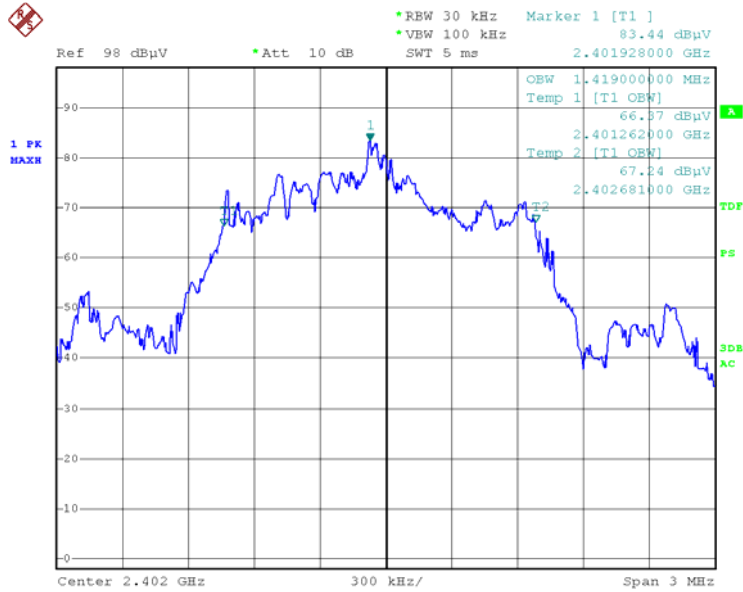
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99% Bandwidth 2402 MHz



Date: 10.AUG.2011 13:51:58

99% Bandwidth 2442 MHz



Date: 10.AUG.2011 13:53:46

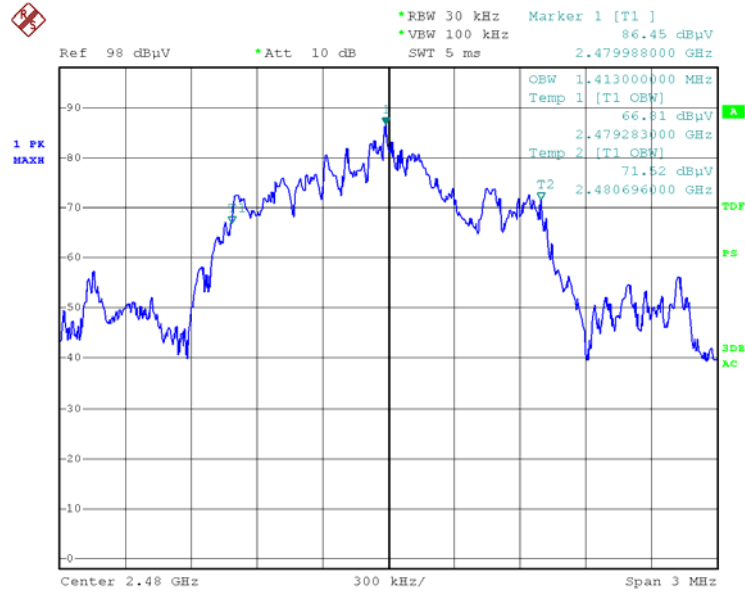
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99% Bandwidth 2480 MHz



Date: 10.AUG.2011 13:55:25

11.Deviation to test specifications

[NONE]

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