



## FINGERTEC WORLDWIDE SDN BHD

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# FC FCC REPORT

Prepared For :	FINGERTEC WORLDWIDE SDN BHD  NO.6, 8 & 10, JALAN BK 3/2, BANDAR KINRARA, 47100 PUCHONG, SELANGOR, MALAYSIA
Product Name:	RFID T&A System
Trade Name:	FINGERTEC
Model :	TimeLine 100
Prepared By :	Shenzhen BST Technology Co., Ltd.  3F,Weames Technology Building,No. 10 Kefa Road, Science Park,Nanshan District,Shenzhen,Guangdong,China
Test Date:	Jan. 12-13, 2009
Date of Report :	Jan. 14, 2009
Report No.:	BTFC0901125009



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## TEST REPORT DECLARATION

Applicant	:	FINGERTEC WORLDWIDE SDN BHD
Address	:	NO.6, 8 & 10, JALAN BK 3/2, BANDAR KINRARA, 47100 PUCHONG, SELANGOR, MALAYSIA
EUT Description	:	RFID T&A System
Trade Name	:	FINGERTEC
Model Number	:	TimeLine 100

Test Standards:

### FCC Part 15:2005

The EUT described above is tested by US to determine the maximum emission levels emanating from the EUT, the maximum emission levels are compared to the FCC Part 15 Subpart Class B limits. The measurement results are contained in this test report. and Shenzhen BST Technology Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT is to be technically compliant with the FCC requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen BST Technology Co., Ltd.

Prepared by :

Jack Li / Assistant

Reviewer :

Mary Du / Supervisor

Approved & Authorized Signer :

Christina / Manager



## 1. GENERAL INFORMATION

### 1.1. Report information

- 1.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that BST approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that BST in any way guarantees the later performance of the product/equipment.
- 1.1.2. The sample/s mentioned in this report is/are supplied by Applicant, BST therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.
- 1.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through BST, unless the applicant has authorized BST in writing to do so.

### 1.2. Measurement Uncertainty

Available upon request.

### 1.3. Test Facility

#### Site Description

EMC Lab.	:	Certificated by TIMCO
Name of Firm	:	Shenzhen BST Technology Co., Ltd.
Site Location	:	3F, Weames Technology Building, No. 10 Kefa Road, Science Park, Nanshan District, Shenzhen, Guangdong, China

### 1.4. Test Uncertainty

Conducted Emission Uncertainty	=	$\pm 2.66$ dB
Radiated Emission Uncertainty	=	$\pm 4.26$ dB



## 2. PRODUCT DESCRIPTION

### 2.1.EUT Description

Description	:	RFID T&A System
Trade Name	:	FINGERTEC
Applicant	:	FINGERTEC WORLDWIDE SDN BHD NO.6, 8 & 10, JALAN BK 3/2, BANDAR KINRARA, 47100 PUCHONG, SELANGOR, MALAYSIA
Manufacturer	:	FINGERTEC WORLDWIDE LIMITED Peking University Founder Shiyan Science Park, Bao'an, Shenzhen, China. 518108
Model Number	:	TimeLine 100

### 2.2.Test Conditions

Temperature: 23~25

Relative Humidity: 55~63 %



### 3. TEST RESULTS SUMMARY

**Table 1 Test Results Summary**

Test Items	Test Results
Conducted disturbance	Pass
Radiated disturbance	Pass

Remark: "N/A" means "Not applicable."



## 4. TEST EQUIPMENT USED

### 4.1. For Conducted Emission Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS30	828985/018	Jun. 01, 08	1 Year
2.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100006	Jun. 01, 08	1 Year
3.	L.I.S.N.	Rohde & Schwarz	ESH2-Z5	834549/005	Jun. 01, 08	1 Year
4.	Conical	Emtek	N/A	N/A	N/A	N/A
5.	Voltage Probe	Schwarzbeck	TK9416	N/A	Jun. 01.08	1 Year
6.	Coaxial Switch	Anritsu	MP59B	6100214550	Jun. 01, 08	1 Year

