FCC Radio Test Report

This report concerns (check one) : ■ Original Grant □ Class II Change

Issued Date : Mar. 17, 2009
Report No. : 0903C042
Equipment : HOME THEATER SYSTEM
Model Name : PT8051
Applicant : Eastech Electronics (Taiwan) Inc.
Address : 13F, NO. 99, Section 1, Nankan Rd. 338, Luchu Shiang, Taoyuan Hsien, Taiwan

Tested by:
Neutron Engineering Inc. EMC Laboratory
Data of Test:
Mar. 10, 2009 ~ Mar. 16, 2009

Testing Engineer : (Jeff Yang)

Technical Manager : (Vic Chiu)

Authorized Signatory : (Steven Lu)

NEUTRON ENGINEERING INC.

No. 132-1, Lane 329, Sec. 2, Palain Rd.,
Shijr City, Taipei, Taiwan
TEL : (02) 2646-5426 FAX : (02) 2646-6815

NVLAP Lab Code: 200145-0

Declaration

Neutron represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C**., or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

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Neutron's laboratory quality assurance procedures are in compliance with the **ISO Guide 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

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1. CERTIFICATION

Equipment: HOME THEATER SYSTEM
Trade Name : ALTEC LANSING
Model Name : PT8051
Applicant: Eastech Electronics (Taiwan) Inc.
Date of Test : Mar. 10, 2009 ~ Mar. 16, 2009
Test Item: ENGINEERING SAMPLE
Standards: FCC Part15, Subpart C(15.247) / ANSI C63.4 : 2003

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-1-0903C042) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP and CNLA according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15, Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.247 (c)	Antenna conducted Spurious Emission	PASS	
15.247 (a)(1)	Hopping Channel Separation	PASS	
15.247 (b)(1)	Peak Output Power	PASS	
15.247 (c)	Radiated Spurious Emission	PASS	
15.247 (b)(1)	Number of Hopping Frequency	PASS	
15.247 (a)(1)	Dwell Time	PASS	
15.205	Restricted Bands	PASS	
15.203	Antenna Requirement	PASS	
1.1307 1.1310 2.1091 2.1093	RF Exposure Compliance	PASS	

NOTE:

(1)” N/A” denotes test is not applicable in this Test Report

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **C01/OS02** at the location of No.132-1, Lane 329, Sec. 2, Palain Road, Shijr City, Taipei, Taiwan.
In that section on the test facility that Neutron's test firm number is 95335

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
C01	ANSI	150 KHz ~ 30MHz	1.94	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U，(dB)	NOTE
OS-01	ANSI	30MHz ~ 200MHz	V	3.82	
		30MHz ~ 200MHz	H	3.60	
		200MHz ~ 1,000MHz	V	3.86	
		200MHz ~ 1,000MHz	H	3.94	
OS-02	ANSI	30MHz ~ 200MHz	V	2.48	
		30MHz ~ 200MHz	H	2.16	
		200MHz ~ 1,000MHz	V	2.50	
		200MHz ~ 1,000MHz	H	2.66	

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Equipment</td><td>HOME THEATER SYSTEM</td></tr>
<tr><td>Trade Name</td><td>ALTEC LANSING</td></tr>
<tr><td>Model Name</td><td>PT8051</td></tr>
<tr><td>OEM Brand/Model Name</td><td>N/A</td></tr>
<tr><td>Model Difference</td><td>N/A</td></tr>
<tr><td>Product Description</td><td>The EUT is a HOME THEATER SYSTEM.
<table>
<tr><td>Operation Frequency:</td><td>2403.328~2479.104MHz.</td></tr>
<tr><td>Modulation Type:</td><td>FHSS</td></tr>
<tr><td>Bit Rate of Transmitter</td><td>1.536Mbps</td></tr>
<tr><td>Number Of Channel</td><td>38 CH .Please see Note 2.</td></tr>
<tr><td>Antenna Designation:</td><td>Please see Note 3.</td></tr>
<tr><td>Antenna Gain(Peak)</td><td>Please see Note 3.</td></tr>
<tr><td>Output Power:</td><td>14.75 dBm (Max.)</td></tr>
</table>
Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.</td></tr>
<tr><td>Channel List</td><td>Please refer to the Note 2.</td></tr>
<tr><td>Power Source</td><td>AC Mains.</td></tr>
<tr><td>Power Rating</td><td>AC I/P 120V, 60Hz</td></tr>
<tr><td>Connecting I/O Port(s)</td><td>Please refer to the User's Manual</td></tr>
<tr><td>Products Covered</td><td>N/A</td></tr>
</table>

Note:

1. For a more detailed features description, please refer to the manufacturer’s specifications or the User's Manual.

2.

Channel List					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2403.328	13	2429.952	26	2456.576
01	2405.376	14	2432.000	27	2458.624
02	2407.424	15	2434.048	28	2460.672
03	2408.472	16	2436.096	29	2462.720
04	2411.520	17	2438.144	30	2464.768
05	2413.568	18	2440.192	31	2466.816
06	2415.616	19	2442.240	32	2468.864
07	2417.664	20	2444.288	33	2470.912
08	2419.712	21	2446.336	34	2472.960
09	2421.760	22	2448.384	35	2475.008
10	2423.808	23	2450.432	36	2477.056
11	2425.856	24	2452.480	37	2479.104
12	2427.904	25	2454.528		

3.

Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	ElevenEngineering	WHAM2	Dipole antenna	NA	2.0

3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Test Mode	Description
Mode 1	CH00
Mode 2	CH19
Mode 3	CH37

The EUT system operated these modes were found to be the worst case during the pre-scanning test as Following

For Radiated Emission	
Final Test Mode	Description
Mode 1	CH00
Mode 2	CH19
Mode 3	CH37

Note:

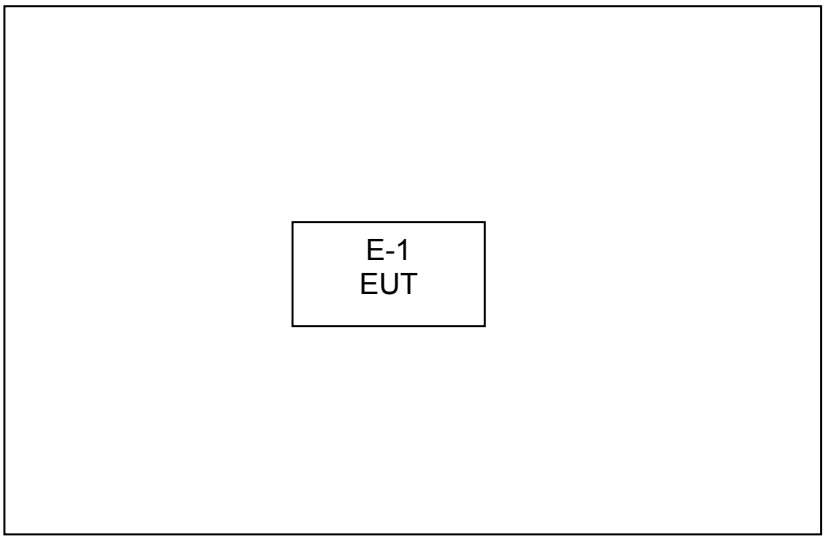
(1) The measurements are performed at the highest, middle, lowest available channels.

3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of FHSS

Version	Test program: SQ15_RFM_DMv3.4		
Frequency	2403.328 MHz	2442.240 MHz	2479.104 MHz
Power Parameters	Def.	Def.	Def.

3.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	HOME THEATER SYSTEM	ALTEC LANSING	PT8051	RFAPT8051W	N/A	EUT(TX)

Item	Shielded Type	Ferrite Core	Length	Note
N/A	N/A	N/A	N/A	N/A

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

4.1.2 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2	00042991	Jan. 23, 2010
2	LISN	EMCO	3816/2	00042990	Jan. 23, 2010
3	Pulse Limiter	Electro-Metrics	EM-7600	112644	Nov. 26, 2009
4	50Ω Terminator	N/A	N/A	N/A	May. 11, 2010
5	Test Cable	N/A	C01	N/A	Nov. 26, 2009
6	EMI Test Receiver	R&S	ESCI	100082	Mar. 06, 2010

Remark: ” N/A” denotes No Model No. , Serial No. or No Calibration specified.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

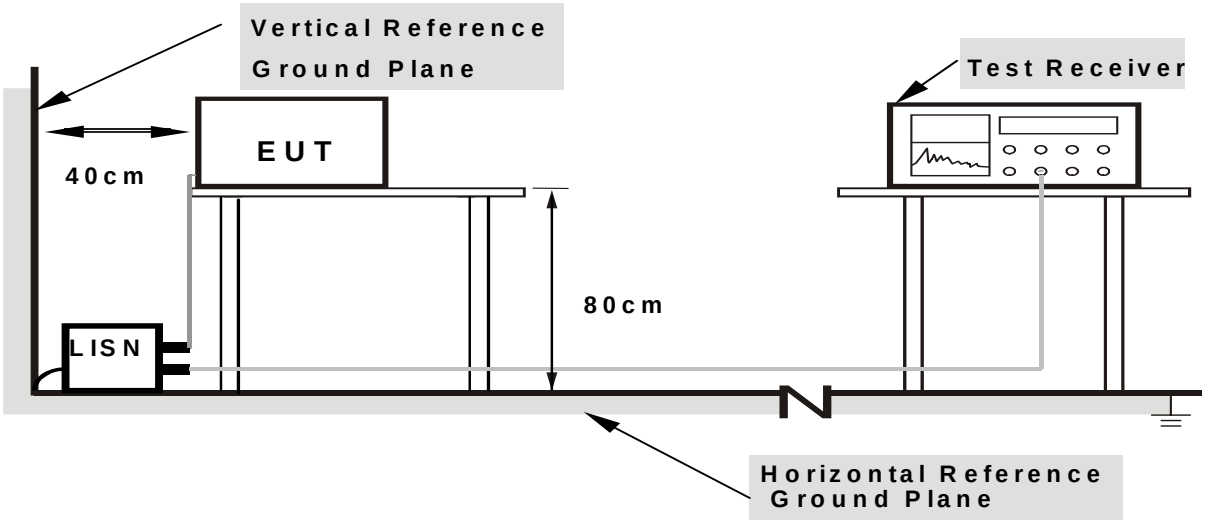
4.1.3 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

4.1.6 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

4.1.7 TEST RESULTS

EUT：	HOME THEATER SYSTEM	Model Name ：	PT8051
Temperature：	25 ℃	Relative Humidity：	60 %
Pressure：	1008 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	Normal Link (TX –DVD)		

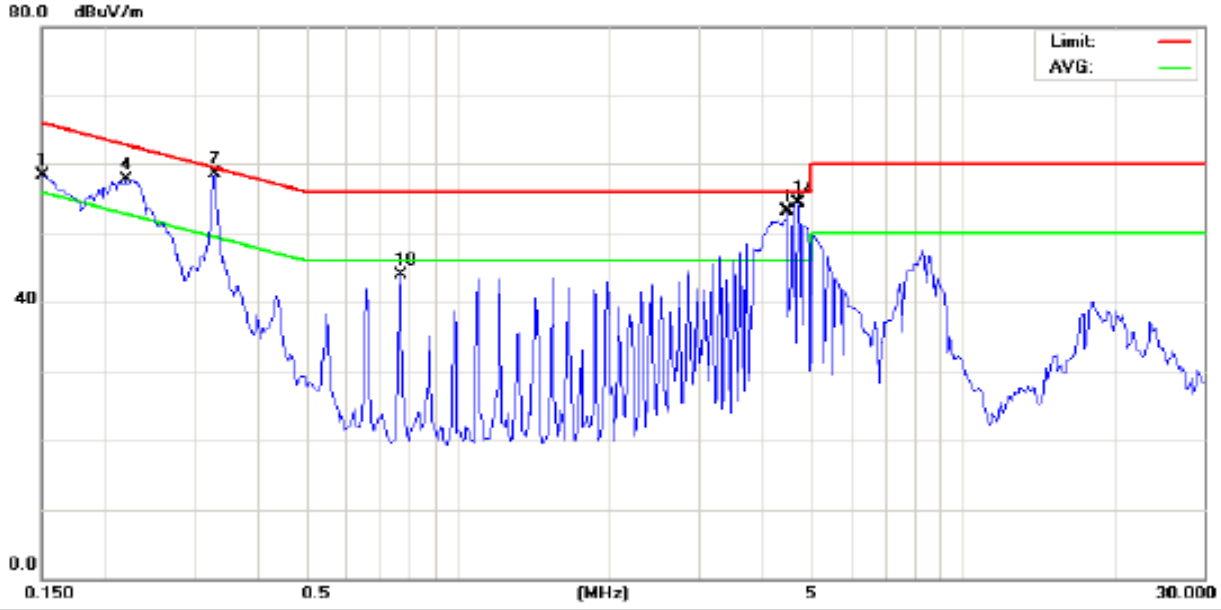
Freq.	Terminal	Measured(dBuV)		Limits(dBuV)		Margin	Note
(MHz)	L/N	QP-Mode	AV-Mode	QP-Mode	AV-Mode	(dB)	
0.15	Line	49.62	*	66.00	56.00	-16.38	QP
0.15	Line	*	20.72	56.00	46.00	-35.28	AVG
0.22	Line	51.93	*	62.82	52.82	-10.89	QP
0.22	Line	*	41.63	52.82	42.82	-11.19	AVG
0.33	Line	57.88	*	59.48	49.48	-1.60	QP
0.33	Line	*	48.37	49.48	39.48	-1.11	AVG
0.77	Line	43.87	*	56.00	46.00	-12.13	QP
4.50	Line	48.91	*	56.00	46.00	-7.09	QP
4.50	Line	*	41.41	46.00	36.00	-4.59	AVG
4.72	Line	48.81	*	56.00	46.00	-7.19	QP
4.72	Line	*	38.41	46.00	36.00	-7.59	AVG

Remark

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz；SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz。Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=10KHz,VBW=10KHz, Swp. Time =0.3 sec./MHz。

(2) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform。In this case, a " * " marked in AVG Mode column of Interference Voltage Measured。

(3) Measuring frequency range from 150KHz to 30MHz。



EUT：	HOME THEATER SYSTEM	Model Name ：	PT8051
Temperature：	25 ℃	Relative Humidity：	60 %
Pressure：	1008 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	Normal Link (TX -DVD)		

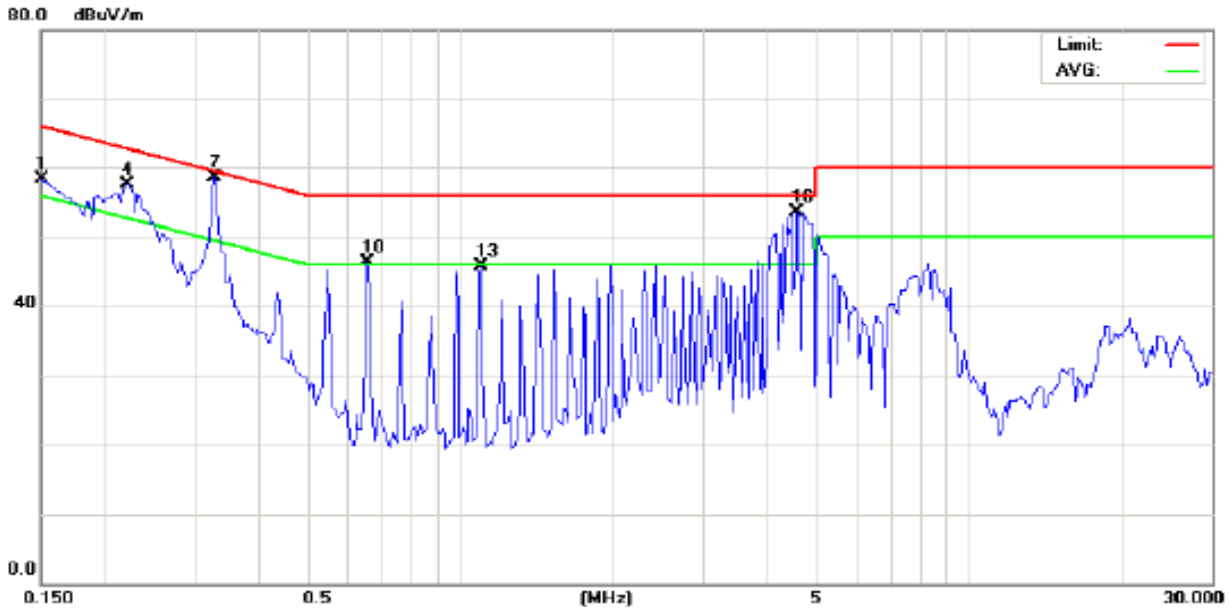
Freq.	Terminal	Measured(dBuV)		Limits(dBuV)		Margin	Note
(MHz)	L/N	QP-Mode	AV-Mode	QP-Mode	AV-Mode	(dB)	
0.15	Neutral	50.06	*	66.00	56.00	-15.94	QP
0.15	Neutral	*	20.86	56.00	46.00	-35.14	AVG
0.22	Neutral	50.34	*	62.78	52.78	-12.44	QP
0.22	Neutral	*	42.74	52.78	42.78	-10.04	AVG
0.33	Neutral	58.16	*	59.51	49.51	-1.35	QP
0.33	Neutral	*	48.09	49.51	39.51	-1.42	AVG
0.66	Neutral	45.27	*	56.00	46.00	-10.73	QP
0.66	Neutral	*	42.07	46.00	36.00	-3.93	AVG
1.10	Neutral	44.39	*	56.00	46.00	-11.61	QP
1.10	Neutral	*	40.49	46.00	36.00	-5.51	AVG
4.60	Neutral	51.10	*	56.00	46.00	-4.90	QP

