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FCC PART 15 SUBPART C TEST REPORT

FCC PART 15C

Report Reference No.....:	**CTL1102006-T**
Compiled by (position+printed name+signature)..:	File administrators Andy Zhang
Name of the organization performing the tests (position+printed name+signature)..:	Test Engineer Kendy Wang
Approved by (position+printed name+signature)..:	Manager Tracy Qi
Date of issue.....:	February 28, 2011
Testing Laboratory Name .....:	**Shenzhen CTL Electromagnetic Technology Co., Ltd.**
Address.....:	Zone B，4/F, Block 20，Guangqian Industrial Park, Longzhu Road,Nanshan,Shenzhen 518055 China.
Test Firm.....:	**Bontek Compliance Testing Laboratory Ltd**
Address.....:	1/F, Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East Road, Nanshan, Shenzhen, China
Applicant's name.....:	**J.B. Industrial (Shen Zhen) Co., Ltd.**
Address.....:	J.B. Industrial Center, Beishandao YanTian, Shenzhen P.R.China.
Test specification:	
Standard .....:	**FCC Part 15C** **ANSI C63.4: 2003**
TRF Originator.....:	Shenzhen CTL Electromagnetic Technology Co., Ltd.
Master TRF.....:	Dated 2011-01

Test item description ..... :	F-PG20-11
Operation Frequency.....:	315MHz
Modulation mode: .....:	ASK
Trade Mark .....:	
Model/Type reference.....:	CN-F-PG20-11T
Listed Models .....:	/
Power Supply.....:	DC 12V
Anttenna Type.....:	Integral without external RF Port
Result.....:	**Positive**
FCC ID..... :	**X9V-CN-F-PG20-11T**

T E S T R E P O R T

Test Report No. :	CTL1102006-T	February 28, 2011 Date of issue

Equipment under Test	:	F-PG20-11
Model /Type	:	CN-F-PG20-11T
Listed Models	:	/
Difference description:		/
Applicant	:	J.B. Industrial (Shen Zhen) Co., Ltd.
Address	:	J.B. Industrial Center, Beishandao YanTian, Shenzhen P.R.China.
Manufacturer	:	J.B. Industrial (Shen Zhen) Co., Ltd.
Address	:	J.B. Industrial Center, Beishandao YanTian, Shenzhen P.R.China.

Test Result according to the standards on page 4:	**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.

Contents

1. TEST STANDARDS

The tests were performed according to following standards:

FCC Rules Part 15 Subpart C Section 15.231

ANSI C63.4-2003

2 . SUMMARY

2.1. General Remarks

Date of receipt of test sample : February 21, 2011

Testing commenced on : February 23, 2011

Testing concluded on : February 25, 2011

2.2. Equipment Under Test

Power supply system utilised

Power supply voltage : o 120V / 60 Hz o 115V / 60Hz
● 12 V DC o 24 V DC
o Other (specified in blank below)

Not applicable

2.3. Short description of the Equipment under Test (EUT)

315MHz Wireless Transmitter
For more details, refer to the user's manual of the EUT.

Serial number: Prototype

2.4. EUT operation mode

The EUT has been tested under typical operating condition.

2.5. EUT configuration

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

o - supplied by the manufacturer

o - supplied by the lab

o Power Cable	Length (m) :	/
	Shield :	/
	Detachable :	/
o Multimeter	Manufacturer :	/
	Model No. :	/

2.6. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: X9V-CN-F-PG20-11T** filing to comply with the FCC Part 15, Subpart C Rules.

2.7. Modifications

No modifications were implemented to meet testing criteria.

2.8. Test Result Summary

Test Item	Test Requirement	Standard Paragrph	Result
Radiated Emission (25MHz to 4000MHz)	FCC PART 15	Section 15.231(b)	PASS
Occupled Bandwidth	FCC PART 15	Section 15.231(c)	PASS
Dwell Time	FCC PART 15	Section 15.231(a)	PASS

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Bontek Compliance Testing Laboratory Ltd
1/F, Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East Road, Nanshan, Shenzhen, China

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4 and CISPR 22/EN 55022 requirements

3.2. Test Facility

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

FCC-Registration No.: 338263

Bontek Compliance Testing Laboratory 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 338263, March 24, 2008.

IC Registration No.: 7631A

The 3m alternate test site of Bontek Compliance Testing Laboratory Ltd EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 7631A on March, 2008.

