

FCC ID TEST REPORT

According to

FCC Part 15 Subpart C, Intentional Radiators

EUT Type : Wireless Touchpad Remote Controller

**Transmitter (TX) : 1) Model No.: WT100CR
2) FCC ID: SRKWT100CR**

Applicant Name : WONDE PROUD TECHNOLOGY CO., LTD.

Address : See the General Information for details.

Test Date : AUG. 14, 2007 Issued Date : AUG. 28, 2007

**Test Engineer : JASON KUNG NVLAP Signature : M. Y. Tsui
M. Y. Tsui / Director**

- The test report shall not be reproduced except in full, without the written approval of the "PEP"
- The report must not be used by the client to claim product endorsement by NVLAP or any agency of the United States government.
- This report is applicable only for EUT Model which described in page 4 .
- The testing result in this report are traceable to national or international standard .

PEP TESTING LABORATORY

NO. 9-6, Huzi, Hubei Village, Linkou Shiang, Taipei Hsien, Taiwan 244, R. O. C.

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1. General Information

Measurement of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission under FCC Part 2 and 15.

Applicant Name/Address: WONDE PROUD TECHNOLOGY CO., LTD.
21F, NO. 100, SEC. 1, SHINTAI 5TH RD., SIJHIH CITY,
TAIPEI COUNTY 221, TAIWAN, R. O. C.

Contact Person: MARCO LIN / FIRMWARE ENGINEER

Phone No.: 886-2-26968498 **Fax No.:** 886-2-26968499

Manufacturer Name/Address: WONDE PROUD TECHNOLOGY CO., LTD.
21F, NO. 100, SEC. 1, SHINTAI 5TH RD., SIJHIH CITY,
TAIPEI COUNTY 221, TAIWAN, R. O. C.

- ✧ Regulation: FCC Part 2 and 15
- ✧ Limitation: Part 15, Section 15.249, 15.207 and 15.209
- ✧ Test Procedure: ANSI C63.4-2003
- ✧ Place of Test: PEP Testing Laboratory
NO. 9-6, Huzi, Hubei Village, Linkou Shiang, Taipei
Hsien, Taiwan 244, R. O. C.
TEL : 886-2-26021042 FAX : 886-2-26021045

2. Product Information

- a. EUT Type: Wireless Touchpad Remote Controller
- b. Transmitter Model: WT100CR
- c. TX FCC ID: SRKWT100CR
- d. TX Channel No. : 79
- e. TX Working Freq. : 2.401 ~ 2.480 GHz
- f. TX Modulation : DSSS
- g. TX Crystal / Osc. : 12 MHz
- h. TX Port(s) : N/A
- i. Antenna Type: Integral antenna
- j. TX Transmitting Power : DC 3V
- k. TX Power Supply : Battery (DC 1.5V * 2)
- l. TX Case : Plastic
- m. EUT Condition : ☐ Prototype ☒ Engineering ☐ Production
- n. EUT Received Date : AUG. 14, 2007
- o. Date(s) of performance of test: AUG. 13, 2007 – AUG. 20, 2007

3. EUT Description and Test Methods

- (A) The EUT is Wireless Touchpad Remote Controller, FCC ID: SRKWT100CR, model WT100CR. The EUT consists of transmitter unit. The radio frequency of EUT is 2.401-2.480 GHz. DC 3V from two rechargeable batteries (size AAA, DC 1.5V). For more detail specification about the EUT, please refer to the user's manual.
- (B) Test Method: According to the major function designed, the EUT placement on test table was arranged alone to proceed with test. The test was carried out on EUT operational condition of Tx-On mode: continuous transmission state. The worst-case test result of each test mode was recorded and provided in this report.
- (C) At the frequencies where the peak values of the emission exceeded the quasi-peak limit, the emissions were also measured with the quasi-peak detectors. The average detector also measured the emission either (A) quasi-peak values were under quasi-peak limit but exceeded average limit, or (B) peak values were under quasi-peak limit but exceeded average limit.