Remark

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz；SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz。Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=10KHz,VBW=10KHz, Swp. Time =0.3 sec./MHz。

(2) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform。In this case, a " * " marked in AVG Mode column of Interference Voltage Measured。

(3) Measuring frequency range from 150KHz to 30MHz。



EUT：	HOME THEATER SYSTEM	Model Name ：	PT8051
Temperature：	25 ℃	Relative Humidity：	60 %
Pressure：	1008 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	Normal Link (TX-TV)		

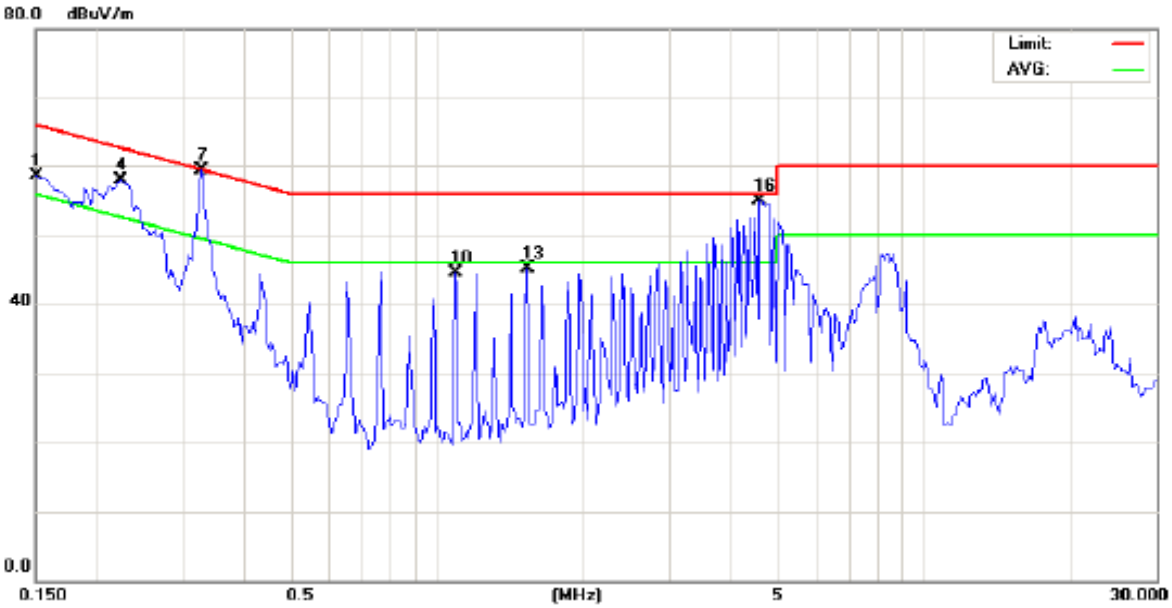
Freq.	Terminal	Measured(dBuV)		Limits(dBuV)		Margin	Note
(MHz)	L/N	QP-Mode	AV-Mode	QP-Mode	AV-Mode	(dB)	
0.15	Line	50.02	*	65.97	55.97	-15.95	QP
0.15	Line	*	20.92	55.97	45.97	-35.05	AVG
0.22	Line	47.33	*	62.68	52.68	-15.35	QP
0.22	Line	*	34.33	52.68	42.68	-18.35	AVG
0.33	Line	58.05	*	59.50	49.50	-1.45	QP
0.33	Line	*	48.27	49.50	39.50	-1.23	AVG
1.09	Line	43.80	*	56.00	46.00	-12.20	QP
1.09	Line	*	38.50	46.00	36.00	-7.50	AVG
1.53	Line	43.04	*	56.00	46.00	-12.96	QP
1.53	Line	*	37.14	46.00	36.00	-8.86	AVG
4.59	Line	44.91	*	56.00	46.00	-11.09	QP
4.59	Line	*	35.11	46.00	36.00	-10.89	AVG

Remark

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz；SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz。Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=10KHz,VBW=10KHz, Swp. Time =0.3 sec./MHz。

(2) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform。In this case, a " * " marked in AVG Mode column of Interference Voltage Measured。

(3) Measuring frequency range from 150KHz to 30MHz。



EUT：	HOME THEATER SYSTEM	Model Name ：	PT8051
Temperature：	25 ℃	Relative Humidity：	60 %
Pressure：	1008 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	Normal Link (TX-TV)		

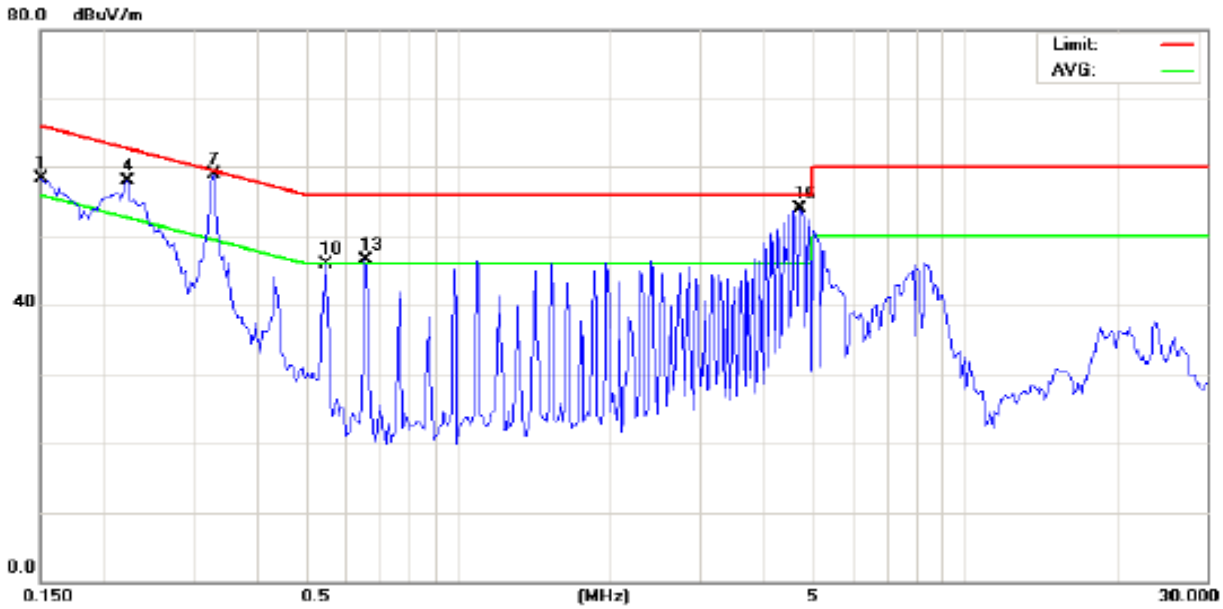
Freq.	Terminal	Measured(dBuV)		Limits(dBuV)		Margin	Note
(MHz)	L/N	QP-Mode	AV-Mode	QP-Mode	AV-Mode	(dB)	
0.15	Neutral	50.06	*	66.00	56.00	-15.94	QP
0.15	Neutral	*	20.86	56.00	46.00	-35.14	AVG
0.22	Neutral	48.84	*	62.73	52.73	-13.89	QP
0.22	Neutral	*	40.74	52.73	42.73	-11.99	AVG
0.33	Neutral	57.89	*	59.48	49.48	-1.59	QP
0.33	Neutral	*	47.66	49.48	39.48	-1.82	AVG
0.66	Neutral	45.05	*	56.00	46.00	-10.95	QP
0.66	Neutral	*	42.25	46.00	36.00	-3.75	AVG
1.10	Neutral	44.97	*	56.00	46.00	-11.03	QP
1.10	Neutral	*	41.67	46.00	36.00	-4.33	AVG
4.60	Neutral	51.00	*	56.00	46.00	-5.00	QP
4.60	Neutral	*	44.7	46.00	36.00	-1.30	AVG

Remark

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz；SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz。Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=10KHz,VBW=10KHz, Swp. Time =0.3 sec./MHz。

(2) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform。In this case, a " * " marked in AVG Mode column of Interference Voltage Measured。

(3) Measuring frequency range from 150KHz to 30MHz。



EUT：	HOME THEATER SYSTEM	Model Name ：	PT8051
Temperature：	25 ℃	Relative Humidity：	60 %
Pressure：	1008 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	Normal Link (TX-AUX)		

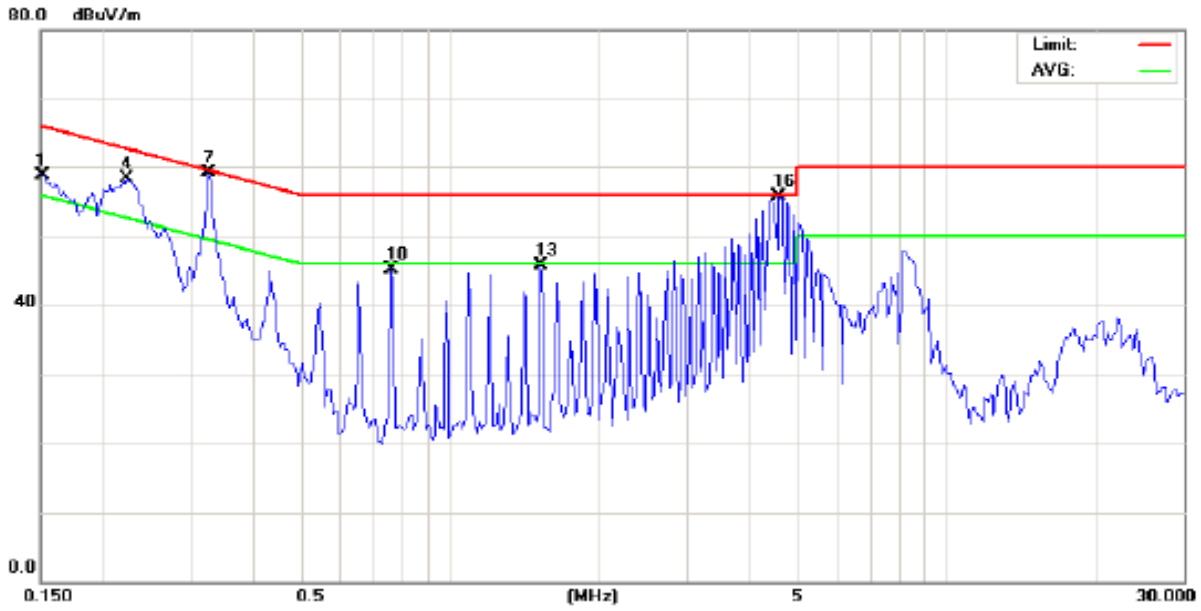
Freq.	Terminal	Measured(dBuV)		Limits(dBuV)		Margin	Note
(MHz)	L/N	QP-Mode	AV-Mode	QP-Mode	AV-Mode	(dB)	
0.15	Line	50.12	*	66.00	56.00	-15.88	QP
0.15	Line	*	21.12	56.00	46.00	-34.88	AVG
0.22	Line	47.53	*	62.70	52.70	-15.17	QP
0.22	Line	*	35.33	52.70	42.70	-17.37	AVG
0.33	Line	57.69	*	59.56	49.56	-1.87	QP
0.33	Line	*	47.96	49.56	39.56	-1.60	AVG
0.76	Line	43.89	*	56.00	46.00	-12.11	QP
0.76	Line	*	40.69	46.00	36.00	-5.31	AVG
1.53	Line	44.04	*	56.00	46.00	-11.96	QP
1.53	Line	*	38.24	46.00	36.00	-7.76	AVG
4.58	Line	53.01	*	56.00	46.00	-2.99	QP
4.58	Line	*	44.21	46.00	36.00	-1.79	AVG

Remark

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz；SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz。Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=10KHz,VBW=10KHz, Swp. Time =0.3 sec./MHz。

(2) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform。In this case, a " * " marked in AVG Mode column of Interference Voltage Measured。

(3) Measuring frequency range from 150KHz to 30MHz。



EUT：	HOME THEATER SYSTEM	Model Name ：	PT8051
Temperature：	25 ℃	Relative Humidity：	60 %
Pressure：	1008 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	Normal Link (TX-AUX)		

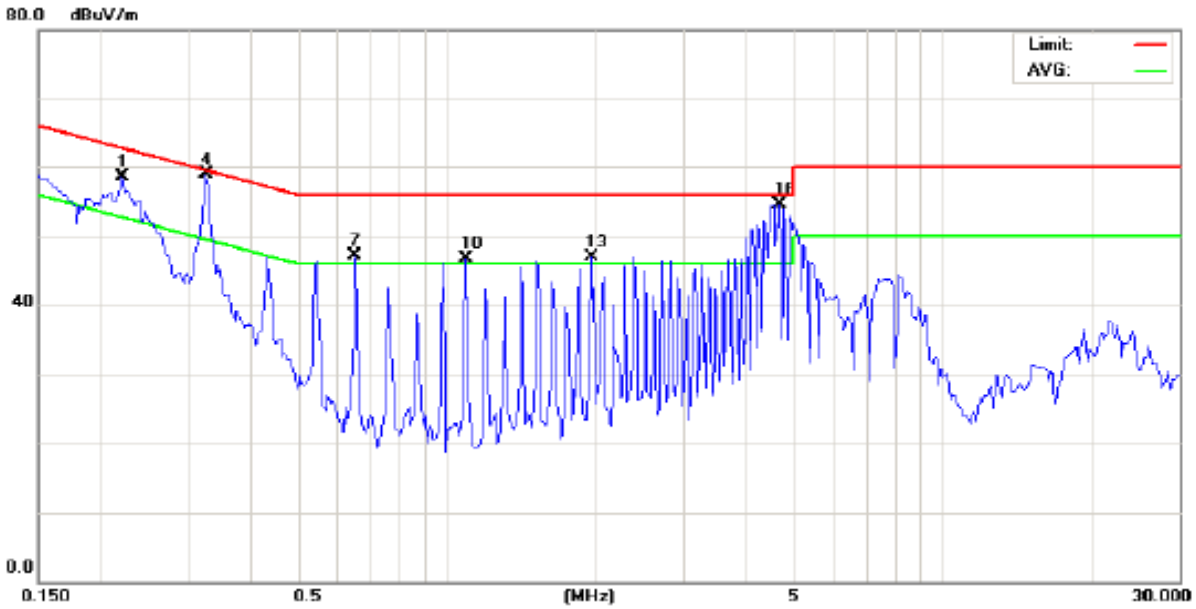
Freq.	Terminal	Measured(dBuV)		Limits(dBuV)		Margin	Note
(MHz)	L/N	QP-Mode	AV-Mode	QP-Mode	AV-Mode	(dB)	
0.15	Neutral	47.39	*	66.00	56.00	-18.61	QP
0.15	Neutral	*	25.46	52.76	42.76	-27.30	AVG
0.22	Neutral	57.71	*	59.55	49.55	-1.84	QP
0.22	Neutral	*	48.12	49.55	39.55	-1.43	AVG
0.33	Neutral	44.40	*	56.00	46.00	-11.60	QP
0.33	Neutral	*	37.71	46.00	36.00	-8.29	AVG
0.66	Neutral	43.77	*	56.00	46.00	-12.23	QP
0.66	Neutral	*	39.83	46.00	36.00	-6.17	AVG
1.10	Neutral	44.60	*	56.00	46.00	-11.40	QP
1.10	Neutral	*	37.21	46.00	36.00	-8.79	AVG
4.60	Neutral	54.02	*	56.00	46.00	-1.98	QP
4.60	Neutral	*	44.55	46.00	36.00	-1.45	AVG

Remark

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz；SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz。Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=10KHz,VBW=10KHz, Swp. Time =0.3 sec./MHz。

(2) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform。In this case, a " * " marked in AVG Mode column of Interference Voltage Measured。

(3) Measuring frequency range from 150KHz to 30MHz。



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 Radiated Emission Limits (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80	60	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

4.2.2 MEASUREMENT INSTRUMENTS LIST ANS SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Log-Bicon Antenna	Schwarzbeck	VULB 9160	3058	Mar. 19, 2009
2	Test Cable	N/A	10M_OS02	N/A	Nov. 26, 2009
3	Test Cable	N/A	OS02-1/-2/-3	N/A	Nov. 26, 2009
4	Pre-Amplifier	Anritsu	MH648A	M09961	Nov. 26, 2009
5	Pre-Amplifier	Agilent	8449B	3008A01714	May,13, 2009
6	Spectrum Analyzer	R&S	FSP_40	100129	Jan, 06, 2010
7	EMI Test Receiver	R&S	ESCI	100082	Mar. 06, 2010
8	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-325	Dec. 12, 2009
9	Horn Antenna	Schwarzbeck	BBHA9170	9170-187	Dec. 10, 2009
10	Antenna Mast	Chance Most	CMTB-1.5	N/A	N/A
11	Turn Table	Chance Most	CMTB-1.5	N/A	N/A

Remark: ” N/A” denotes No Model Name / Serial No. and No Calibration specified.