3.3. Environmental conditions

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

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

3.4. Configuration of Tested System

Fig. 2-1 Configuration of Tested System

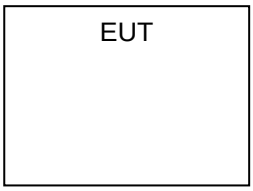


Table 2-1 Equipment Used in Tested System

3.5. 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 Bontek Compliance Testing Laboratory Ltd 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.

Hereafter the best measurement capability for Bontek laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10dB	(1)
Radiated Emission	1~12.75GHz	4.32dB	(1)

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

3.6. Equipments Used during the Test

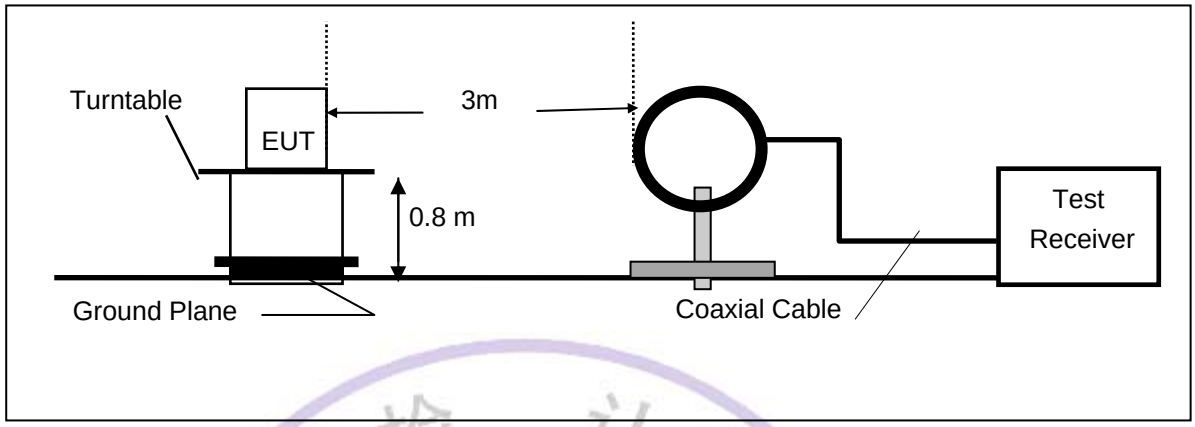
Radiated Emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
1	ULTRA-BROADBAND ANTENNA	ROHDE & SCHWARZ	HL562	100015	2010/04	2011/04
2	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESI 26	100009	2010/04	2011/04
3	RF TEST PANEL	ROHDE & SCHWARZ	TS / RSP	335015/ 0017	2010/04	2011/04
4	TURNTABLE	ETS	2088	2149	2010/04	2011/04
5	ANTENNA MAST	ETS	2075	2346	2010/04	2011/04
6	EMI TEST SOFTWARE	ROHDE & SCHWARZ	ESK1	N/A	2010/04	2011/04
7	Loop Antenna	ROHDE & SCHWARZ	HFH2-Z2	8335211/0035	2010/04	2011/04