### 4.2. For Radiated Emission Measurement

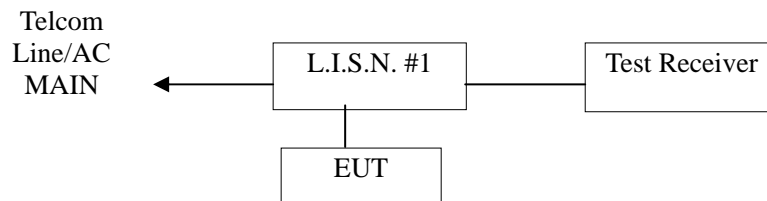
#### Anechoic Chamber

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	ANRITSU	MS2661C	6200140915	Jun 01,08	1 Year
2.	Test Receiver	Rohde&Schwarz	ESC830	828982/018	Jun 01,08	1 Year
3.	Bilog Antenna	Schwarzbeck	VULB9163	142	Jun 01,08	1 Year
4.	50 Coaxial Switch	Anritsu Corp	MP59B	6100237248	Jun 01,08	1 Year
5.	Cable	Schwarzbeck	AK9513	ACRX1	Jun 01,08	1 Year
6.	Cable	Rosenberger	N/A	FR2RX2	Jun 01,08	1 Year
7.	Cable	Schwarzbeck	AK9513	CRRX2	Jun 01,08	1 Year
8.	Cable	Schwarzbeck	AK9513	CRRX2	Jun 01,08	1 Year
9.	Single Phase Power Line Filter	MPE	23332C	N/A	Jun 01,08	1 Year
10.	Single Phase Power Line Filter	MPE	23333C	N/A	Jun 01,08	1 Year
11.	Signal Generator	HP	864A	3625U00573	Jun 01,08	1 Year



## 5. CONDUCTED EMISSION TEST

### 5.1. Block Diagram of Test Setup



(EUT: RFID T&A System)

### 5.2. Test Standard

FCC Part 15: 2005

### 5.3. Conducted Emission Limit(Class B)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. \*Decreasing linearly with logarithm of frequency.

### 5.4. EUT Configuration on Test

The following equipments are installed on conducted emission test to meet Part 15 requirement and operating in a manner, which tends to maximize its emission characteristics in a normal application.

#### 5.4.1. EUT Information

Model Number : **TimeLine 100**  
 Serial Number : **N/A**

### 5.5. Operating Condition of EUT

5.5.1. Setup the EUT and simulators as shown in Section 5.1.

5.5.2. Turn on the power of all equipments.

5.5.3. Let the EUT work in test modes (EUT Working) and test it.





## 5.6. Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver (R&S Test Receiver ESCS30) is used to test the emissions form both sides of AC line. The bandwidth of EMI test receiver is set at 9kHz.

The bandwidth of the test receiver (R&S Test Receiver ESHS30) is set at 10KHz. and all the scanning waveform are attached within **Appendix I**.

## 5.7. Test Result

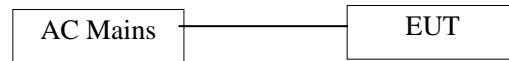
**PASS**



## 6. RADIATED EMISSION MEASUREMENT

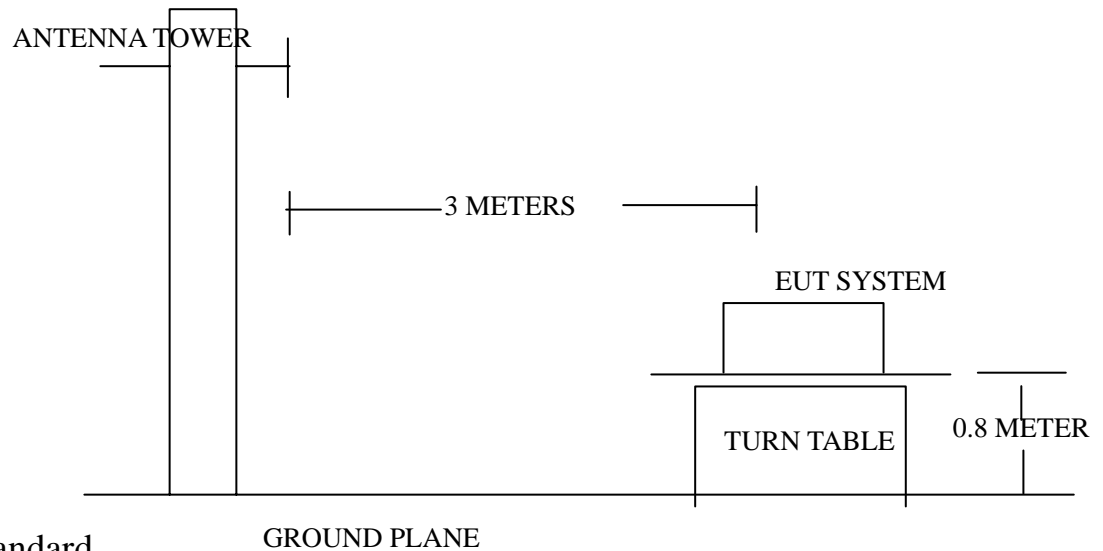
### 6.1. Block Diagram of Test Setup

#### 6.1.1. Block Diagram of connection between the EUT and the simulators



(EUT: RFID T&A System)