Spectrum Parameter	**Setting**
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (other emission)	100KHz / 100KHz for peak

Receiver Parameter	**Setting**
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

4.2.3 TEST PROCEDURE

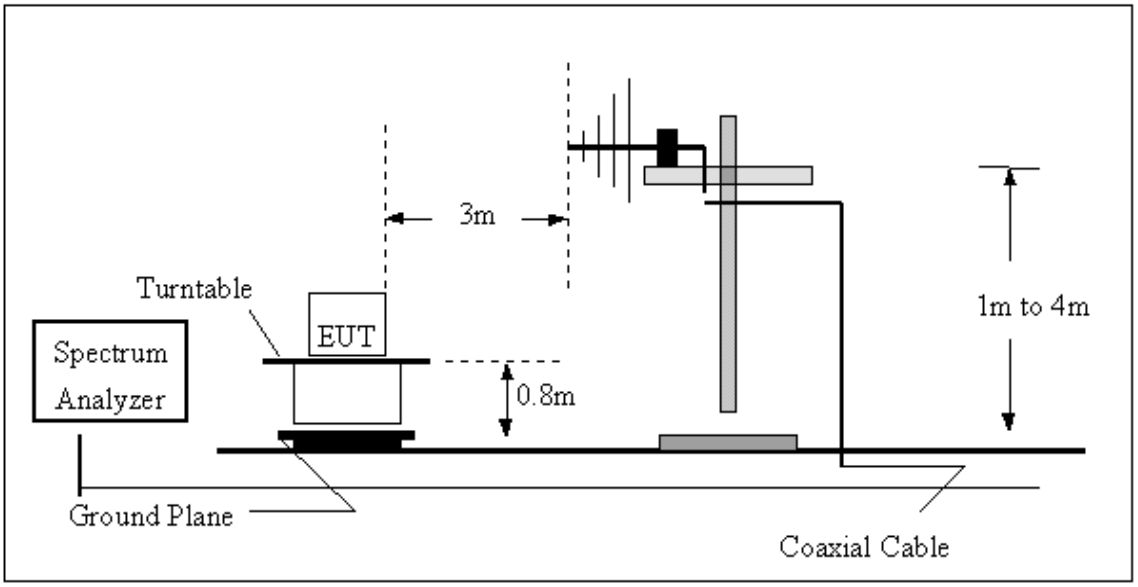
a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.2.4 DEVIATION FROM TEST STANDARD

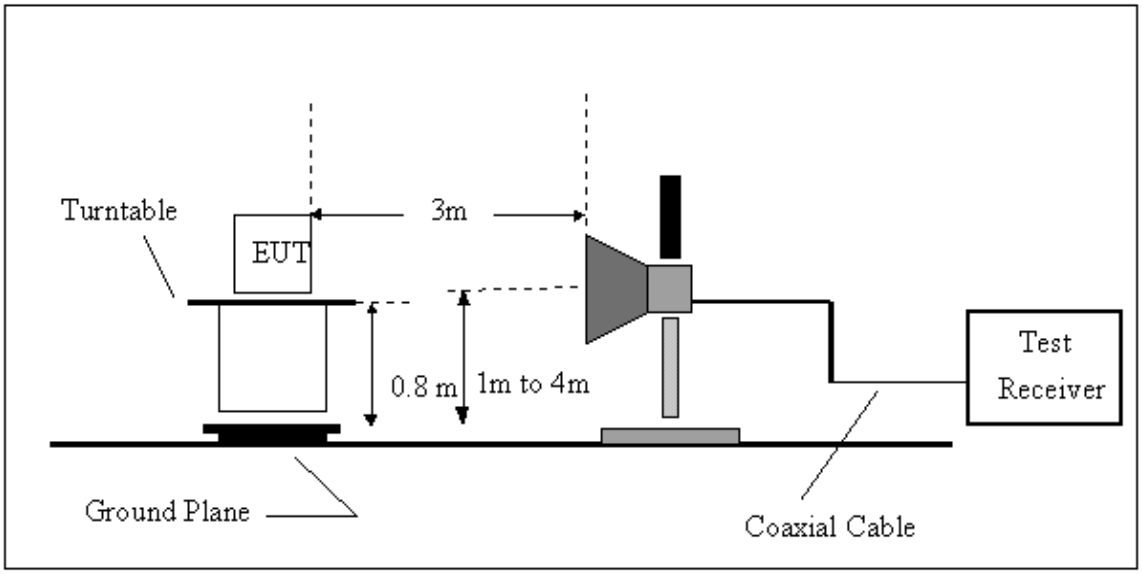
No deviation

4.2.5 TEST SETUP

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



4.2.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

4.2.7 TEST RESULTS (BETWEEN30 – 1000 MHZ)

EUT：	HOME THEATER SYSTEM	Model No. ：	PT8051
Temperature：	26 ℃	Relative Humidity：	61%
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX CH 37	EUT Orthogonal Axis：	X

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
34.85	V	46.17	-13.40	32.77	40.00	- 7.23	
80.44	V	58.17	-21.29	36.88	40.00	- 3.12	
112.45	V	55.72	-20.09	35.63	43.50	- 7.87	
191.99	V	55.06	-18.16	36.90	43.50	- 6.60	
296.75	V	50.14	-13.86	36.28	46.00	- 9.72	
445.16	V	48.13	-10.07	38.06	46.00	- 7.94	

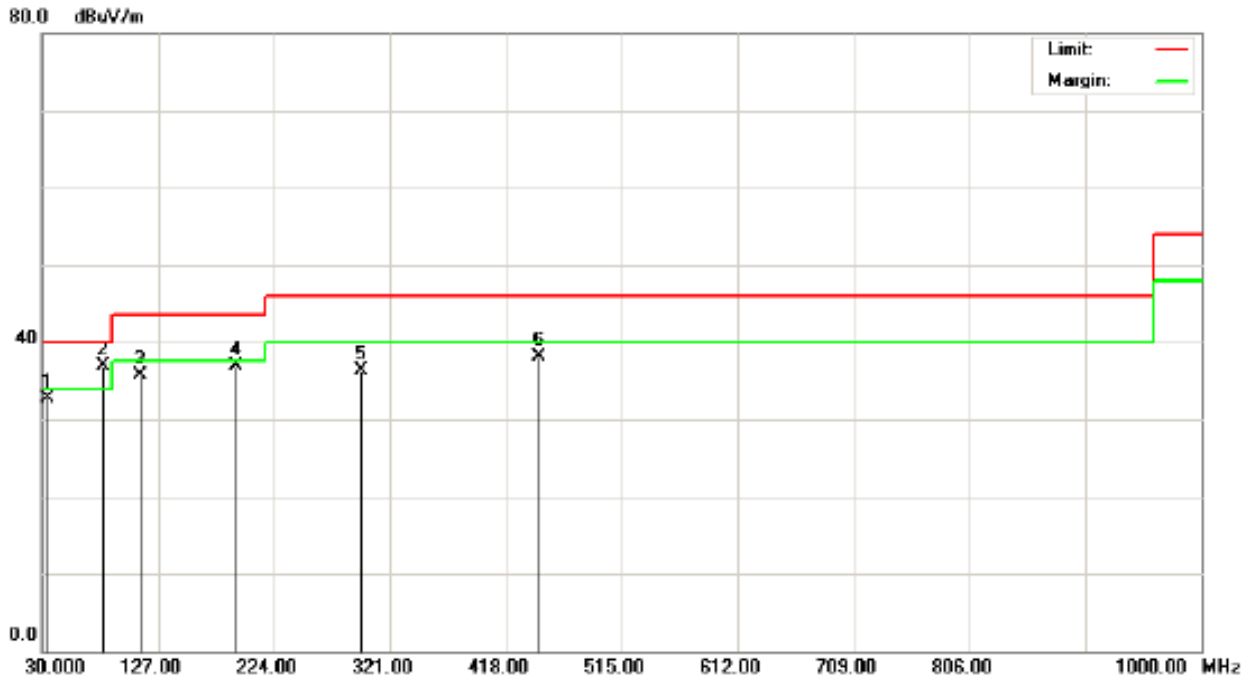
Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(3) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission 。

(4) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.



EUT：	HOME THEATER SYSTEM	Model No. ：	PT8051
Temperature：	26 ℃	Relative Humidity：	61%
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX CH 37	EUT Orthogonal Axis：	X

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
34.85	H	46.08	-13.40	32.68	40.00	- 7.32	
80.44	H	58.12	-21.29	36.83	40.00	- 3.17	
183.26	H	54.40	-18.37	36.03	43.50	- 7.47	
296.75	H	48.58	-13.86	34.72	46.00	- 11.28	
451.95	H	45.45	-9.85	35.60	46.00	- 10.40	
614.91	H	42.74	-5.41	37.33	46.00	- 8.67	

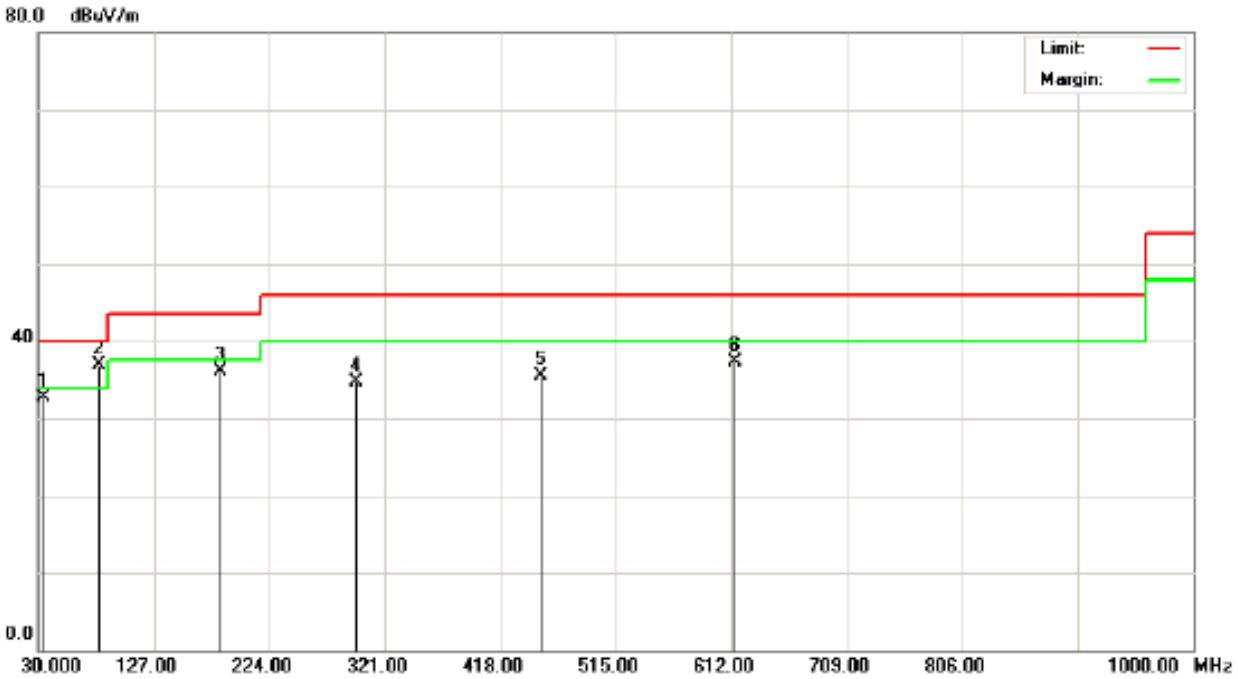
Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(3) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission 。

(4) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.



4.2.8 TEST RESULTS (ABOVE 1000 MHZ)

EUT：	HOME THEATER SYSTEM	Model No. ：	PT8051
Temperature：	25 ℃	Relative Humidity：	71%
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX CH00	EUT Orthogonal Axis：	X

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2389.92	V	30.24	19.41	32.05	62.29	51.46	74.00	54.00	X/E
2403.42	**V**	**78.60**	**76.34**	**32.09**	**110.69**	**108.43**			**X/F**
1602.32	V	48.82	42.43	-6.51	42.31	35.92	74.00	54.00	X/H
3204.46	V	50.45	44.31	-0.49	49.96	43.82	74.00	54.00	X/H
4805.24	V	44.21	33.2	3.51	47.72	36.71	74.00	54.00	X/H
7209.16	V	48.74	40.32	8.24	56.98	48.56	74.00	54.00	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

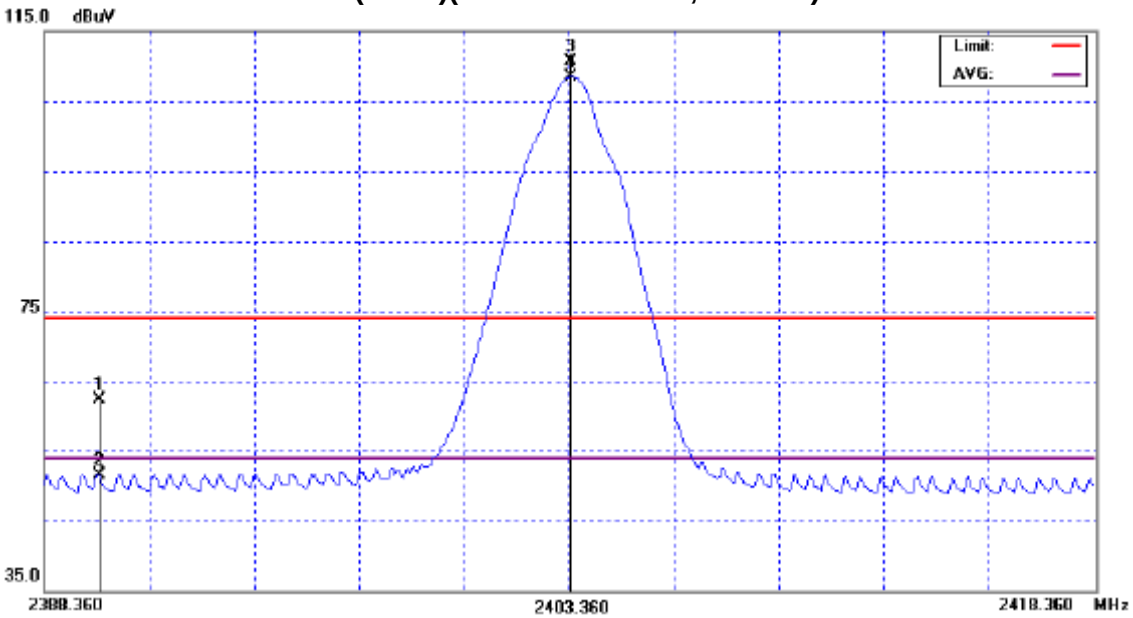
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

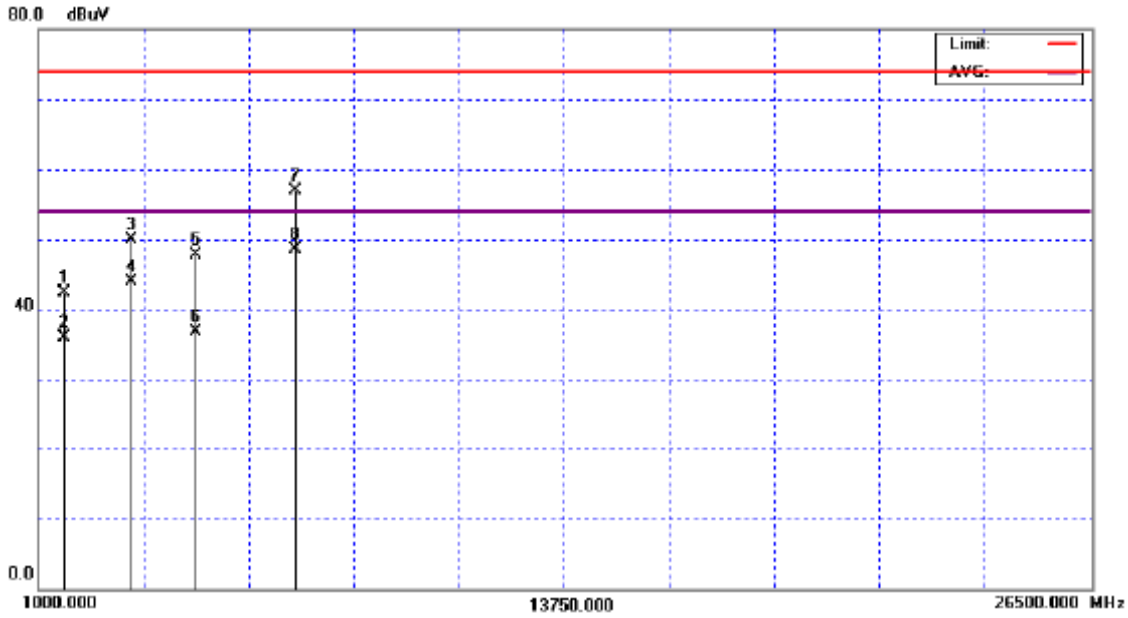
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