4. TEST CONDITIONS AND RESULTS

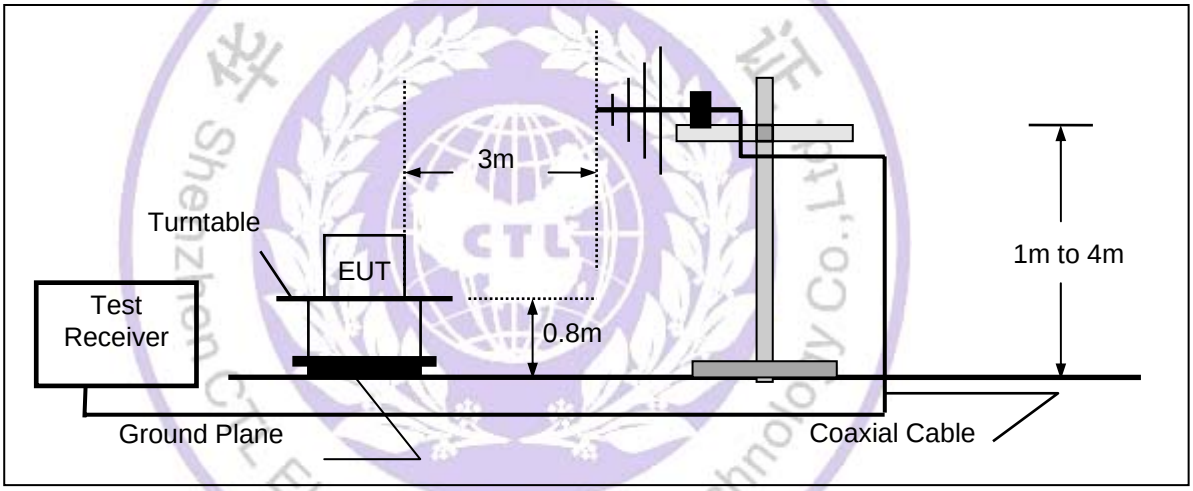
4.1. Radiated Emission Test

TEST CONFIGURATION

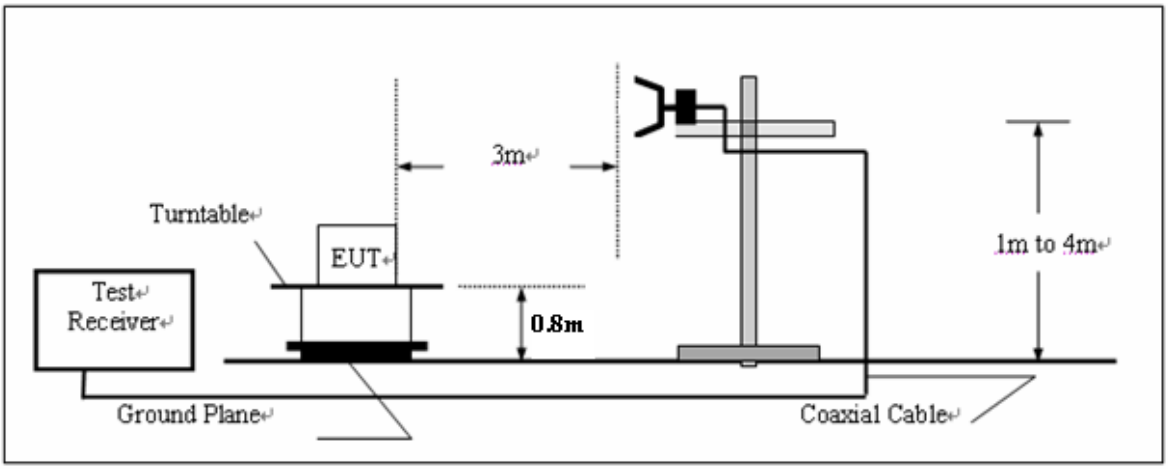
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



TEST PROCEDURE

1 The EUT was placed on a turn table which is 0.8m above ground plane.
2 Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0℃ to 360℃ to acquire the highest emissions from EUT
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

RADIATION LIMIT

For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values：

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

Note:
Three axes are chosen for pretest, the Z axis is the worst mode for final test.
For battery operated equipment, the equipment tests shall be performed using a new battery.

Radiation Test Result

Freq. (MHz)	Ant.Pol. H/V	DetectorMode (PK/AV)	Reading (dBuV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)	Note
315.00	V	Peak	52.60	13.80	66.40	75.60	-9.20	F
315.00	H	Peak	59.50	13.80	73.30	75.60	-2.30	F
630.00	V	Peak	24.30	22.90	47.20	55.60	-8.40	H
630.00	H	Peak	28.20	22.90	51.10	55.60	-4.50	H
945.00	V	Peak	19.30	25.40	44.70	55.60	-10.90	H
945.00	H	Peak	25.20	25.40	50.60	55.60	-5.00	H
1260.00	V		---					H
1260.00	H		---					H
613.50	H	Peak	11.60	21.60	33.20	46.00	-12.80	
613.50	V	Peak	19.70	21.60	41.30	46.00	-4.70	
Others			---					

Remark:

(1) Measuring frequencies from 25 MHz to the 4GHz。

(2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.

(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.

(4) Datas 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) The IF bandwidth of EMI Test Receiver between 25MHz to 1GHz was 120KHz and 1 MHz for measuring above 1 GHz

4.2. Occupied Bandwidth

Measurement Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as normal operation
3. Based on FCC Part15 C Section 15.231: RBW= 100KHz，VBW= 300KHz.
4. The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector.