4. Modification(s):

N/A

5. Test Software Used

N/A

6. Support Equipment Used

N/A

7. Description Field Strength of Fundamental and Harmonics Test

7.1 Field Strength of Fundamental and Harmonics Test

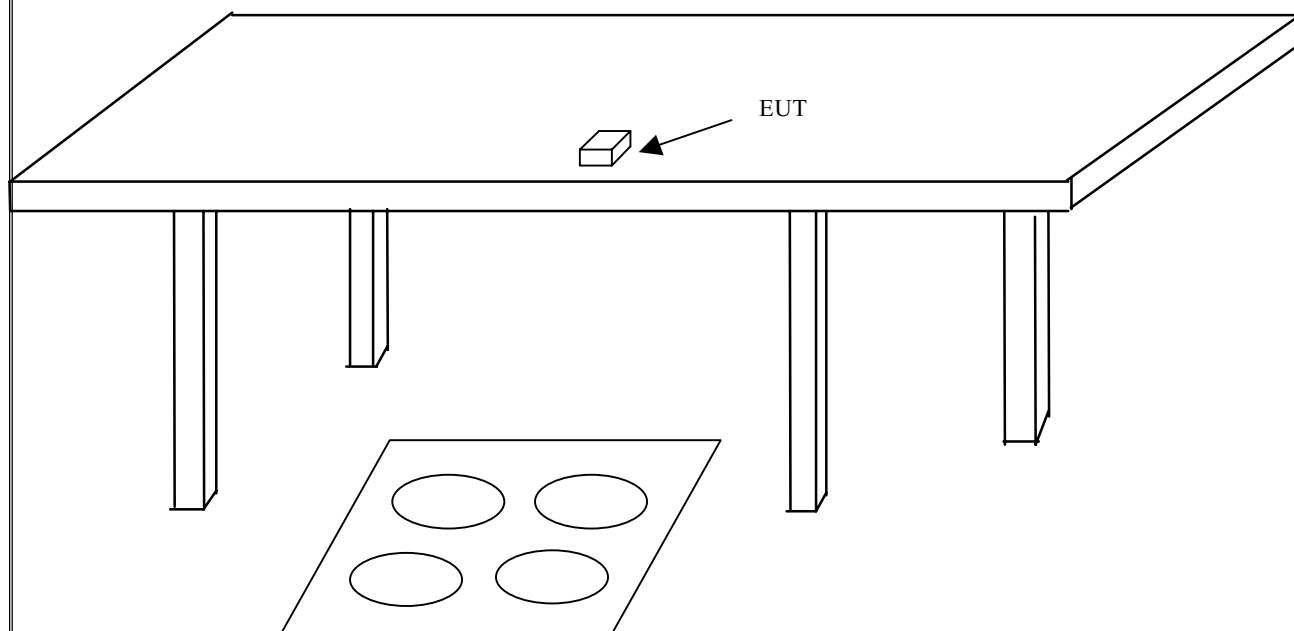
Field Strength of Fundamental and Harmonics Test were made indoor chamber at 3-meter test range using horn antenna. The test equipment was placed on a wooden bench situated on a 1.5x1 meter area adjacent to the measurement area. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The detector function was set to peak and average value, the bandwidth of the receiver was set to 1MHz.

The turntable containing the system was rotated; the antenna height was varied 1 to 4 meters and stopped at the azimuth or height producing the maximum emission.

7.2 Field Strength of Fundamental and Harmonics Limits

Fundamental Frequency	Fundamental		Harmonics	
	(mV/m)	(dB μ V/m)	(μ V/m)	(dB μ V/m)
902-928MHz	50	94	500	54
2400-2483.5MHz	50	94	500	54
5725-5875MHz	50	94	500	54
24.0-24.25GHz	250	108	2500	68

7.3 Test Configuration



8. Description of Conducted Emissions Test

8.1 Conducted Emissions

A 1m x1.5m wooden table 80 cm high is placed 40cm away from the vertical wall. Two AMN are bonded to the grounding plane. The EUT is powered from the designated AMN and the support equipment is powered from another designated AMN. Powers to the AMN are filtered by a high-current high insertion loss power line filters. All electrical cables are shielded by braided tinned copper zipper tubing with inner diameter of 1/2". All interconnecting cables more than 1 meter were shortened by non-inductive bundling (serpentine fashion) to a 1-meter length.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the AMN was connected to the spectrum analyzer to determine the frequency producing the maximum EME from the EUT.

The spectrum was scanned from 150kHz to 30 MHz with 1.5 sec sweep time. The frequency producing the maximum level was re-examined using Quasi-Peak adapter. The detector function was set to CISPR quasi-peak mode. The bandwidth of the receiver was set to 10kHz. The EUT, support equipment, and interconnecting cables were re-arranged and manipulated to maximize each EME emission. Each emission was maximized by: switching power lines; varying the mode of operation or resolution; clock or data exchange speed; scrolling H pattern to the EUT and/or support equipment, and powering the monitor from the floor mounted outlet box and the computer aux AC outlet, if applicable; whichever determined the worst-case emission.

8.2 Conducted Emissions Limits

Frequency	Maximum RF Line Voltage dB(uV)			
	Class A		Class B	
MHz	QUASI-PEAK	AVERAGE	QUASI-PEAK	AVERAGE
0.15 - 0.50	79	66	66-56	56-46
0.50 - 5.0	73	60	56	46
5.0 - 30	73	60	60	50

Remarks : In the above table, the tighter limit applies at the band edges.