Orthogonal Axis：X
TX (CH00)(Above 1000 MHz, Vertical)





EUT：	HOME THEATER SYSTEM	Model No. ：	PT8051
Temperature：	25 ℃	Relative Humidity：	71%
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX CH00	EUT Orthogonal Axis：	X

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2389.92	H	30.21	19.32	32.05	62.26	51.37	74.00	54.00	X/E
2403.42	**H**	**76.09**	**73.82**	**32.09**	**108.18**	**105.91**			**X/F**
1602.20	H	49.70	43.42	-6.51	43.19	36.91	74.00	54.00	X/H
3204.46	H	51.92	47.06	-0.49	51.43	46.57	74.00	54.00	X/H
4806.04	H	44.33	33.63	3.51	47.84	37.14	74.00	54.00	X/H
7211.04	H	48.06	39.09	8.24	56.30	47.33	74.00	54.00	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

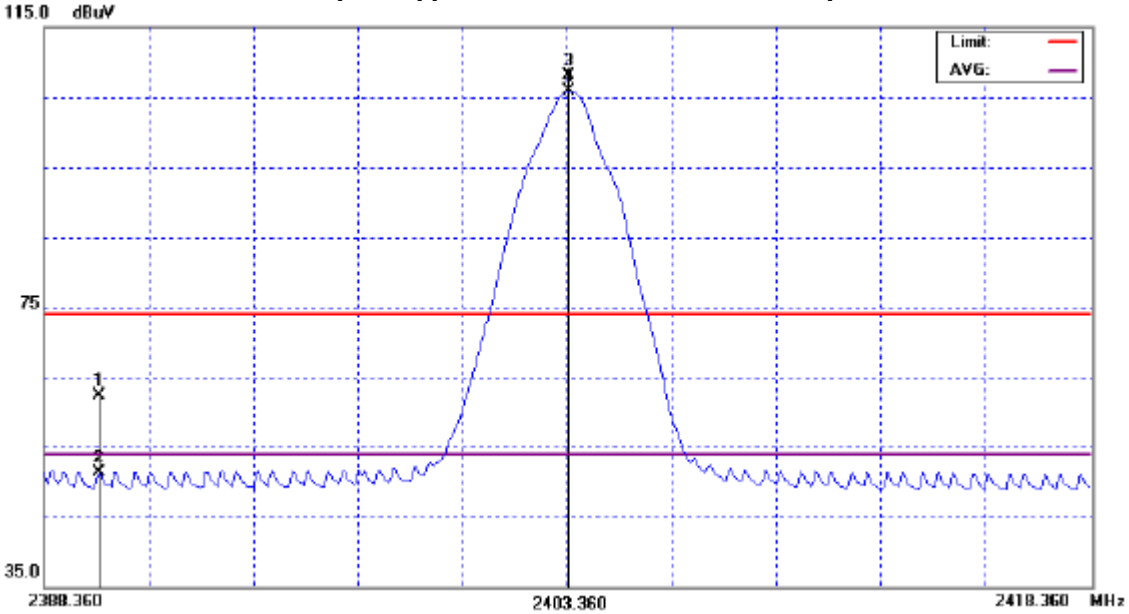
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

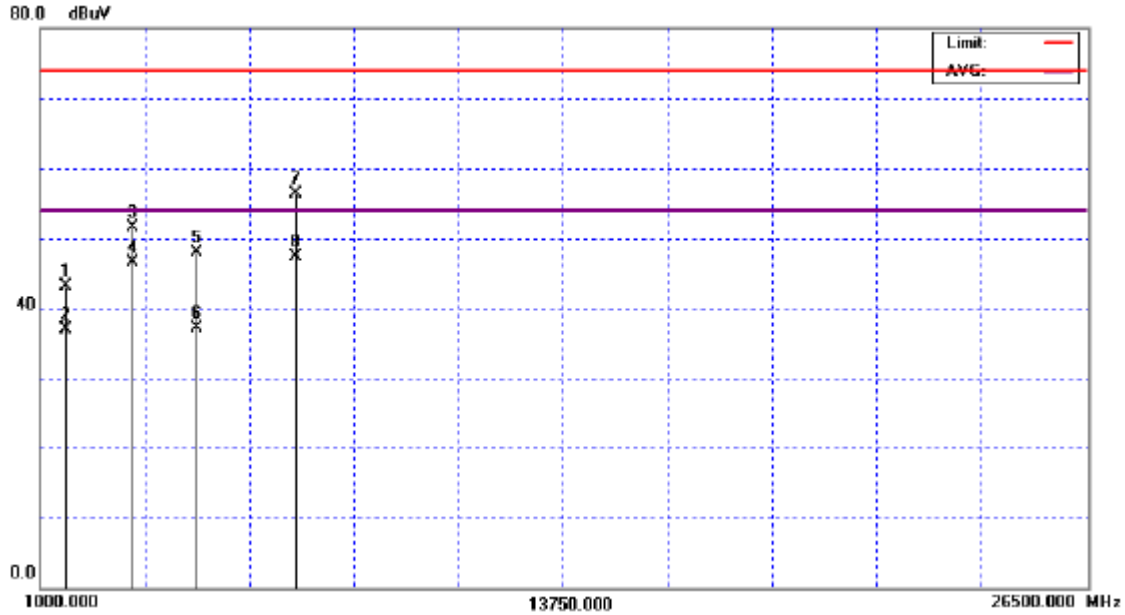
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

Orthogonal Axis：X
TX (CH00)(Above 1000 MHz, Horizontal)





EUT：	HOME THEATER SYSTEM	Model No. ：	PT8051
Temperature：	25 ℃	Relative Humidity：	71%
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX CH19	EUT Orthogonal Axis：	X

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2442.36	**V**	**76.06**	**73.76**	**32.22**	**108.28**	**105.98**			**X/F**
1628.24	V	51.89	46.84	-6.35	45.54	40.49	74.00	54.00	X/H
3256.30	V	53.16	47.75	-0.33	52.83	47.42	74.00	54.00	X/H
4885.58	V	44.98	32.32	3.76	48.74	36.08	74.00	54.00	X/H
7325.58	V	45.68	35.15	8.71	54.39	43.86	74.00	54.00	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

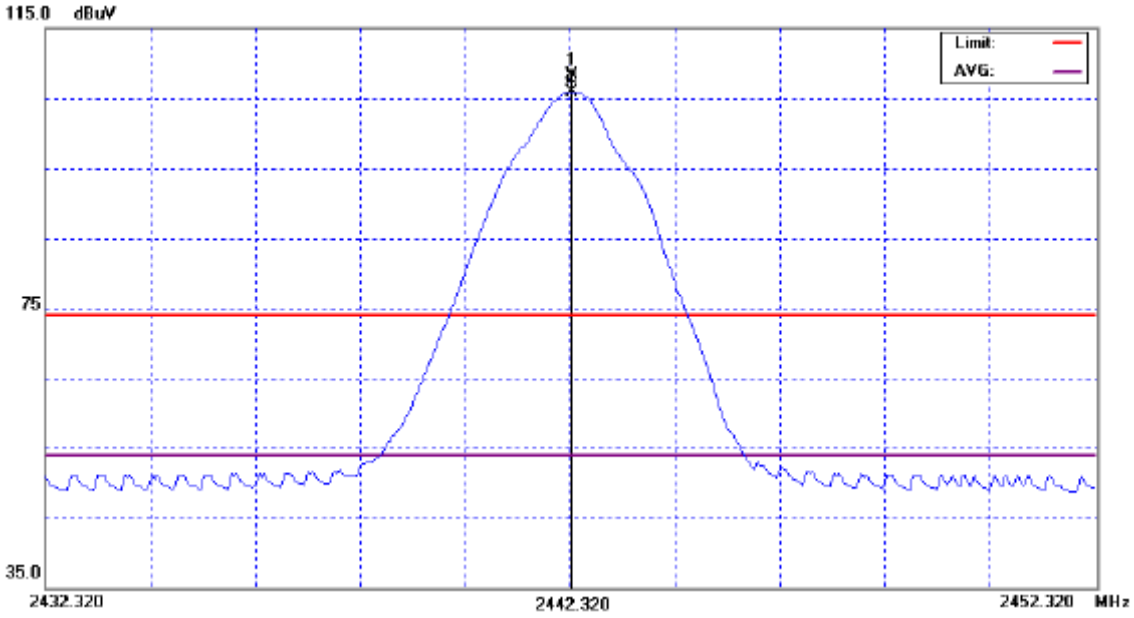
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

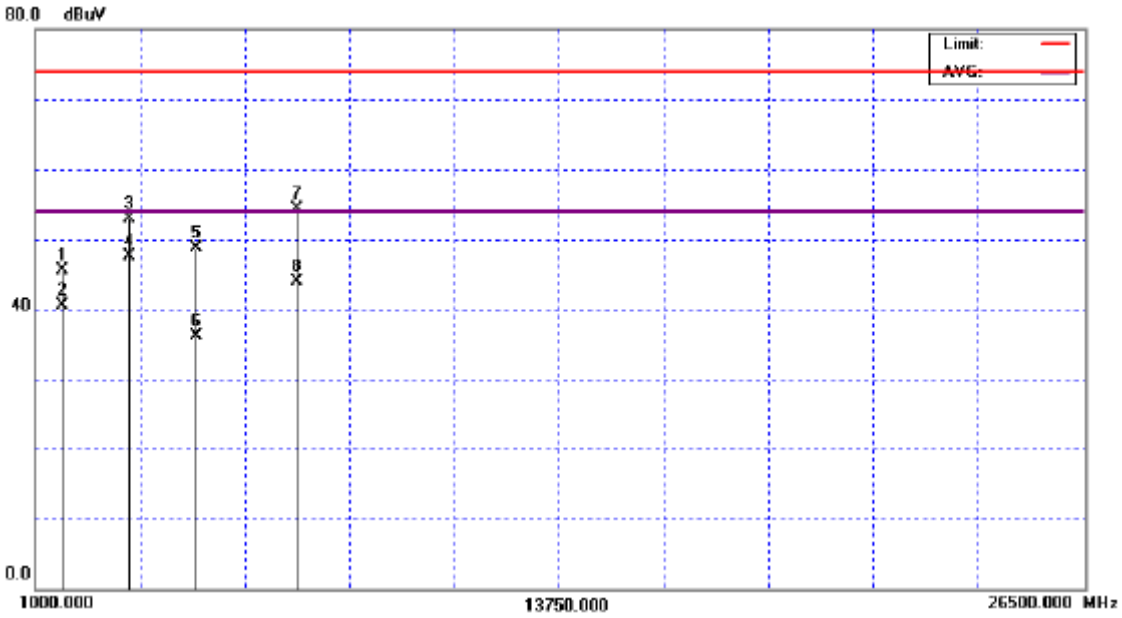
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 Db cone of radiation BW of the used antenna

Orthogonal Axis：X
TX (CH19) (Above 1000 MHz, Vertical)





EUT：	HOME THEATER SYSTEM	Model No. ：	PT8051
Temperature：	25 ℃	Relative Humidity：	71%
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX CH19	EUT Orthogonal Axis：	X

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2442.36	**H**	**79.01**	**76.68**	**32.22**	**111.23**	**108.90**			**X/F**
1628.16	H	52.67	40.94	-6.35	46.32	34.59	74.00	54.00	X/H
3256.30	H	51.52	46.60	-0.33	51.19	46.27	74.00	54.00	X/H
4885.28	H	43.91	33.50	3.76	47.67	37.26	74.00	54.00	X/H
7325.60	H	49.92	40.32	8.71	58.63	49.03	74.00	54.00	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

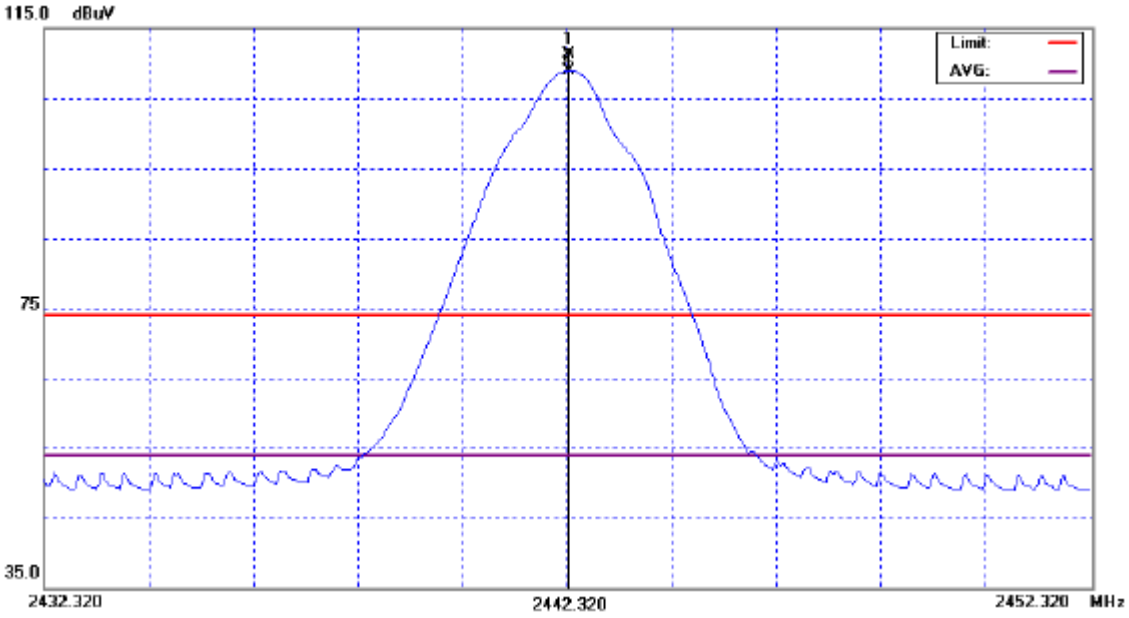
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20Db below the permissible limits or the field strength is too small to be measured.

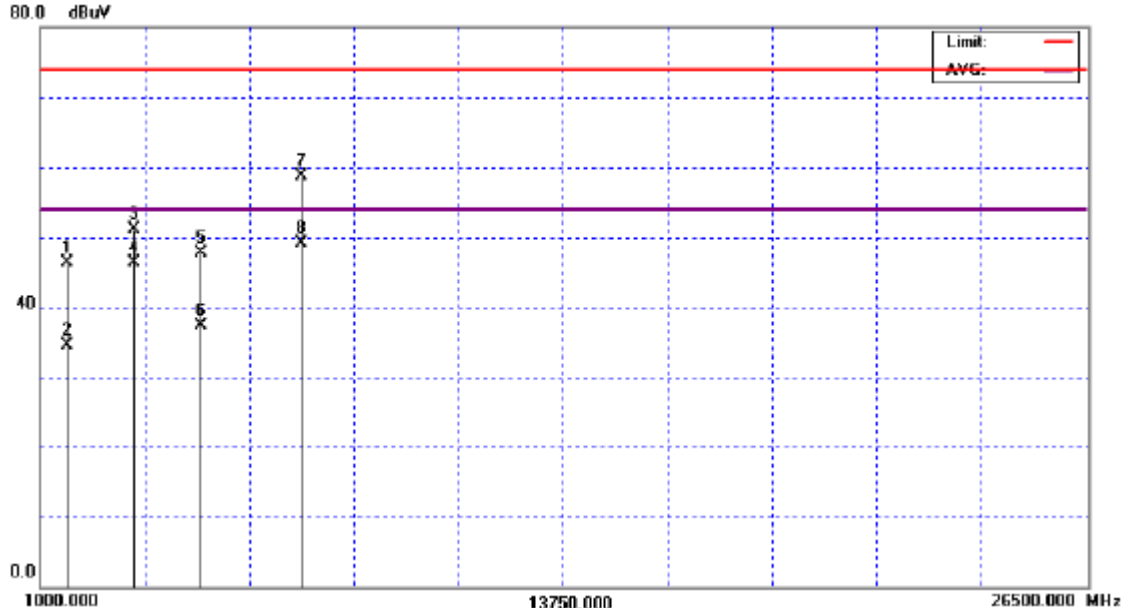
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" – denotes Laid on Table；"Y" – denotes Vertical Stand；"Z" – denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

Orthogonal Axis：X
TX (CH19) (Above 1000 MHz, Horizontal)





EUT：	HOME THEATER SYSTEM	Model No. ：	PT8051
Temperature：	25 ℃	Relative Humidity：	71%
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX CH37	EUT Orthogonal Axis：	X

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2479.22	**V**	**77.91**	**75.51**	**32.33**	**110.24**	**107.84**			**X/F**
2483.70	V	30.91	19.64	32.35	63.26	51.99	74.00	54.00	X/E
1652.81	V	51.06	45.32	-6.21	44.85	39.11	74.00	54.00	X/H
3305.52	V	52.94	47.57	-0.19	52.75	47.38	74.00	54.00	X/H
4959.04	V	42.40	32.52	3.97	46.37	36.49	74.00	54.00	X/H
7438.52	V	49.24	39.58	9.15	58.39	48.73	74.00	54.00	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