Test SET-UP (Block Diagram of Configuration)

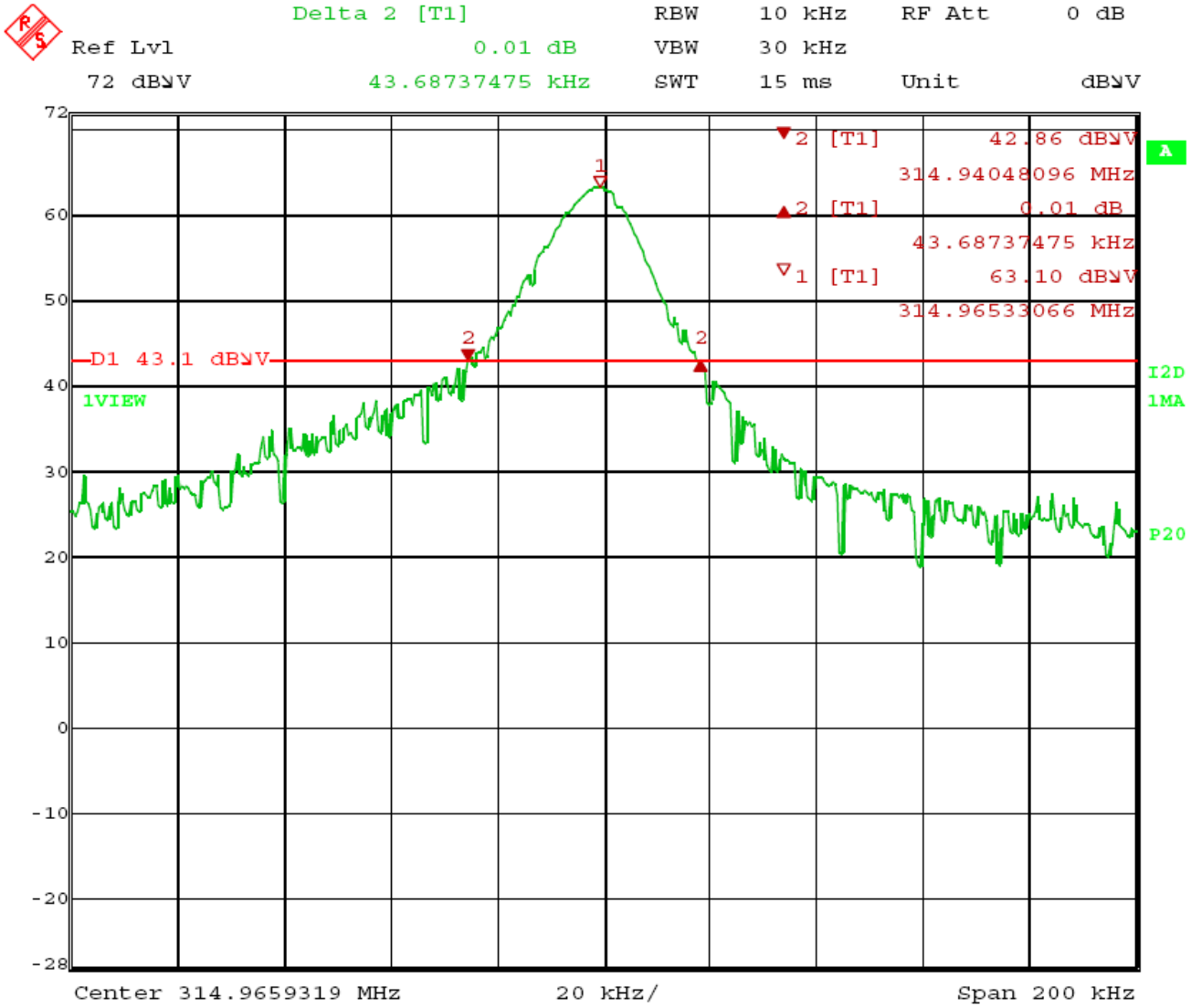
Same as Radiated Emission Measurement.

Measurement Equipment Used:

Same as Radiated Emission Measurement.

Measurement Results:

The graph as below, represents the emissions take for this device.



Note: Limit= Fundamental frequency×0.25%=315×0.25%=787.5KHz

4.3. RELEASE TIME MEASUREMENT

Measurement Procedure

Release Time Measurement According To FCC Part 15 Section 15.231(a).