9. Description of Radiated Emissions Test

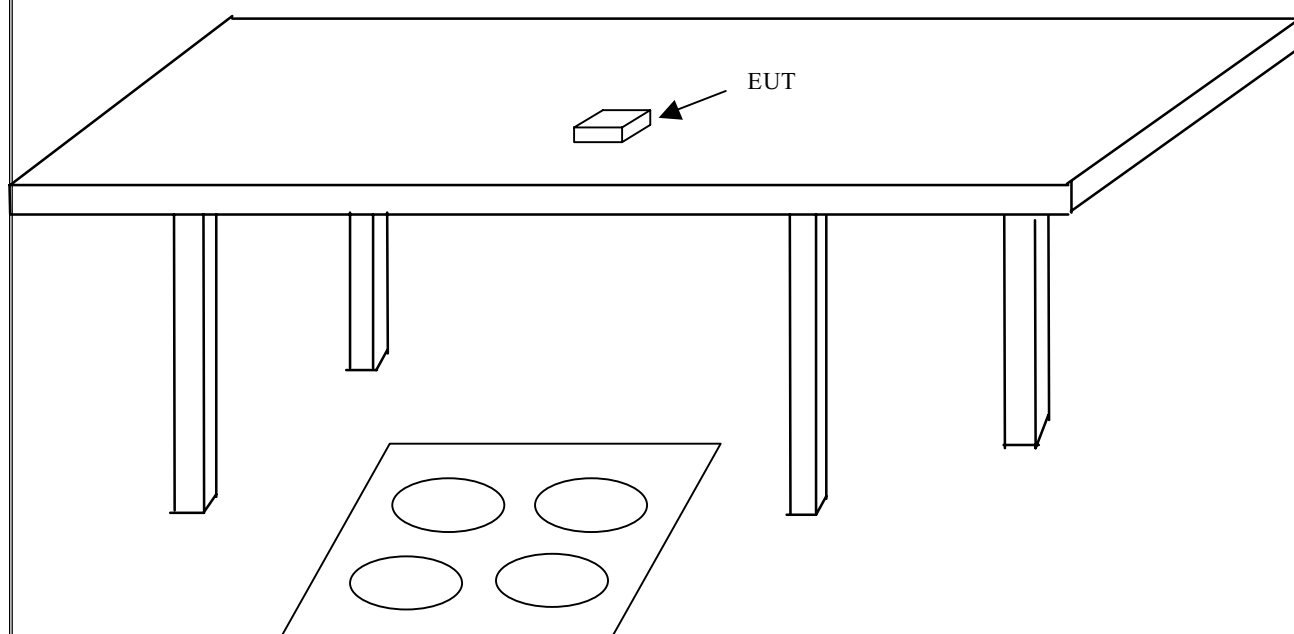
9.1 Radiated Emissions

Preliminary measurements were made indoors chamber at 3 meter using broadband antennas, broadband amplifier, and spectrum analyzer to determine the frequency producing the maximum EME. Appropriate precaution was taken to ensure that all EME from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, turntable azimuth with respect to the antenna were noted for each frequency found. The spectrum was scanned from 30 to 1000 MHz using logbicon antenna. Above 1GHz, linearly polarized double ridge horn antenna was used.

Final measurements were made outdoors at 3-meter test range using logbicon antenna and horn antenna. The test equipment was placed on a wooden bench situated on a 1.5x1 meter area adjacent to the measurement area. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. Each frequency found during pre-scan measurements was re-examined and investigated using Quasi-Peak and Average Adapter. 30MHz-1GHz, the detector function was set to CISPR quasi-peak mode and the bandwidth of the receiver was set to 120kHz. Above 1GHz, the detector function was set to peak and average value, the bandwidth of the spectrum was set to 1MHz.

The turntable containing the system was rotated; the antenna height was varied 1 to 4 meters and stopped at the azimuth or height producing the maximum emission. Each emission was maximized by: varying mode of operation or resolution; clock or data exchange speed; scrolling H pattern to the EUT and/or support equipment, and powering the monitor from the floor mounted outlet box and the computer aux AC outlet , if applicable; and changing the polarity of the antenna, whichever determined the worst-case emission. Photographs of the worst-case emission can be seen in radiated emission test photo.

9.2 Test Configuration



9.3 Radiated Emission Limits

Limits for radiated disturbance of
Class B ITE or Intentional Radiator
At a measuring distance of 3 m

Frequency MHz	Field Strength dB μ V/m or uV/m	
30 to 88	40	100
88 to 216	43.5	150
216 to 960	46	200
Above 960	56	500

NOTES

- 1 The lower limit shall apply at the transition frequency.
- 2 Additional provisions may be required for cases where interference occurs.

10. Field Strength of Fundamental and Harmonics Test Setup Photos

< FRONT VIEW >



11. Field Strength of Fundamental and Harmonics

Test Data

Model No. : WT100CR

Temperature : 31° C

Humidity : 54 %

Memo : CH LOW MODE (2.401GHz)

Antenna polarization : HORIZONTAL ; **Test distance** : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2400.800	89.50	-24.50	114	Peak	Fundamental
4801.720	68.84	- 5.16	74	Peak	Harmonic
4802.760	44.06	- 9.94	54	Average	Harmonic
7202.900	48.63	-25.37	74	Peak	Harmonic
9603.880	51.16	-22.84	74	Peak	Harmonic
9608.000	---				
12010.000	---				
14412.000	---				
16814.000	---				
19216.000	---				
21618.000	---				
24020.000	---				

Antenna polarization : VERTICAL ; **Test distance** : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2400.980	90.67	-23.33	114	Peak	Fundamental
4801.660	63.27	-10.73	74	Peak	Harmonic
4802.620	40.91	-13.09	54	Average	Harmonic
7202.820	49.39	-24.61	74	Peak	Harmonic
9604.220	51.54	-22.46	74	Peak	Harmonic
9608.000	---				
12010.000	---				
14412.000	---				
16814.000	---				
19216.000	---				
21618.000	---				
24020.000	---				

1. Over Limit = Level-Limit Line
2. The above measurement of fundamental and harmonics testing data within the harmonics frequency level shown "---", it means that its harmonics frequency level is more than 20dB below the limit or its field strength is too small to be detected.

Model No. : WT100CR
Temperature : 31° C **Humidity** : 54 %
Memo : CH MID MODE (2.441GHz)

Antenna polarization : HORIZONTAL ; **Test distance** : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2440.980	87.25	-26.75	114	Peak	Fundamental
4881.640	63.76	-10.24	74	Peak	Harmonic
4881.800	38.75	-15.25	54	Average	Harmonic
7323.140	48.47	-25.53	74	Peak	Harmonic
9764.000	---				
12205.000	---				
14646.000	---				
17087.000	---				
19528.000	---				
21969.000	---				
24410.000	---				

Antenna polarization : VERTICAL ; **Test distance** : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2441.220	91.67	-22.33	114	Peak	Fundamental
4881.660	62.67	-11.33	74	Peak	Harmonic
4882.040	38.57	-15.43	54	Average	Harmonic
7322.960	48.05	-25.95	74	Peak	Harmonic
9764.000	---				
12205.000	---				
14646.000	---				
17087.000	---				
19528.000	---				
21969.000	---				
24410.000	---				

1. Over Limit = Level-Limit Line
2. The above measurement of fundamental and harmonics testing data within the harmonics frequency level shown "---", it means that its harmonics frequency level is more than 20dB below the limit or its field strength is too small to be detected.