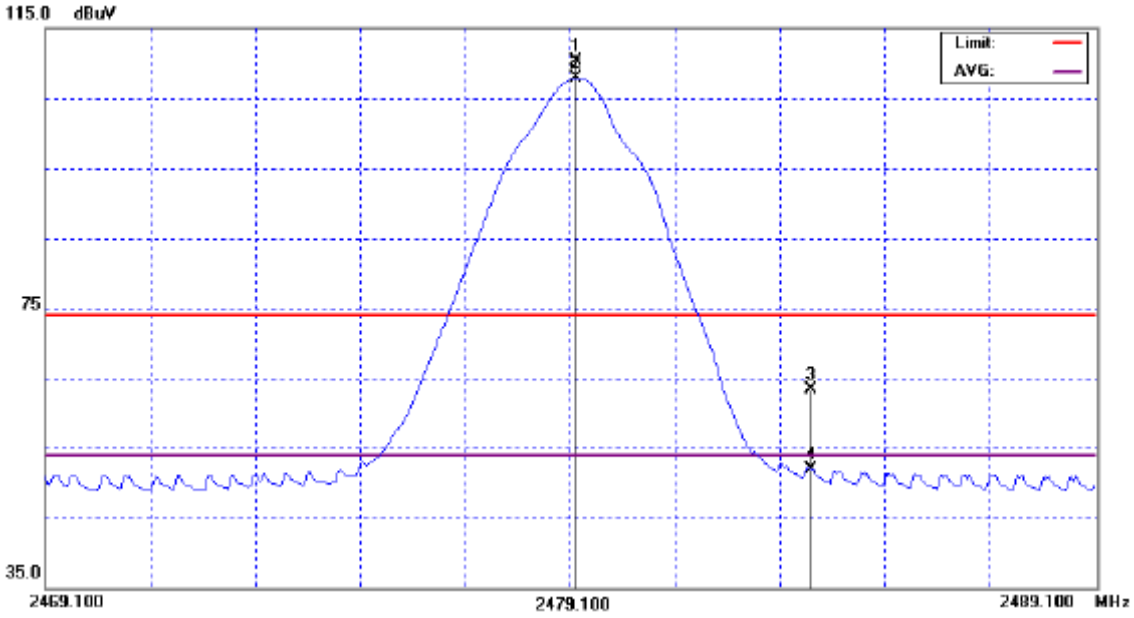
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

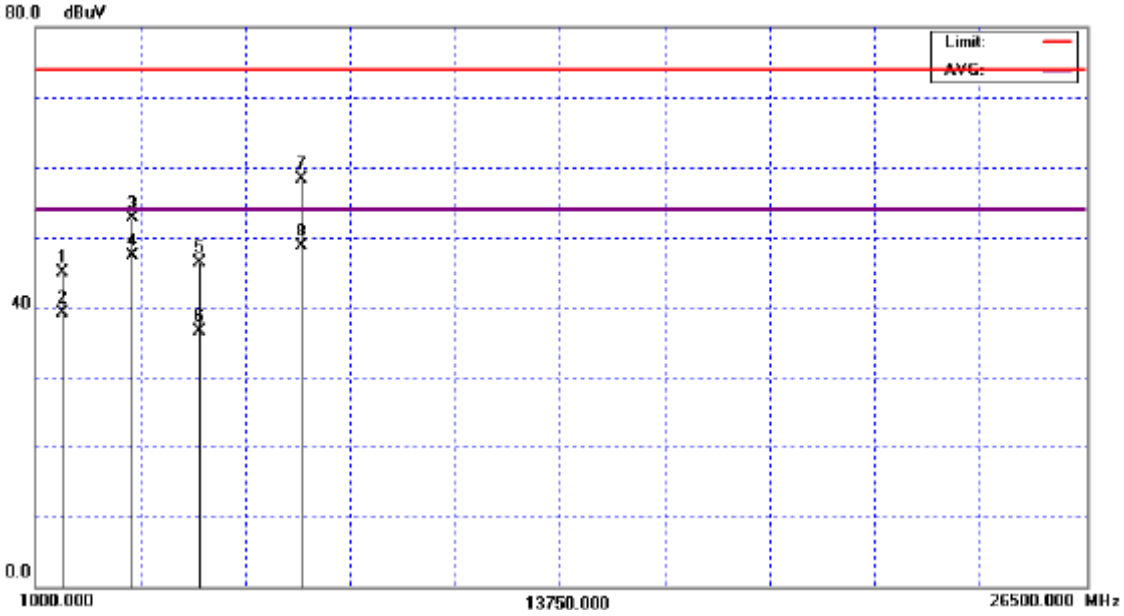
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

Orthogonal Axis：X
TX (CH37) (Above 1000 MHz, Vertical)





EUT：	HOME THEATER SYSTEM	Model No. ：	PT8051
Temperature：	25 ℃	Relative Humidity：	71%
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX (CH37)	EUT Orthogonal Axis：	X

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2479.22	**H**	**77.66**	**75.34**	**32.22**	**109.88**	**107.56**			**X/F**
2483.62	H	30.58	19.63	32.35	62.93	51.98	74.00	54.00	X/E
1652.76	H	51.87	47.33	-6.21	45.66	41.12	74.00	54.00	X/H
3305.52	H	49.39	42.58	-0.19	49.20	42.39	74.00	54.00	X/H
4957.52	H	44.73	32.70	3.97	48.70	36.67	74.00	54.00	X/H
7436.08	H	48.99	39.09	9.14	58.13	48.23	74.00	54.00	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

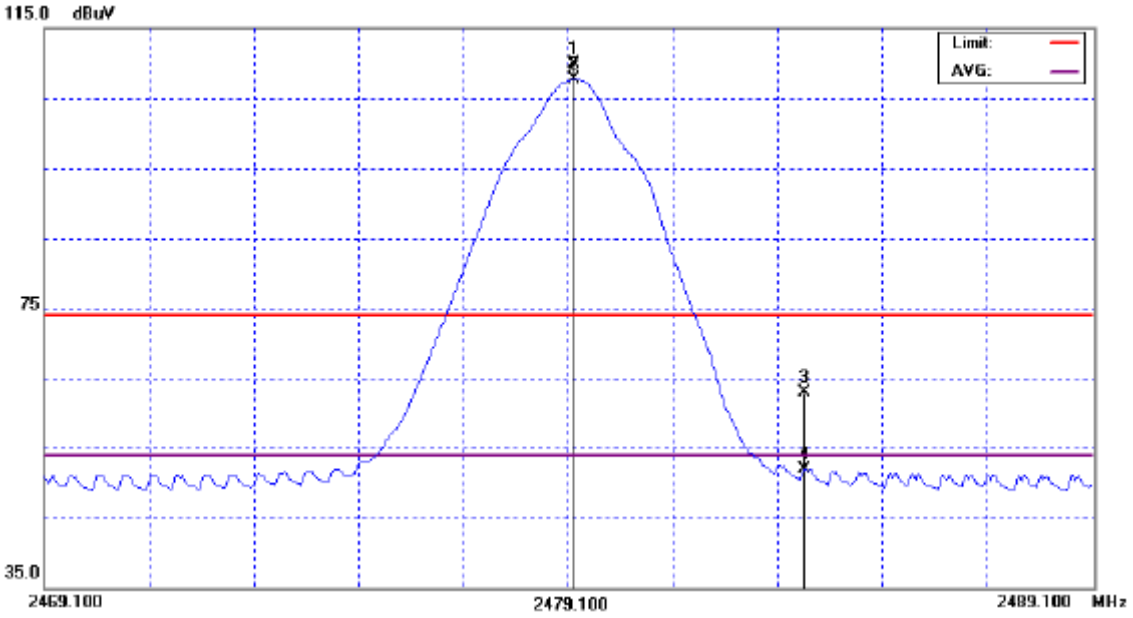
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

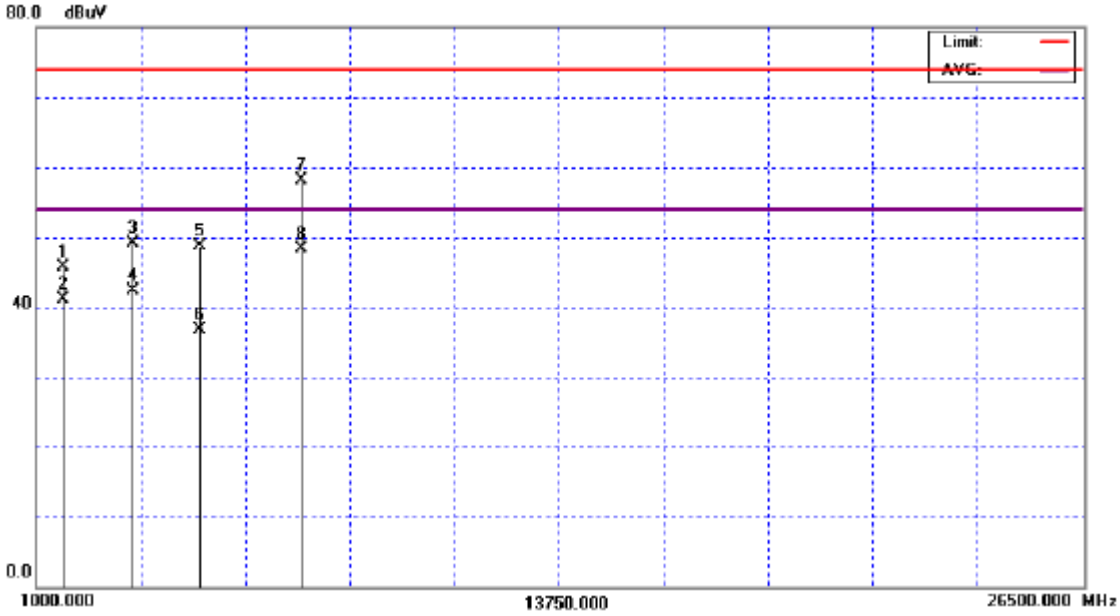
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

Orthogonal Axis：X
TX (CH37) (Above 1000 MHz, Horizontal)





4.2.9 TEST RESULTS (RESTRICTED BANDS REQUIREMENTS)

EUT：	HOME THEATER SYSTEM	Model No. ：	PT8051
Temperature：	25 ℃	Relative Humidity：	71%
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	Vertical		
Note：	1. The transmitter was setup to transmit at the lowest channel (TX (CH00)). Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was setup to transmit at the highest channel (TX (CH37)). Then the field strength was measured at 2483.5-2500 MHz.		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2389.92	V	30.24	19.41	32.05	62.29	51.46	74.00	54.00	CH00
2483.70	V	30.91	19.64	32.35	63.26	51.99	74.00	54.00	CH37

Remark：

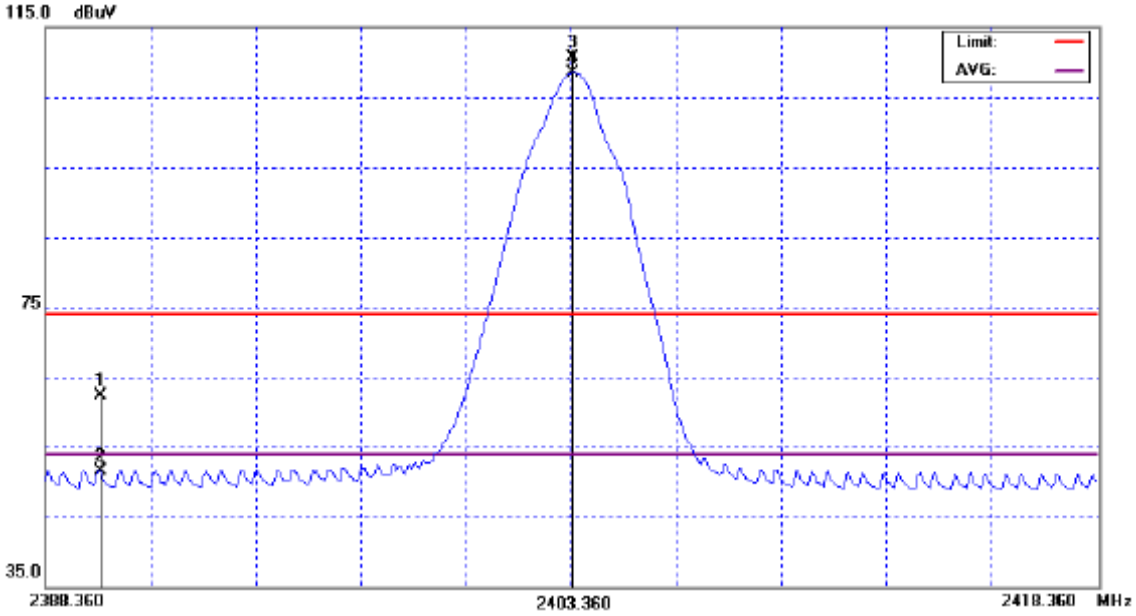
(1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

(2) EUT Orthogonal Axis：

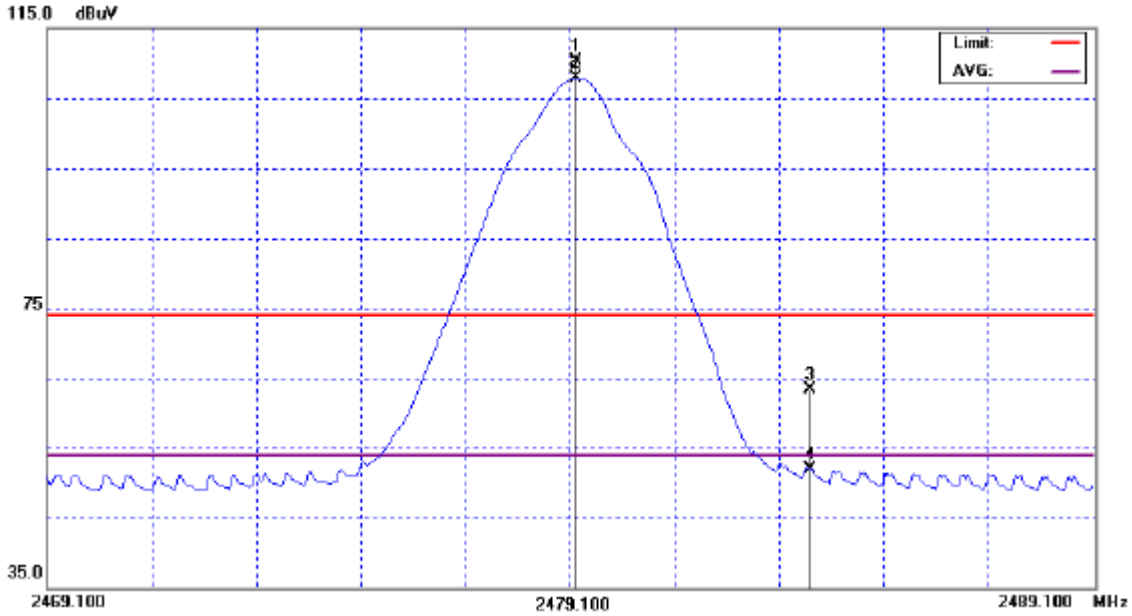
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(3) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

Restricted Bands Requirements, Vertical
TX (CH00)



TX (CH37)



EUT：	HOME THEATER SYSTEM	Model No. ：	PT8051
Temperature：	25 ℃	Relative Humidity：	71%
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	Horizontal		
Note：	1. The transmitter was setup to transmit at the lowest channel (TX (CH00)). Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was setup to transmit at the highest channel (TX (CH37)). Then the field strength was measured at 2483.5-2500 MHz.		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Note
		Peak	AV		Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2389.92	H	30.21	19.32	32.05	62.26	51.37	74.00	54.00	CH00
2483.62	H	30.58	19.63	32.35	62.93	51.98	74.00	54.00	CH37