1. Set SPA Center Frequency = Fundamental frequency, RBW = 100 kHz, VBW =300 kHz, Span = 0Hz. Sweep time =20seconds.

2. Set EUT as normal operation and press Transmitter button.

3. Set SPA View. Delta Mark time.

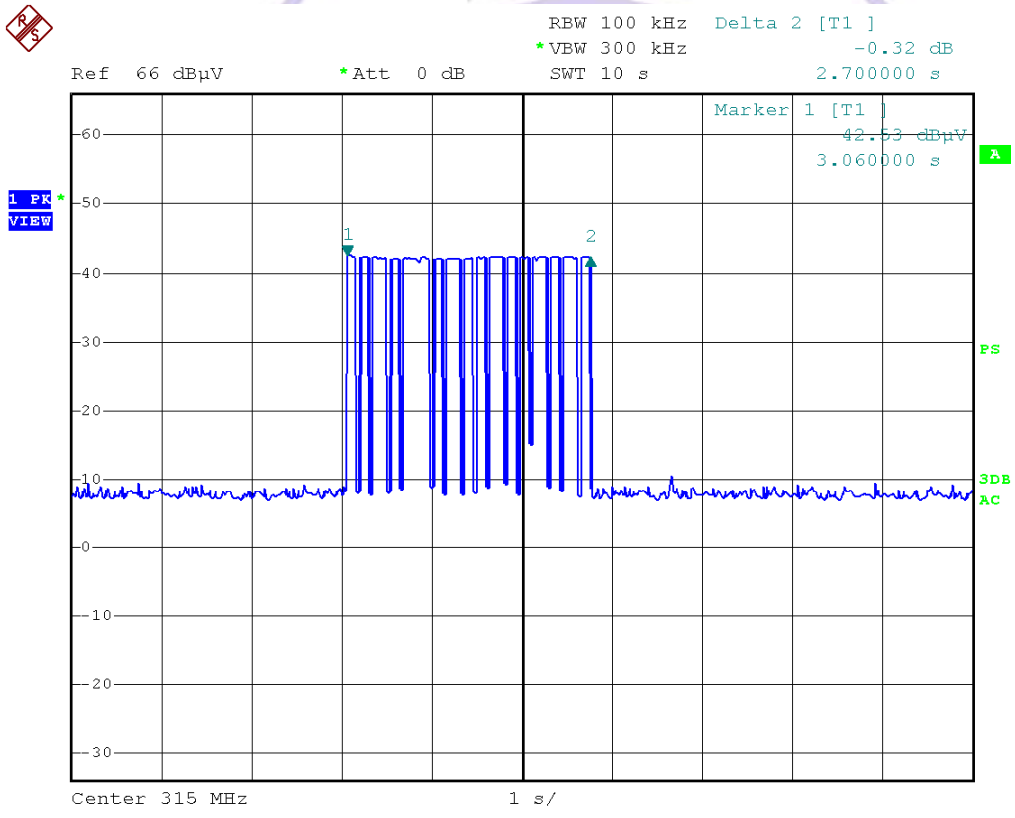
Test SET-UP (Block Diagram of Configuration)

Same as 5.2 Radiated Emission Measurement.

Measurement Equipment Used:

Same as 5.2 Radiated Emission Measurement.

Measurement Results:



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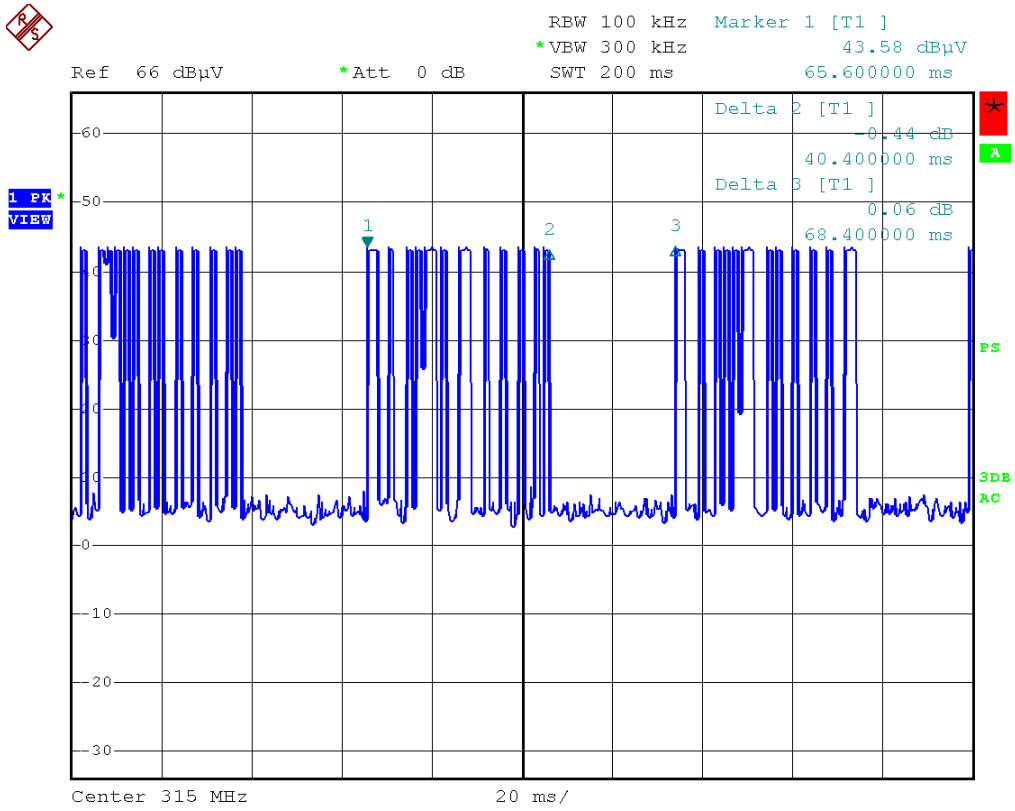
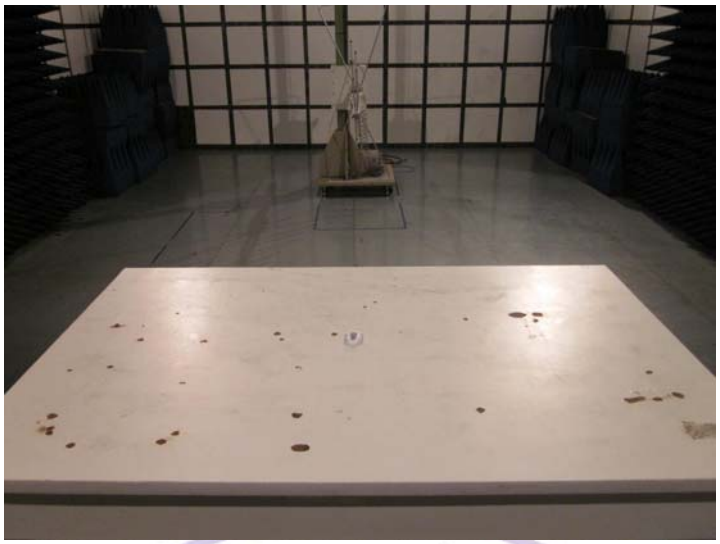


Date: 23.FEB.2011 22:20:09

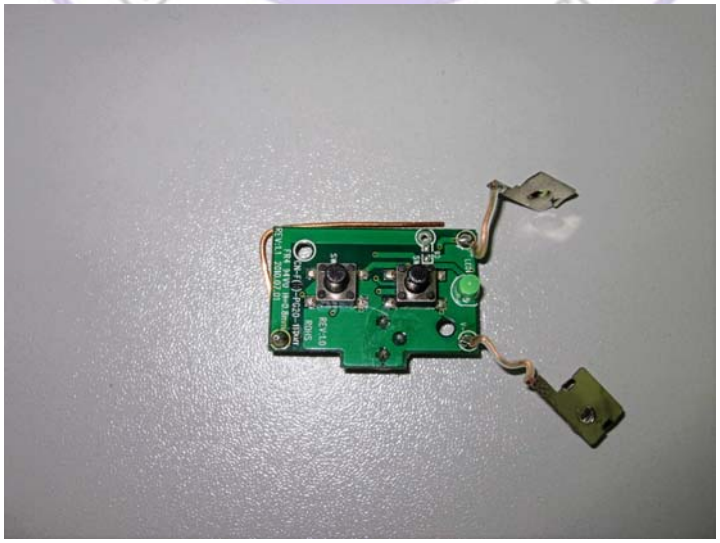
5. Test Setup Photos of the EUT



6. External and Internal Photos of the EUT

External Photos

Internal Photos



.....End of Report.....