Model No. : WT100CR
Temperature : 31° C **Humidity** : 54 %
Memo : CH HIGH MODE (2.480GHz)

Antenna polarization : HORIZONTAL ; **Test distance :** 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2480.300	86.56	-27.44	114	Peak	Fundamental
4959.480	60.27	-13.73	74	Peak	Harmonic
4960.520	39.48	-14.52	54	Average	Harmonic
7440.200	48.88	-25.12	74	Peak	Harmonic
9920.000	---				
12400.000	---				
14880.000	---				
17360.000	---				
19840.000	---				
22320.000	---				
24800.000	---				

Antenna polarization : VERTICAL ; **Test distance :** 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Detector	Remark
2480.140	88.26	-25.74	114	Peak	Fundamental
4959.500	57.50	-16.50	74	Peak	Harmonic
4959.960	37.20	-16.80	54	Average	Harmonic
7439.820	49.18	-24.82	74	Peak	Harmonic
9920.000	---				
12400.000	---				
14880.000	---				
17360.000	---				
19840.000	---				
22320.000	---				
24800.000	---				

1. Over Limit = Level-Limit Line
2. The above measurement of fundamental and harmonics testing data within the harmonics frequency level shown "---", it means that its harmonics frequency level is more than 20dB below the limit or its field strength is too small to be detected.

12. Conducted Emissions Test Setup Photos

N/A

13. Conducted Emissions Test Data

The EUT is supplied by DC power source from batteries. The conducted powerline test is not applicable to EUT.

14. Radiated Emissions Test Setup Photos

< FRONT VIEW >



15. Radiated Emissions Test Data

15.1 Field Strength of Fundamental and Harmonics Test Data

Model No.	: WT100CR	Detector	: Quasi-Peak Value
Frequency range	: 30MHz to 1GHz	Humidity	: 55 %
Temperature	: 30° C		
Memo	: TX ON MODE		

Antenna polarization : HORIZONTAL ; Test distance : 3m ;

Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
55.220	25.94	-14.06	40.00	35.60	9.65	0.78	20.09
67.830	26.61	-13.39	40.00	36.88	9.05	0.74	20.06
94.990	23.54	-19.96	43.50	32.20	10.42	0.98	20.06
164.830	27.18	-16.32	43.50	26.90	18.78	1.41	19.91
238.550	28.47	-17.53	46.00	36.03	10.59	1.85	20.00
246.310	27.76	-18.24	46.00	35.29	10.58	1.88	19.99

Antenna polarization : VERTICAL ; Test distance : 3m ;

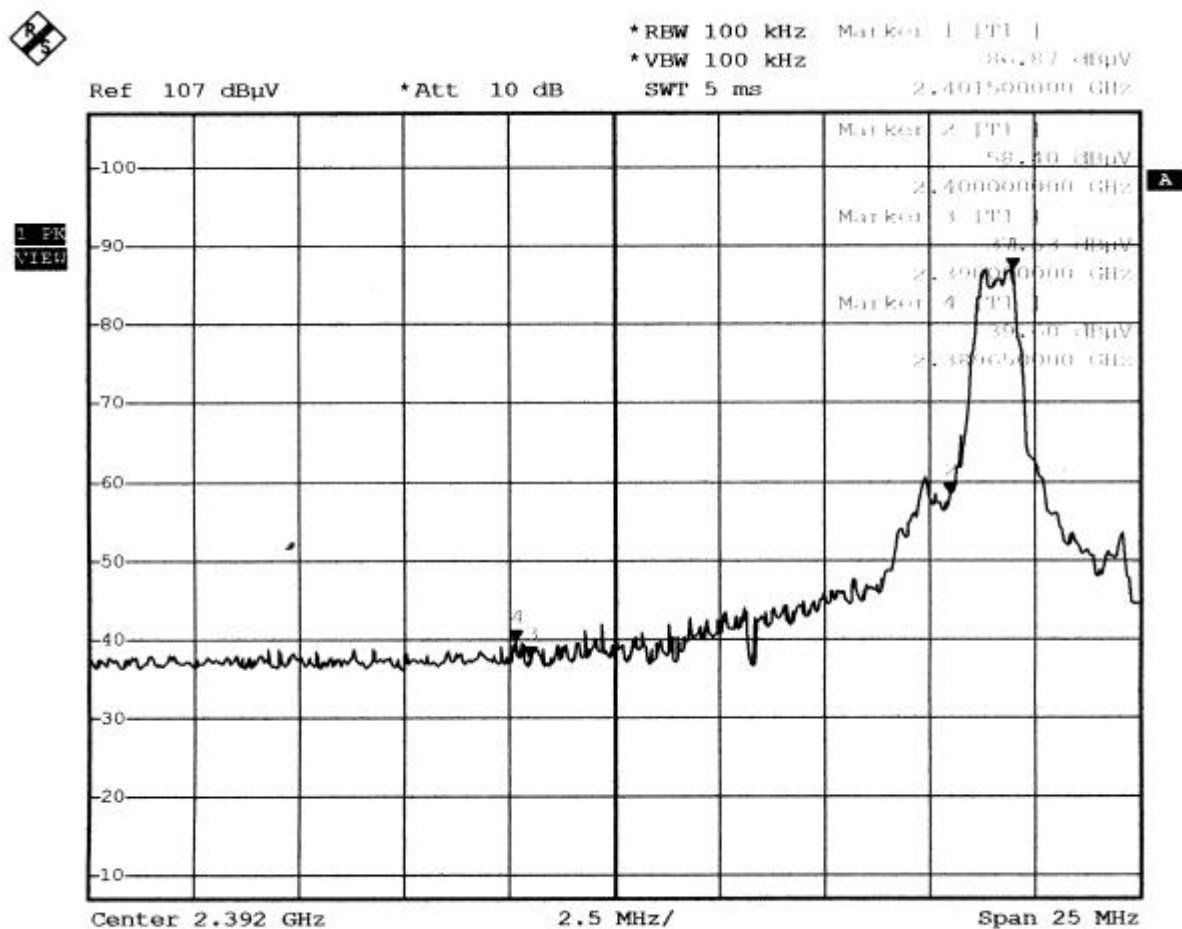
Freq. (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
35.820	32.09	- 7.91	40.00	40.90	10.72	0.65	20.18
67.830	34.03	- 5.97	40.00	44.30	9.05	0.74	20.06
164.830	26.40	-17.10	43.50	26.12	18.78	1.41	19.91
409.270	30.21	-15.79	46.00	31.94	15.19	2.74	19.66
454.860	34.21	-11.79	46.00	34.33	16.44	2.95	19.51
532.460	29.92	-16.08	46.00	28.46	17.38	3.22	19.14