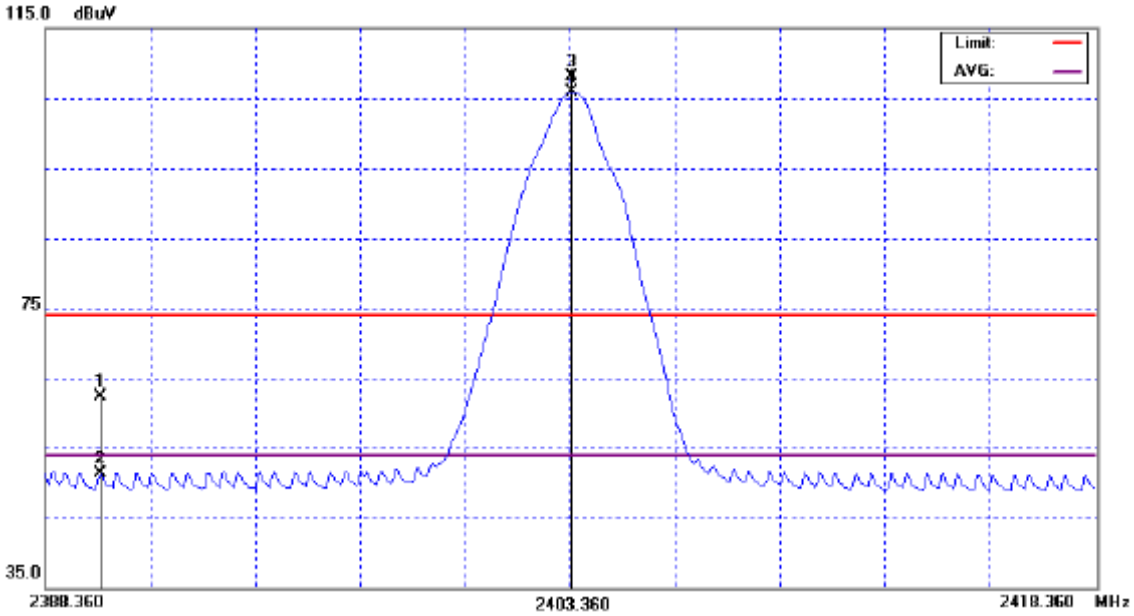
Remark：

(1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

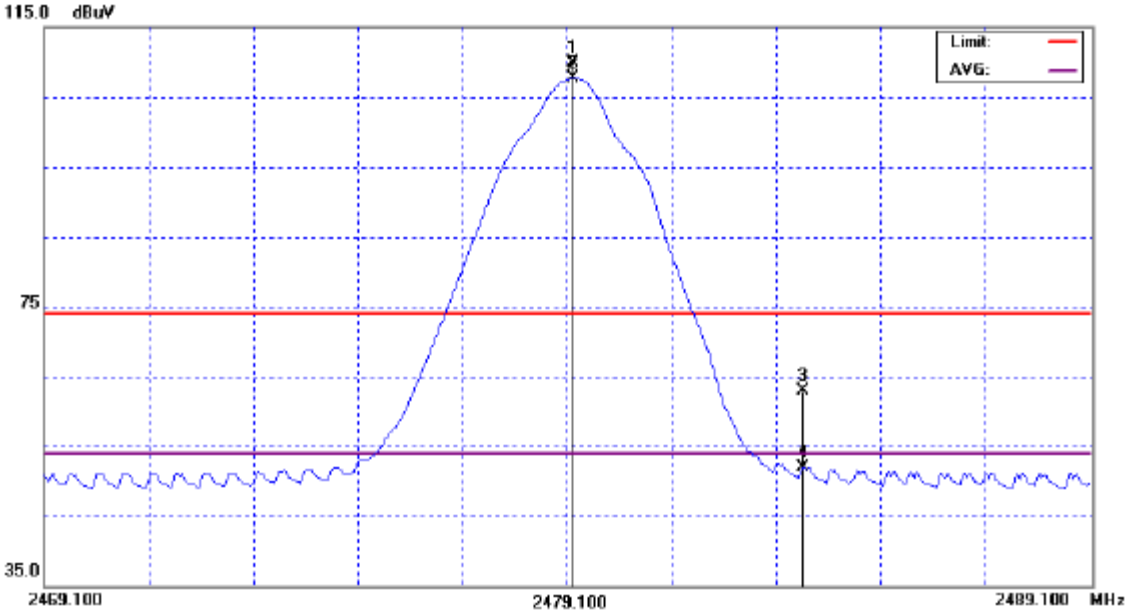
(2) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(3) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

Restricted Bands Requirements, Horizontal
TX (CH00)



TX (CH37)



5. NUMBER OF HOPPING CHANNEL

5.1 Applied procedures / limit

FCC Part15 (15.247) , Subpart C			
Section	Test Item	Frequency Range (MHz)	Result
15.247 (a)(1)(ii)	Number of Hopping Channel	2400-2483.5	PASS

Frequency hopping systems in the 2400~2483.5MHz band shall use at least 15 channels

5.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP_40	100129	Jan. 07, 2010

Remark: ” N/A” denotes No Model Name , Serial No. or No Calibration specified.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> Operating Frequency Range
RB	100 kHz
VB	100 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

5.1.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

5.1.3 DEVIATION FROM STANDARD

No deviation.

5.1.4 TEST SETUP

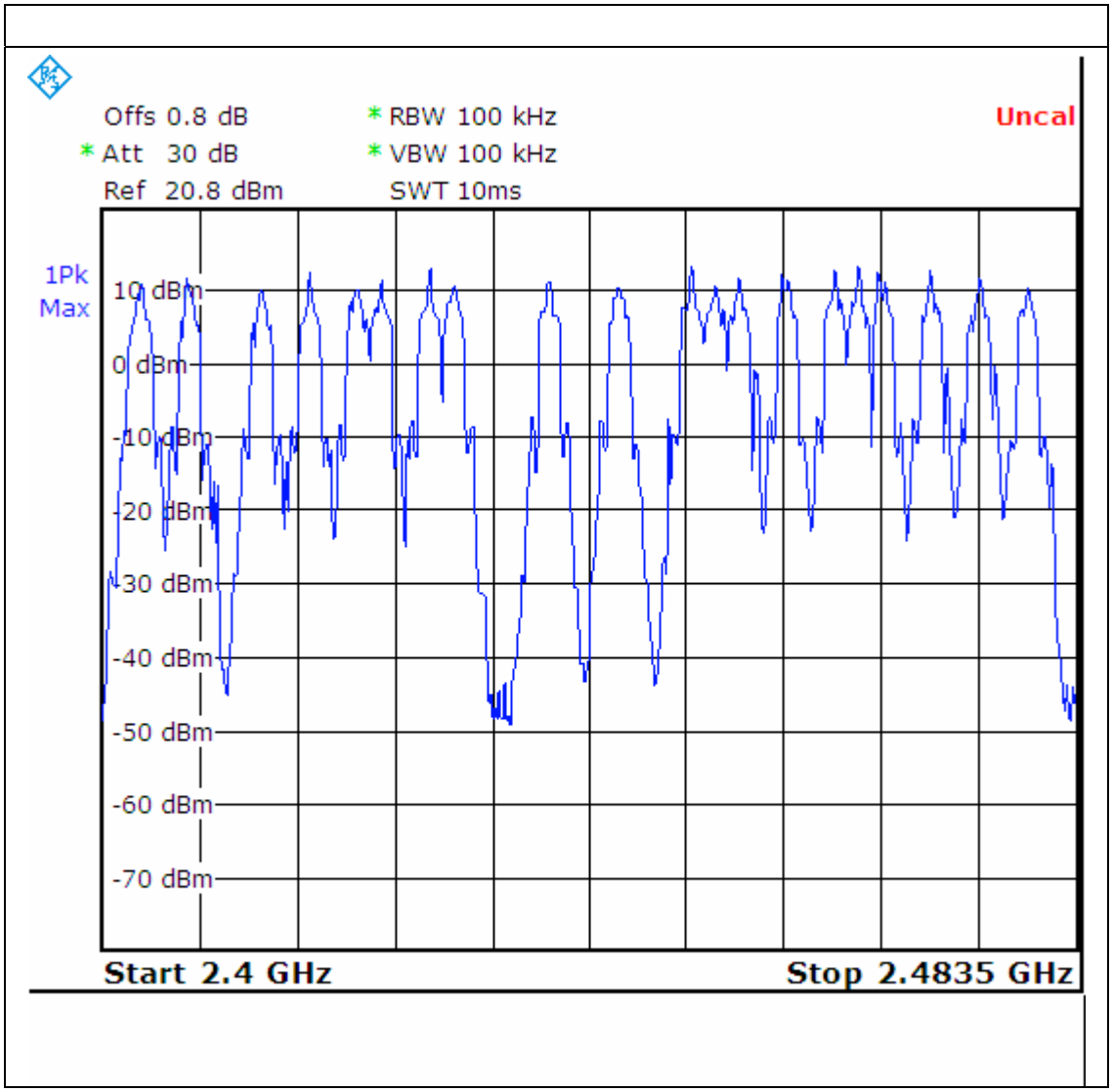
5.1.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.6 TEST RESULTS

EUT：	HOME THEATER SYSTEM	Model No. ：	PT8051
Temperature：	25 ℃	Relative Humidity：	71%
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	Hopping Mode		

Number of Hopping Channel	20



6. BANDWITH TEST

6.1 Applied procedures / limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (a)(1)	Bandwidth	<= 1 MHz (20dB bandwidth)	2400-2483.5	PASS

6.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP_40	100129	Jan, 06, 2010

Remark: ” N/A” denotes No Model Name , Serial No. or No Calibration specified.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RB	30 kHz (20dB Bandwidth) / 100 kHz (Channel Separation)
VB	100 kHz (20dB Bandwidth) / 300 kHz (Channel Separation)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

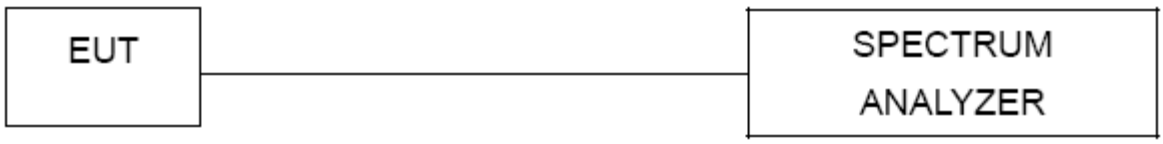
6.1.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

6.1.3 DEVIATION FROM STANDARD

No deviation.

6.1.4 TEST SETUP



6.1.5 EUT OPERATION CONDITIONS

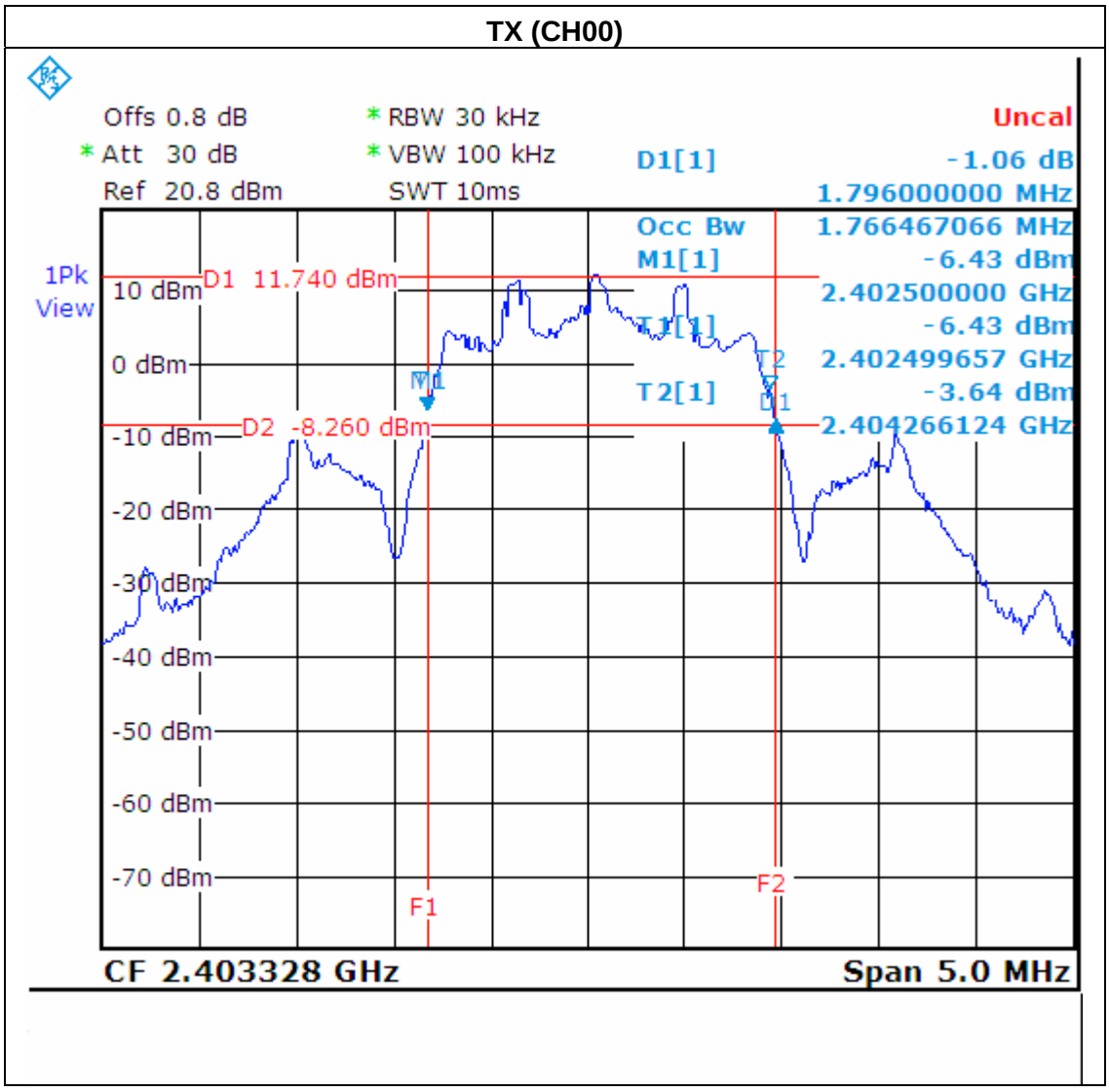
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

6.1.6 TEST RESULTS

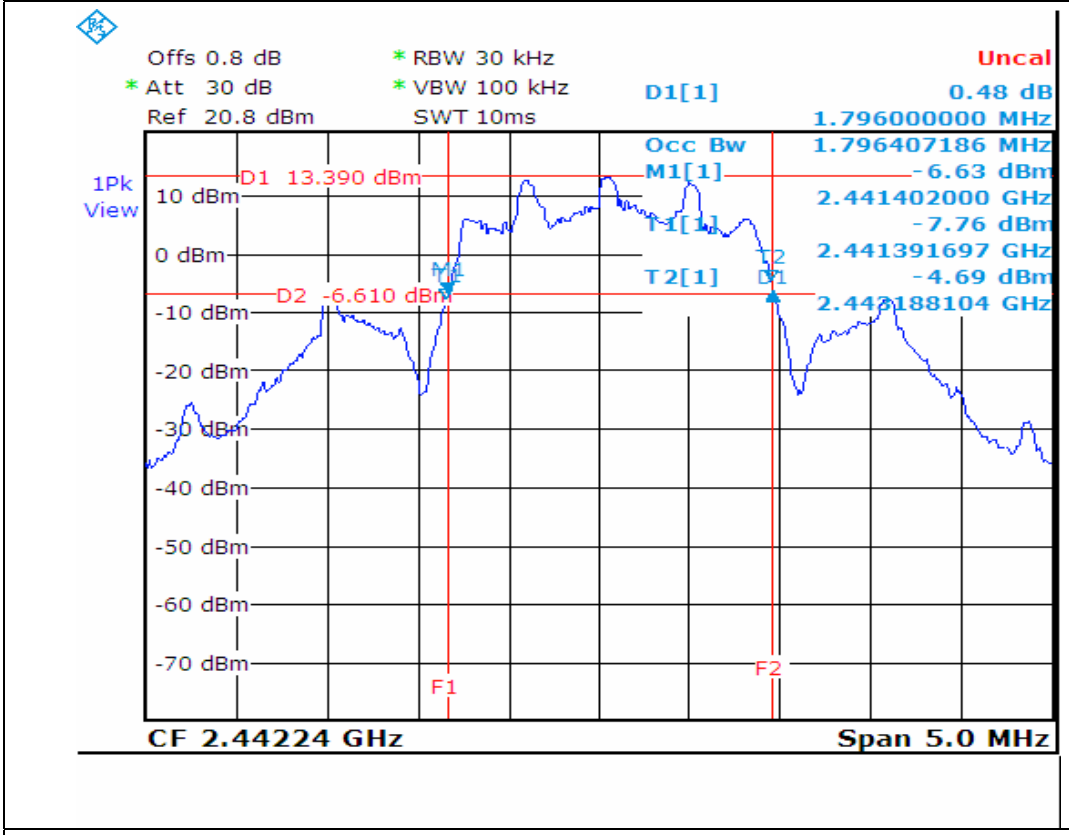
EUT：	HOME THEATER SYSTEM	Model No. ：	PT8051
Temperature：	25 ℃	Relative Humidity：	71%
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX (CH00) / TX (CH19) /TX (CH37)		

Frequency	20dB Bandwidth (MHz)	Channel Separation (MHz)	Result
2403.328 MHz	1.796	<= 2.048MHz	**PASS**
2442.240 MHz	1.796	<= 2.048MHz	**PASS**
2479.104 MHz	1.876	<= 2.048MHz	**PASS**