#### 6.1.2. Anechoic Chamber Test Setup Diagram



### 6.2. Test Standard

FCC Part 15: 2005

### 6.3. Radiated Emission Limit(Class B)

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dB $\mu$ V/m)
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
960 ~ 1000	3	54.0

Note:(1) The smaller limit shall apply at the edge between two frequency bands.

(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT or system.



## 6.4.EUT Configuration on Test

The following equipment are installed on Radiated Emission Measurement to meet the Commission requirements and operating regulations in a manner which tends to maximize Its emission characteristics in normal application.

## 6.5.Operating Condition of EUT

- 6.5.1.Setup the EUT as shown on Section 6.1.2
- 6.5.2.Turn on the power of all equipments.
- 6.5.3.Let the EUT work in test mode(EUT working) and measure it.

## 6.6.Test Procedure

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna (calibrated by dipole antenna) are used as a receiving antenna. Both horizontal and vertical polarization of the antenna are set on measurement.

The bandwidth setting on the test receiver (R&S TEST RECEIVER ESCS20) is 120 KHz. The EUT is tested in Anechoic Chamber. The frequency range from 30MHz to 1000 MHz is checked.All the test results are listed in Section 6.7. and all the scanning waveform are attached within **Appendix II**.

## 6.7.Test Result

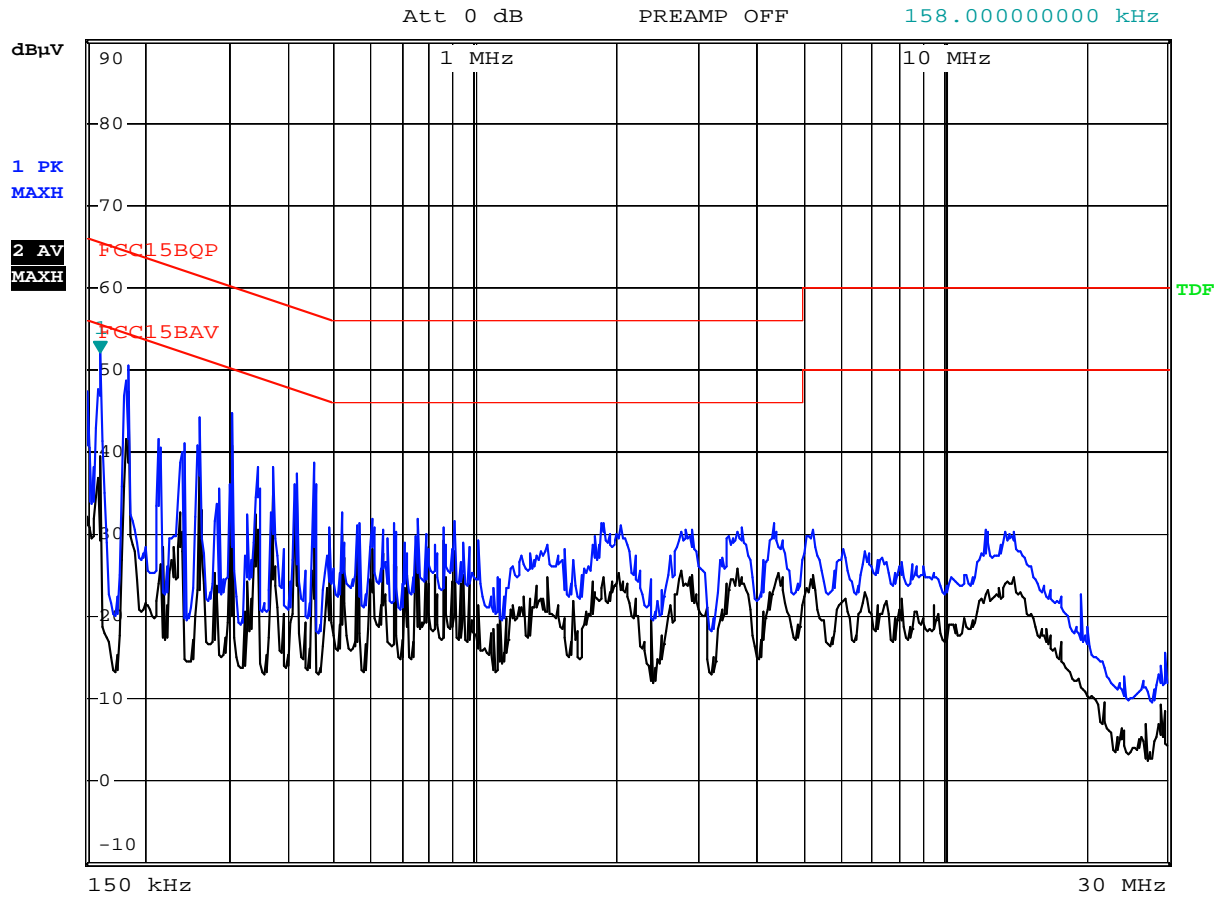
**PASS**



## **APPENDIX I**



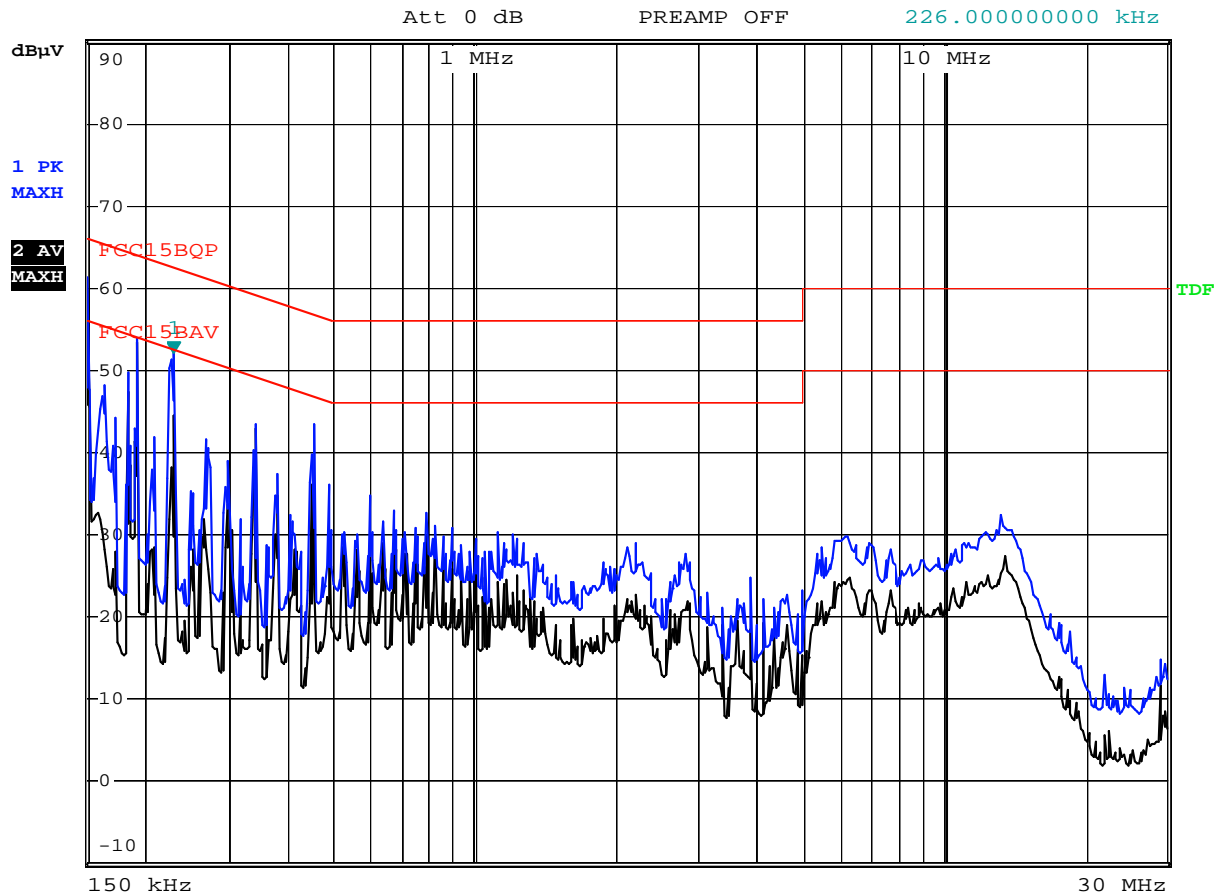
RBW 9 kHz Marker 1 [T1 ]  
 MT 1 ms 52.17 dBμV  
 PREAMP OFF 158.00000000 kHz