Note :

1. Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line

16. Band-edges Compliance

Channel : CH LOW
Polarity : Horizontal



Test method : Public Notice DA 00-705

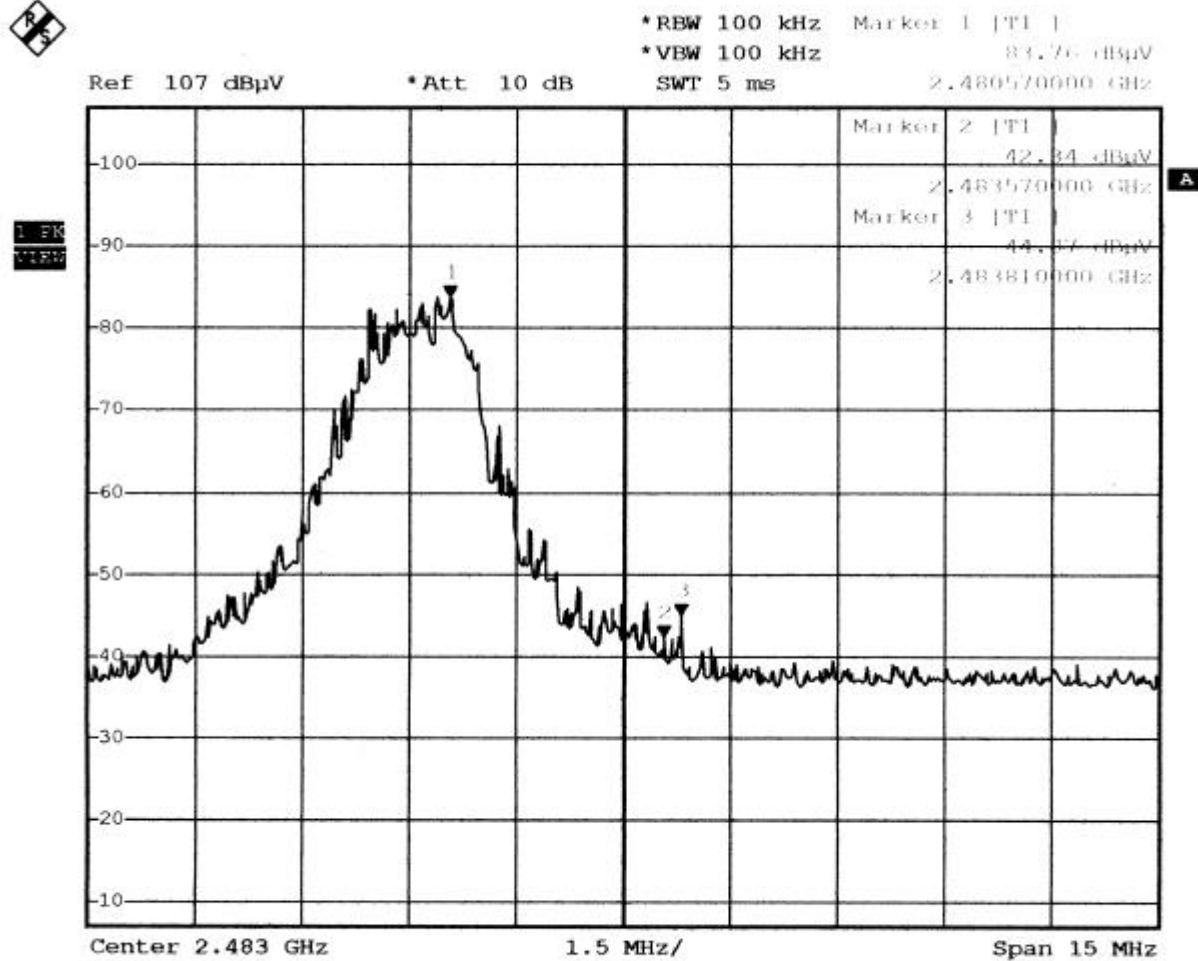
Detect : Peak Value

Marker-Delta method :

86.87dBuV/m-39.60 dBuV/m =47.27dBuV/m

89.50 dBuV/m-47.27 dBuV/m=42.23 dBuV/m

*42.23dBuV/m<Average Limit (54dBuV/m)