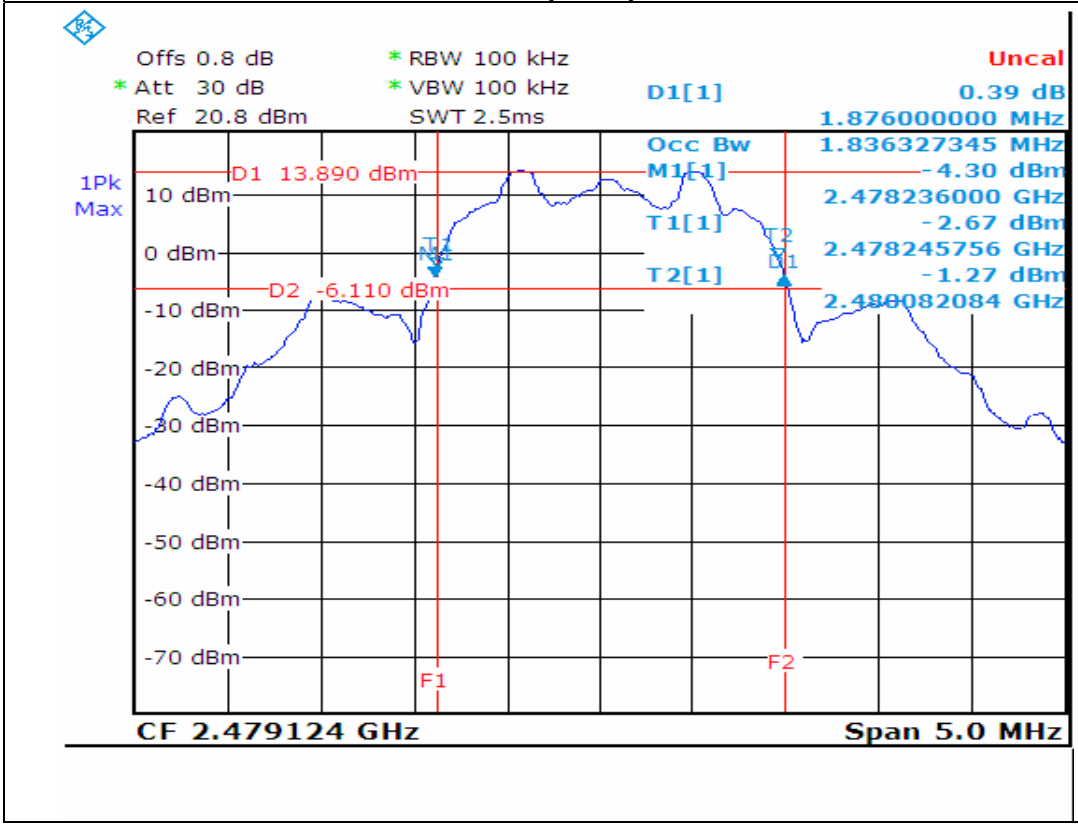
TX (CH00)



TX (CH19)



TX (CH37)



7. PEAK OUTPUT POWER TEST

7.1 Applied procedures / limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (b)(1)	Peak Output Power	0.125W	2400-2483.5	PASS

7.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP_40	100129	Jan, 06, 2010

Remark: ” N/A” denotes No Model Name , Serial No. or No Calibration specified.

7.1.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 3MHz, VBW= 3MHz, Sweep time = Auto.

7.1.3 DEVIATION FROM STANDARD

No deviation.

7.1.4 TEST SETUP

7.1.5 EUT OPERATION CONDITIONS

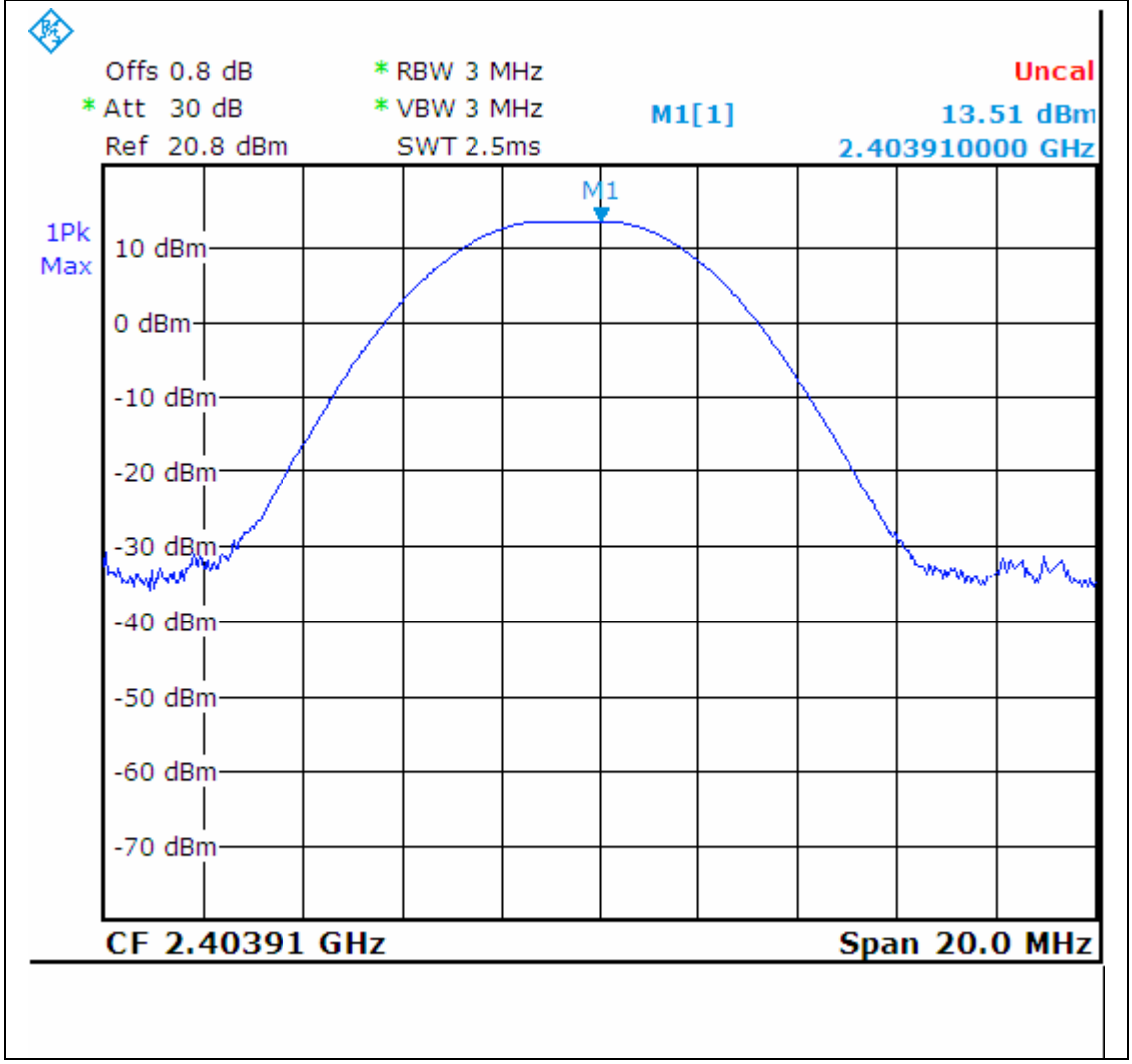
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

7.1.6 TEST RESULTS

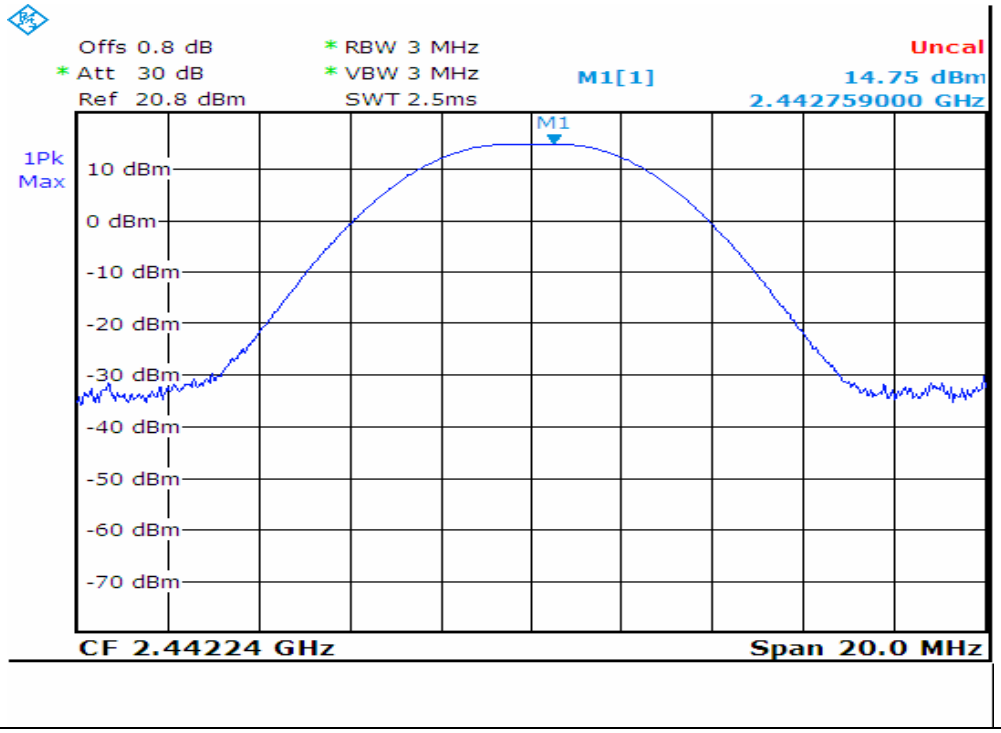
EUT：	HOME THEATER SYSTEM	Model No. ：	PT8051
Temperature：	25 ℃	Relative Humidity：	71%
Pressure：	1010 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX (CH00)/ TX (CH19) /TX (CH37)		

Test Channel	Frequency (MHz)	Peak Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
TX (CH00)	2403.328	13.51	20.97	0.125
TX (CH19)	2442.240	14.75	20.97	0.125
TX (CH37)	2479.104	14.17	20.97	0.125

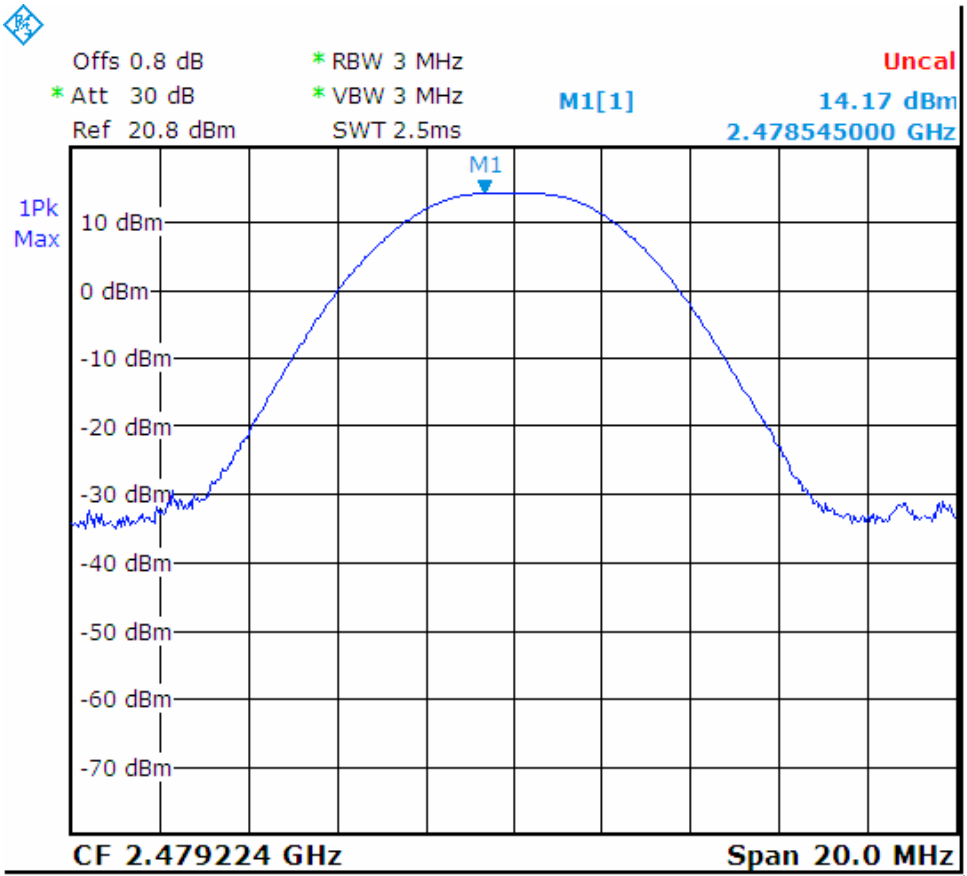
TX (CH00)



TX (CH19)



TX (CH37)



8. ANTENNA CONDUCTED SPURIOUS EMISSION

8.1 Applied procedures / limit

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

8.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP_40	100129	Jan. 06, 2010

Remark: ” N/A” denotes No Model Name , Serial No. or No Calibration specified.

The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (other emission)	100 KHz /100 KHz for Peak

8.1.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

8.1.3 DEVIATION FROM STANDARD

No deviation.

8.1.4 TEST SETUP

8.1.5 EUT OPERATION CONDITIONS

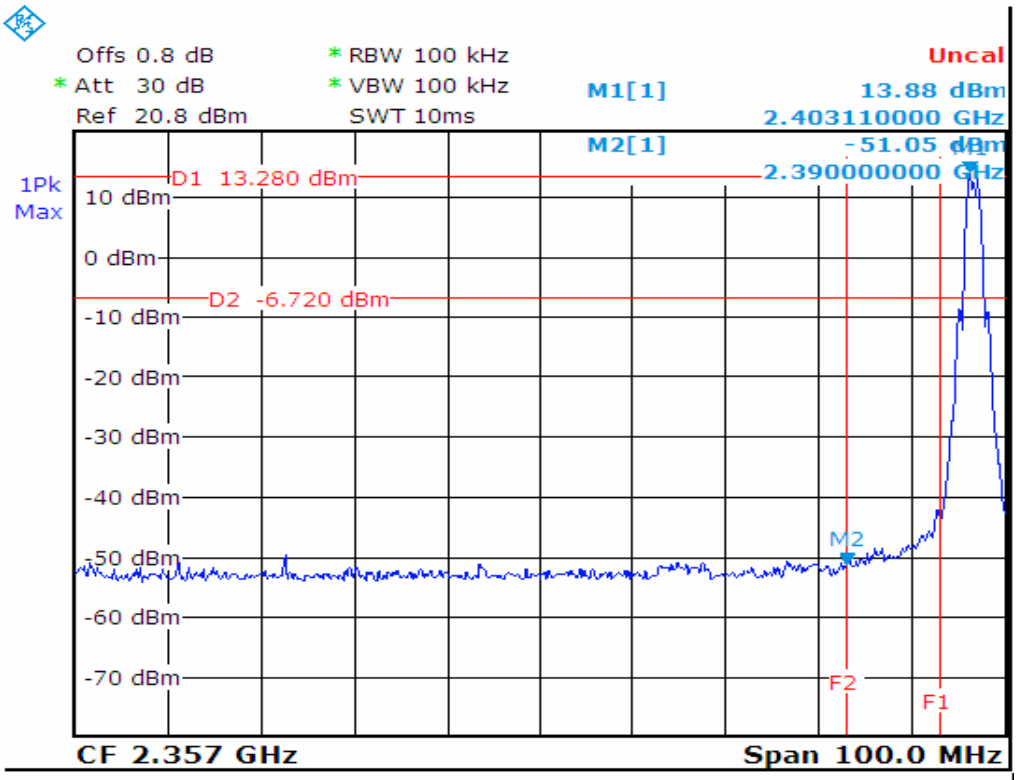
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

8.1.6 TEST RESULTS

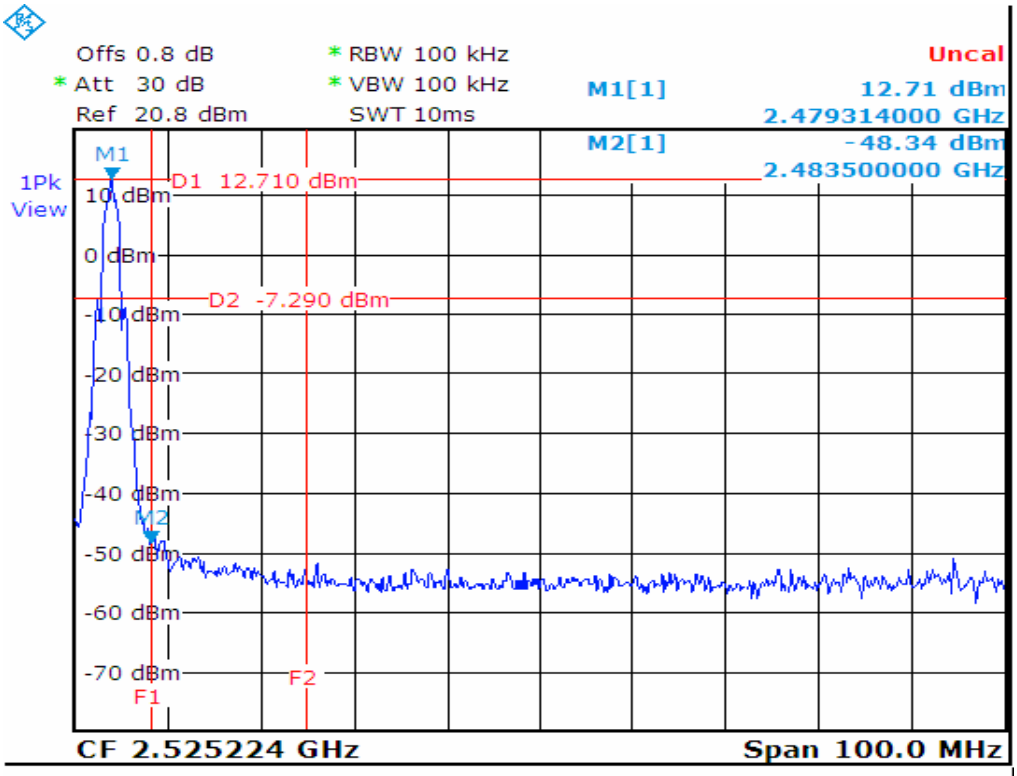
EUT：	HOME THEATER SYSTEM	Model No. ：	PT8051
Temperature：	23 ℃	Relative Humidity：	56 %
Pressure：	1006 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX (CH00) /TX (CH37)		

The max. radio frequency power in any 100kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
2390.00	-51.05	2483.500	-48.34
Result			
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.			