Date: 13.JAN.2009 10:09:39



RBW 9 kHz Marker 1 [T1 ]  
MT 1 ms 52.20 dBμV  
PREAMP OFF 226.00000000 kHz



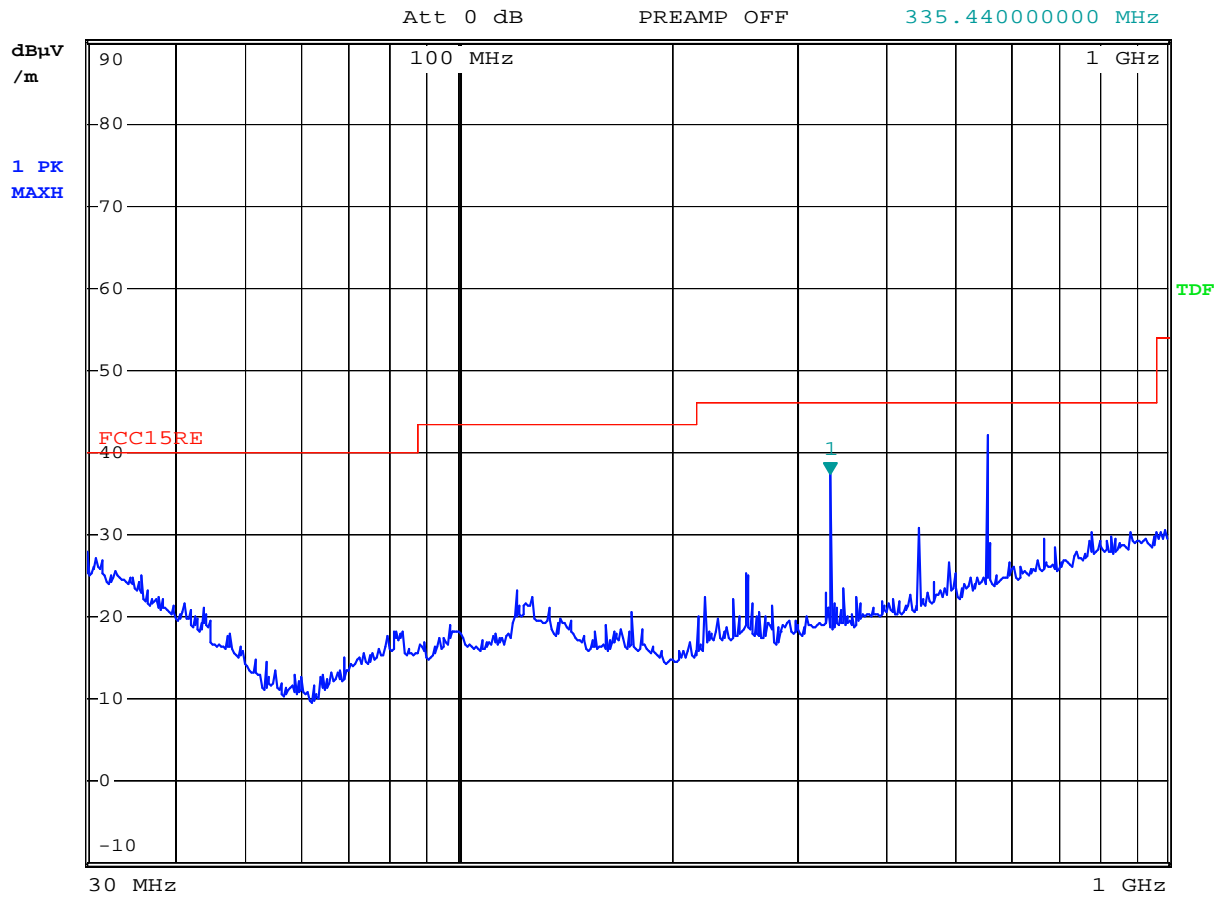
Date: 13.JAN.2009 10:08:59



## APPENDIX II



RBW 120 kHz Marker 1 [T1 ]  
MT 100  $\mu$ s 37.47 dB $\mu$ V/m  
PREAMP OFF 335.44000000 MHz