Channel : CH HIGH**Polarity : Horizontal**

Test method : Public Notice DA 00-705

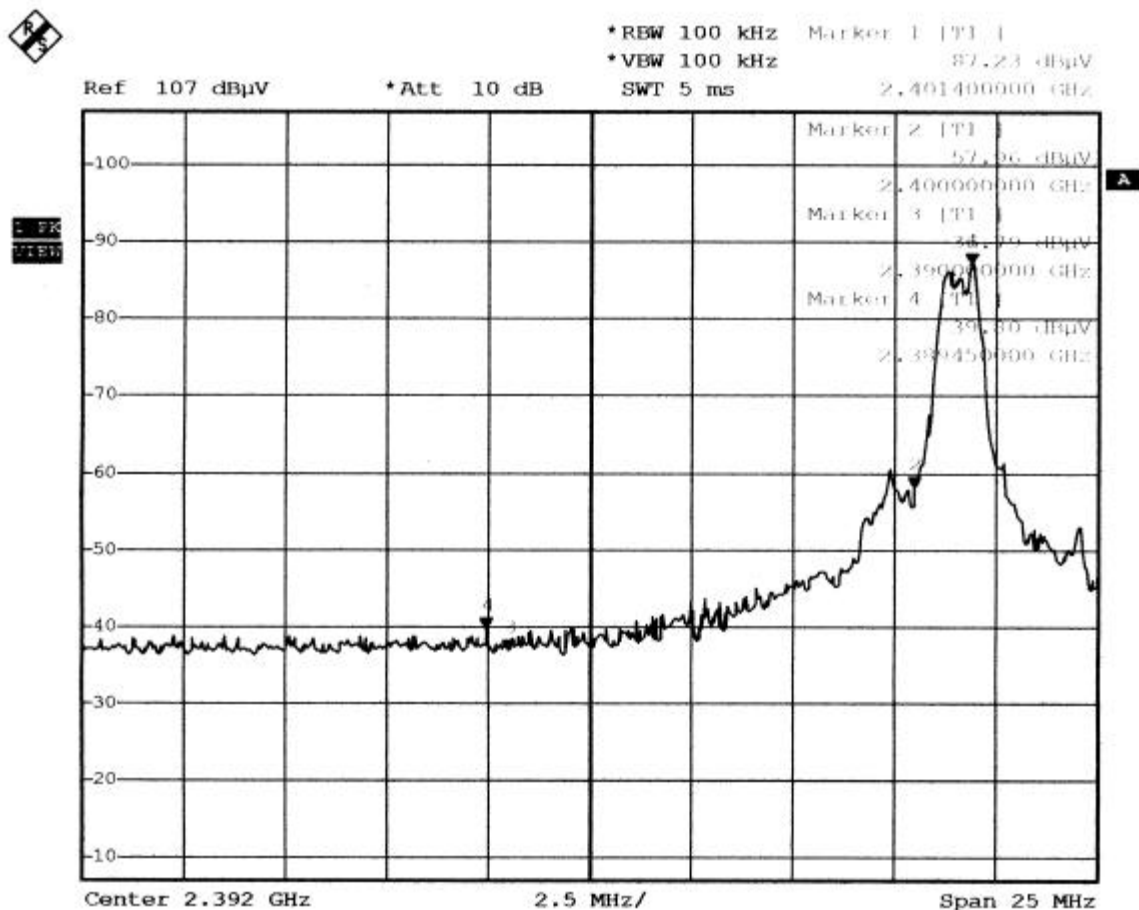
Detect : Peak Value

Marker-Delta method :

 $83.76\text{dBuV/m} - 44.87\text{ dBuV/m} = 38.89\text{dBuV/m}$ $86.560\text{ dBuV/m} - 38.89\text{ dBuV/m} = 47.67\text{ dBuV/m}$ $*47.67\text{dBuV/m} < \text{Average Limit (54dBuV/m)}$

Channel : CH LOW

Polarity : Vertical



Test method : Public Notice DA 00-705

Detect : Peak Value

Marker-Delta method :