TX (CH00) (Lower)



TX (CH37) (Upper)



9. RF EXPOSURE TEST

9.1 Applied procedures / limit

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

9.1.1 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP_40	100129	Jan, 06, 2010

Remark: ” N/A” denotes No Model Name , Serial No. or No Calibration specified.

9.1.2 MPE CALCULATION METHOD

E (V/m) $= \frac{\sqrt{30 \times P \times G}}{d}$ Power Density: *Pd* (W/m²) $= \frac{E^2}{377}$

E = Electric field (V/m)

P = Peak RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

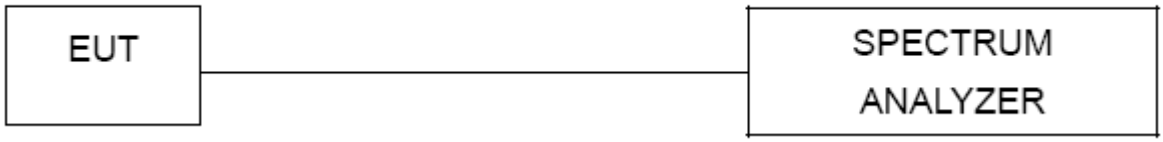
Pd $= \frac{30 \times P \times G}{377 \times d^2}$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

9.1.3 DEVIATION FROM STANDARD

No deviation.

9.1.4 TEST SETUP



9.1.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

9.1.6 TEST RESULTS

EUT：	HOME THEATER SYSTEM	Model No. ：	PT8051
Temperature：	23 ℃	Relative Humidity：	56 %
Pressure：	1006 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX (CH00) , TX (CH19), TX (CH37)		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
2	1.5849	14.7500	29.8538	0.009418	1	Complies

10. DWELL TIME

10.1 Applied procedures / limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.
Channels in Specified Band Investigated:

38 channel frequency hopping set called out in script provided by customer

10.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP_40	100129	Jan. 07, 2010

Remark: ” N/A” denotes No Model Name, Serial No. or No Calibration specified.

10.1.2 TEST PROCEDURE

Requirement: Per 47 CRF 15.247(a)(1), the average dwell time per hopping channel is measured.

Frequecy hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds witin a period of 0.4 seconds multiplied by the number hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 20 channels are used.

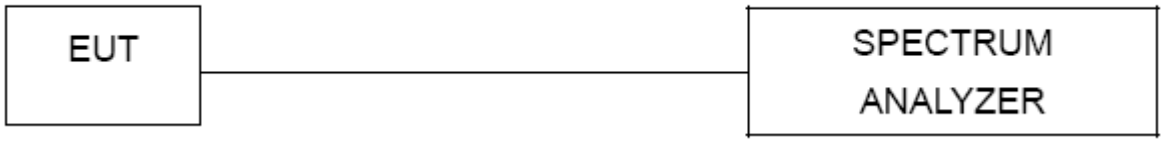
The measurement is made with the spectrum analyzer span set to zero, the resolution bandwidth set to 1 MHz, and the video bandwith set to 100 kHz. The measurement is made in two steps. First, the sweep speed is adjusted to capture the pulse width or dwell time of a single transmission. Then, the swoop speed is set to 6 seconds to count the number of transmissions during that period. The average number of hops during that period is: 57/ 6 s= 9.5 hops/s
.
The dwell time has to be measured in number of channels times 0.4 s = 20 x 0.4 s = 8 s.
Dwell time = time of operation x hoprate x time of single transmission = 8 s x 9.5 hops/s x 4.74 ms = 0.36 s

Configuration: The average dwell time per hopping channel was measured at one hopping channel in the middle of the authorized band. The measurements were made using a direct connection between the RF output of EUT and the spectrum analyzer. The hopping function of the EUT was enabled.

10.1.3 DEVIATION FROM STANDARD

No deviation.

10.1.4 TEST SETUP

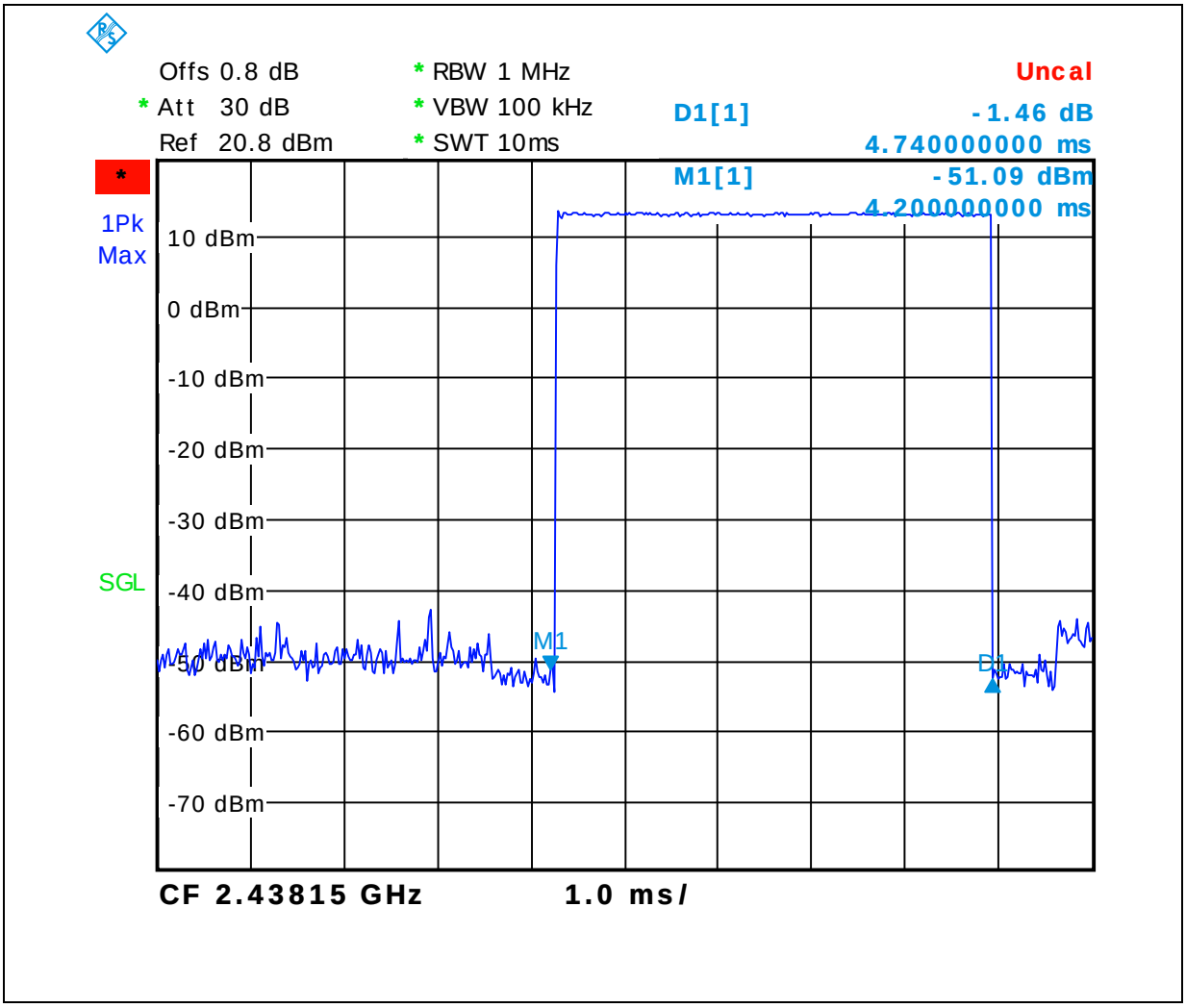


10.1.5 EUT OPERATION CONDITIONS

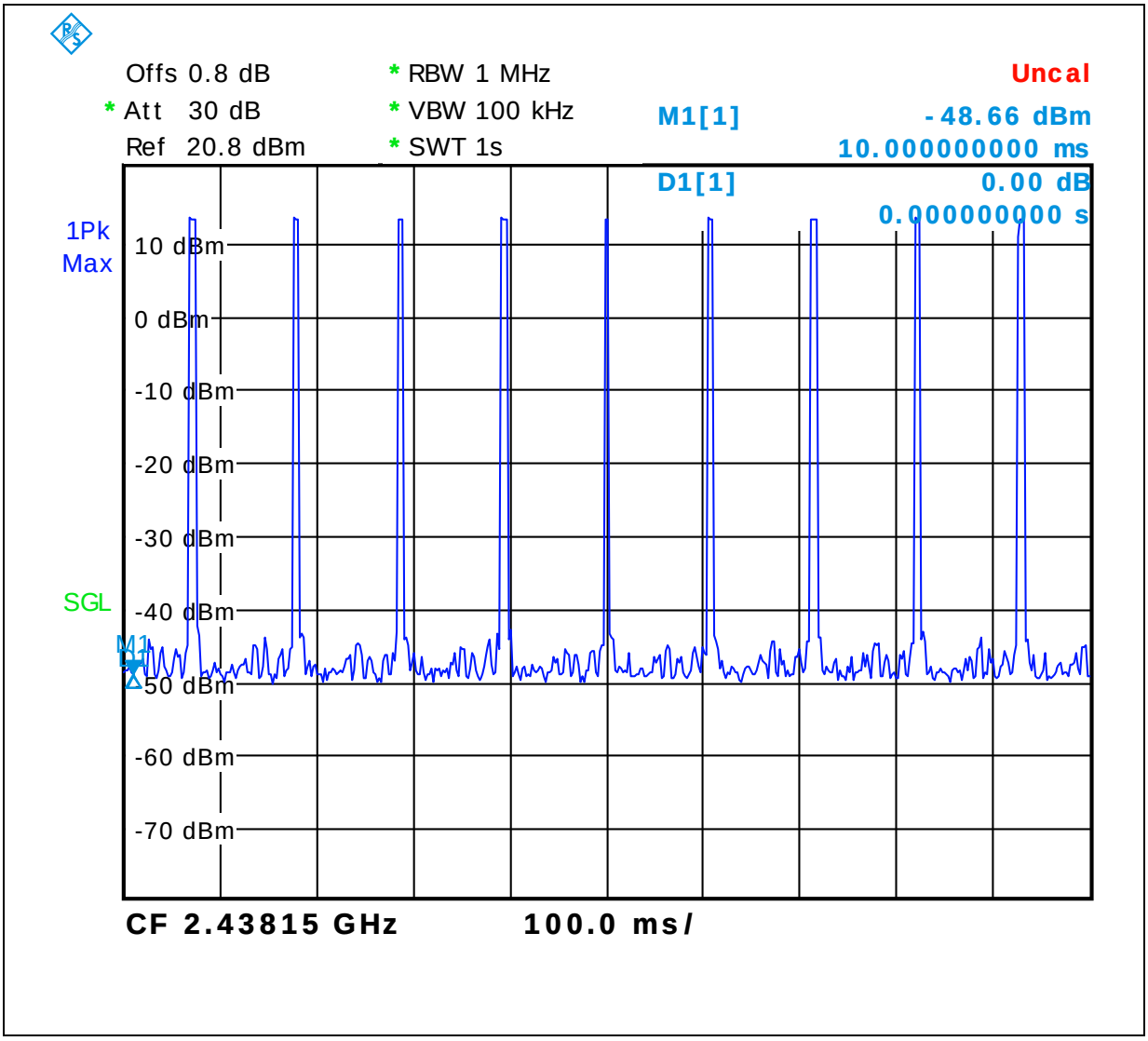
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

10.1.6 TEST RESULTS

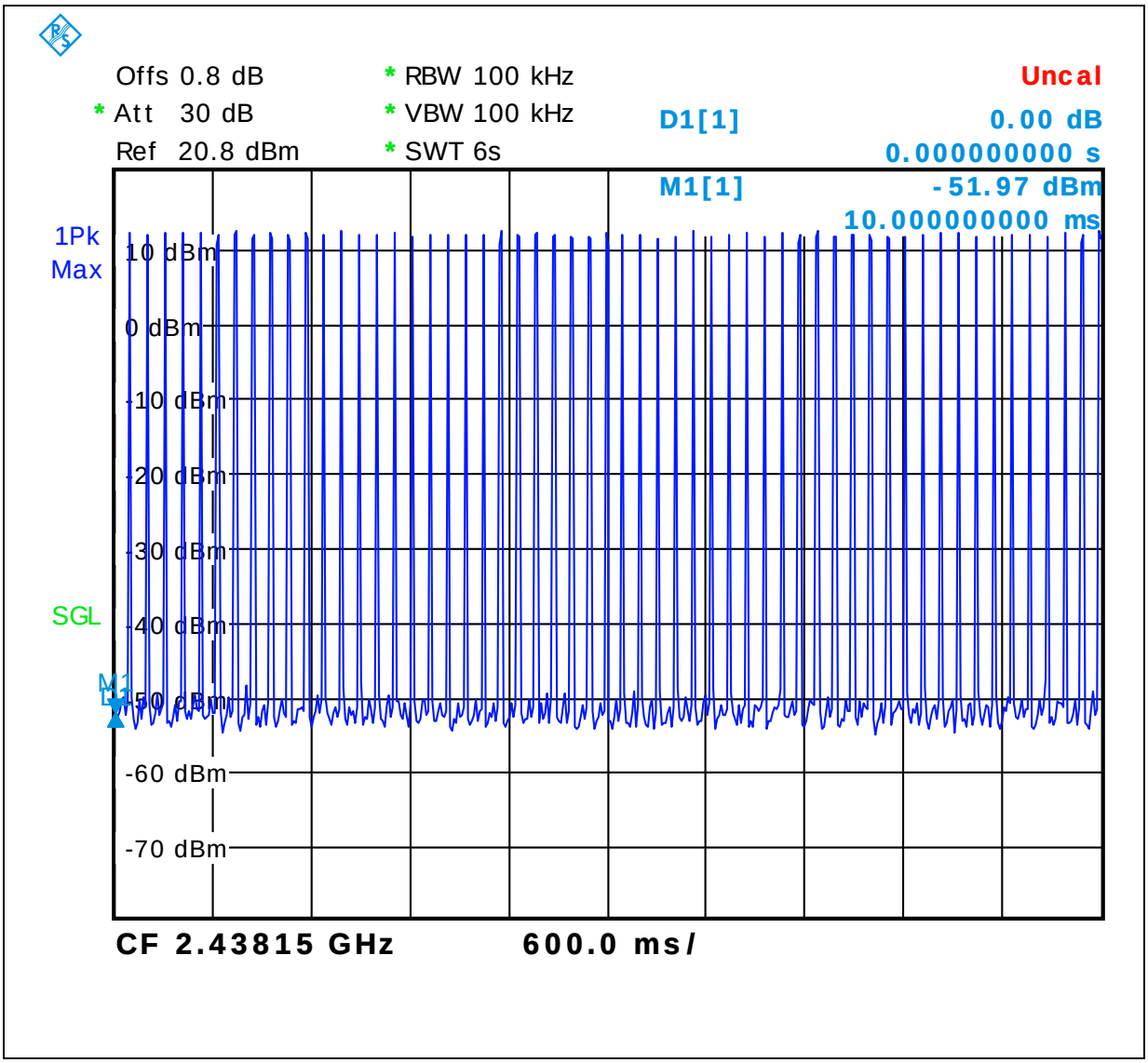
EUT：	HOME THEATER SYSTEM	Model No. ：	PT8051
Temperature：	23 ℃	Relative Humidity：	56 %
Pressure：	1006 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	Dwell Time		



EUT：	HOME THEATER SYSTEM	Model No. ：	PT8051
Temperature：	23 ℃	Relative Humidity：	56 %
Pressure：	1006 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	Dwell Time (1 Seconds)		



EUT：	HOME THEATER SYSTEM	Model No. ：	PT8051
Temperature：	23 ℃	Relative Humidity：	56 %
Pressure：	1006 hPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	Dwell Time (6 Seconds)		



11. EUT TEST PHOTO

Conducted Measurement Photos

Test Mode: TX Sample

Radiated Measurement Photos
Test Mode: TX Sample