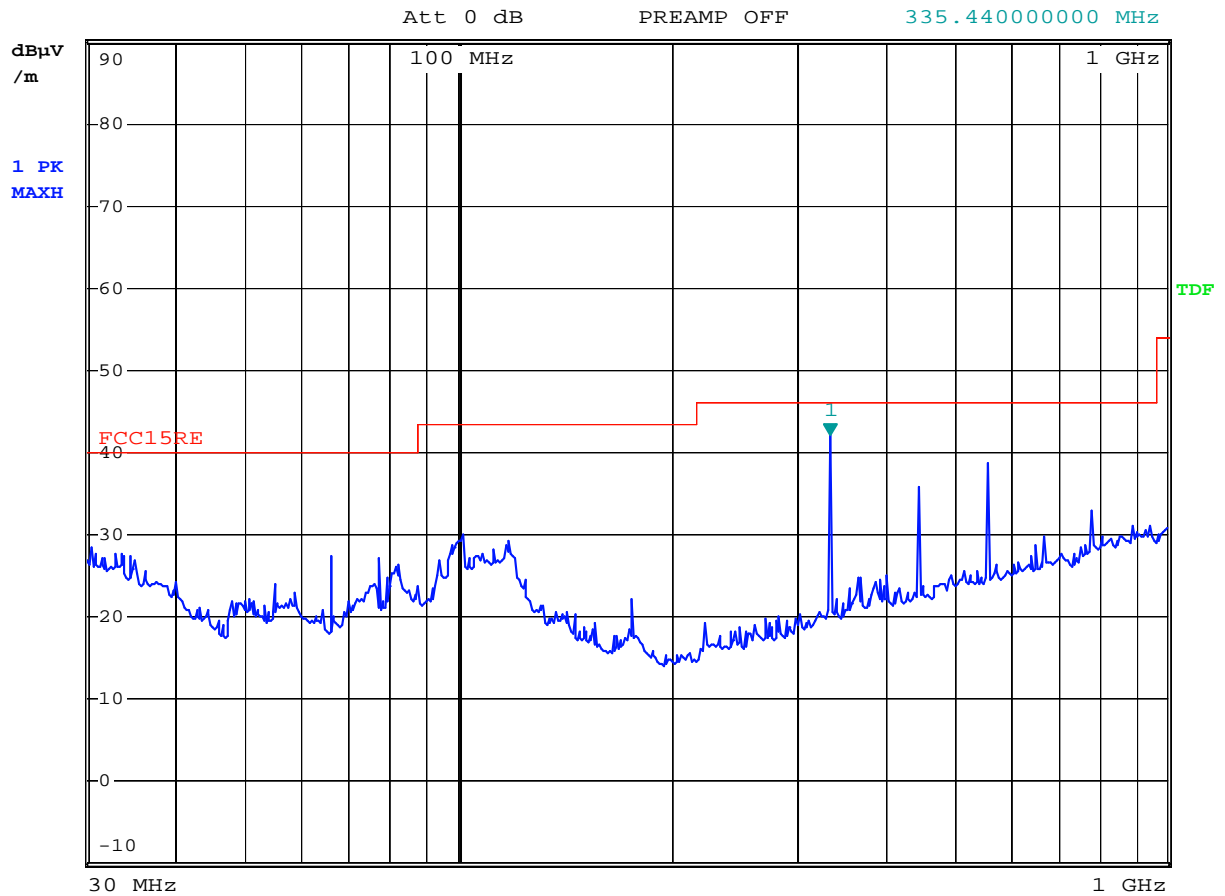


Date: 13.JAN.2009 10:03:47





RBW 120 kHz Marker 1 [T1 ]  
 MT 100 μs 42.11 dBμV/m  
 PREAMP OFF 335.44000000 MHz



Date: 13.JAN.2009 10:00:02



## APPENDIX III



**Photo 1 General Appearance of the EUT**



**Photo 2 General Appearance of the EUT**





**Photo 3 General Appearance of the EUT**



**Photo 4 General Appearance of the EUT(Inside)**





**Photo 5 General Appearance of the EUT(Inside)**



**Photo 6 Test scene**





**Photo 7 Test scene**