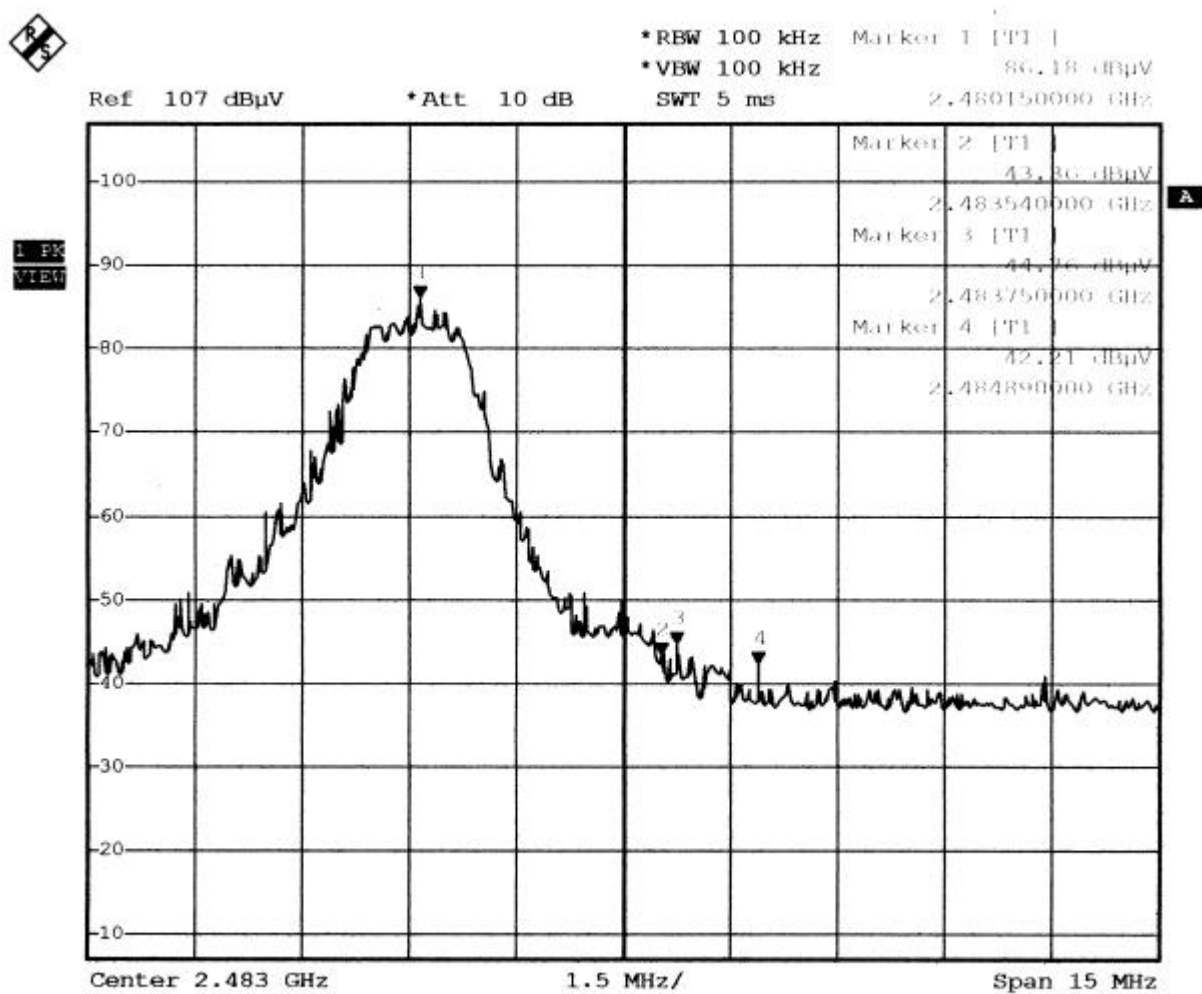
87.23dBuV/m-39.80 dBuV/m =47.43dBuV/m

90.67 dBuV/m-47.43 dBuV/m=43.24 dBuV/m

*43.24dBuV/m<Average Limit (54dBuV/m)

Channel : CH HIGH

Polarity : Vertical



Test method : Public Notice DA 00-705

Detect : Peak Value

Marker-Delta method :

86.18dBuV/m-44.76 dBuV/m =41.42dBuV/m

88.26 dBuV/m-41.42 dBuV/m=46.84 dBuV/m

*46.84dBuV/m<Average Limit (54dBuV/m)

17. List of Measured Instruments

Test Site	Instrument	Model No.	S/N	Next Cal. Date	Cal. Interval
Radiation (OP No.3)	R & S Receiver	ESVS 30	863342/012	Aug. 19, 2008	1Year
	Schaffner Pre-Amp.	CPA-9232	1012	Jan. 02, 2008	1Year
	SCHWARZBECK Antenna	9161	9161-4077	July 22, 2008	1Year
	RF Cable	No.3	N/A	Jan. 02, 2008	1Year
	R & S Signal Generator	SMY02	829846/038	May 01, 2008	2Year
Chamber (No. 3)	R&S Spectrum Analyzer	FSP30	100157	Sep. 03, 2007	1Year
	Schaffner Pre-Amplifier	CPA-9232	1028	Jan. 02, 2008	1Year
	SCHWARZBECK Antenna	VULB9161	4078	July 21, 2008	1Year
	R & S Signal Generator	SMY02	830235/019	May 01, 2008	2Years
	30MHz~1GHz RF Cable	NO.3	N/A	Jan. 02, 2008	1Year
	COM POWER HORN ANTENNA	AH-118	10056	Oct. 01, 2008	2Years
	MITEQ Pre-Amplifier	JS4-00101800-2 8-5A	829013	Sep. 28, 2008	2Years
	1GHz~26.5GHz RF Cable	N/A	N/A	Sep. 28, 2008	2Years
	KSON Humidity Chamber	THS-COH+-150	2019	Mar. 11, 2008	1Year

18. FCC ID Label Sample

The sample label shown below shall be permanently affixed at a conspicuous location on the device, instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practicable, only the trade name, model number, and the FCC logo must be displayed on the device per Section §15.19 (b)(2).

EUT Label



FCC ID: SRKWT100CR

19. Information To The User

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures :

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver .
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected .
- Consult the dealer or an experienced radio / TV technician for help .

20. EUT External Photos

PHOTO. 1. EUT (TX, RX) FRONT VIEW

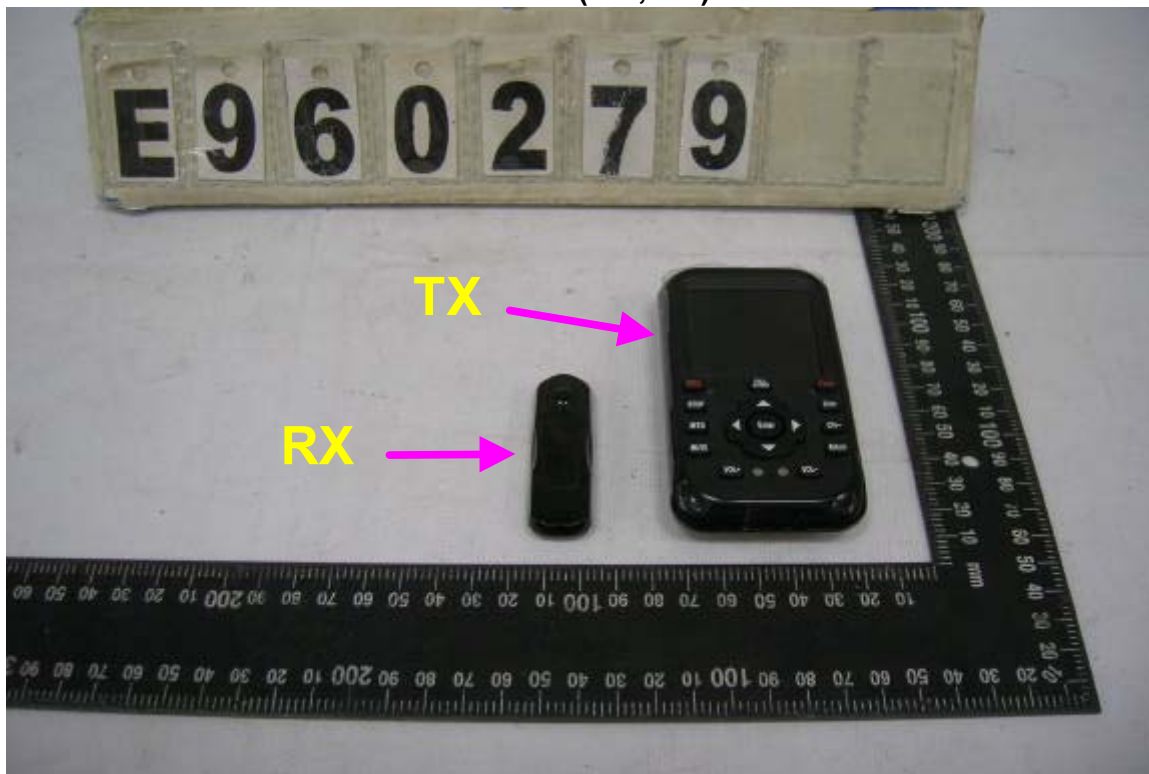


PHOTO. 2. EUT (TX, RX) REAR VIEW



21. EUT Internal Photos

PHOTO. 3. EUT (TX) INSIDE VIEW



PHOTO. 4. EUT (TX) COMPONENT SIDE VIEW

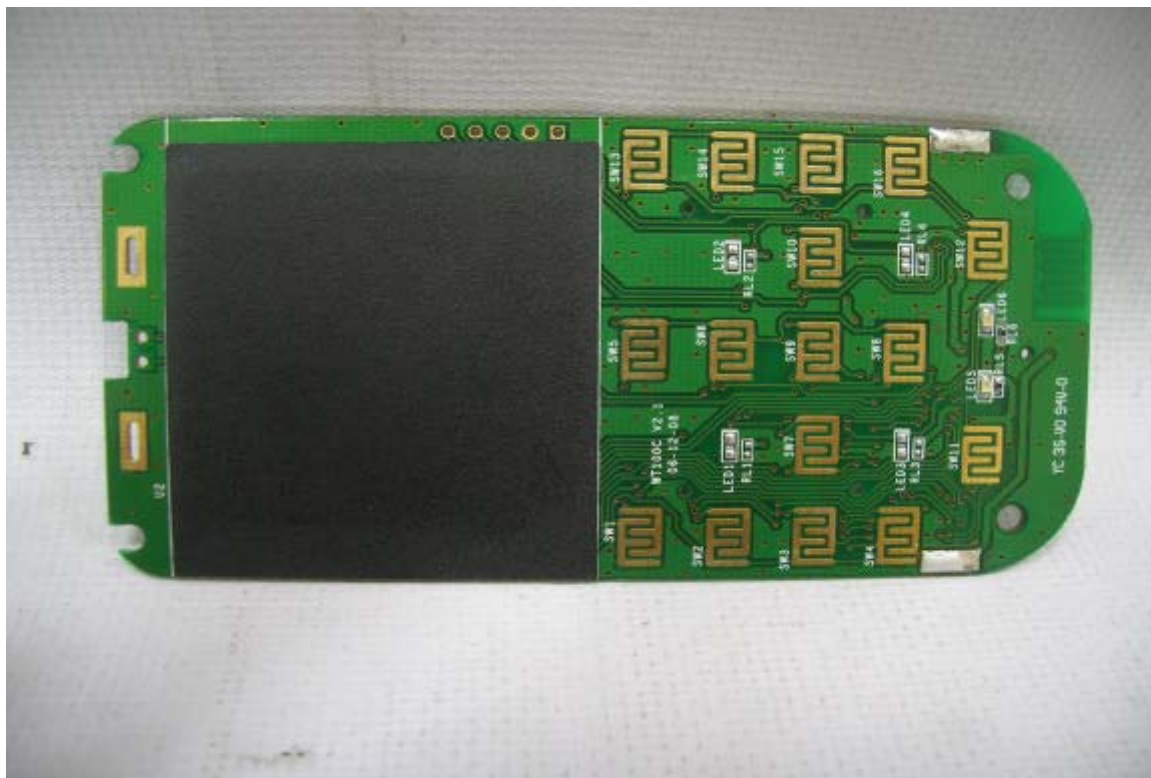


PHOTO. 5. EUT (TX) SOLDERING SIDE VIEW

