



# TEST REPORT

No. 2009TAR158

for

**TCT Mobile Limited**

**GSM/GPRS/EDGE 850/1800/1900 Tri-band mobile phone**

**Model Name: Jade A**

**Marketing Name: OT-800A**

with

**Hardware Version: Lot0**

**Software Version: V178**

**Issued Date: 2009-11-12**



**No. DAT-P-114/01-01**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of TMC Beijing.

**Test Laboratory:**

TMC Beijing, Telecommunication Metrology Center of Ministry of Industry and Information Technology

No. 52, Huayuan Bei Road, Haidian District, Beijing, P. R. China 100191.

Tel:+86(0)10-62303288-2105, Fax:+86(0)10-62304793 Email:welcom@emcite.com. [www.emcite.com](http://www.emcite.com)

©Copyright. All rights reserved by TMC Beijing.

## **CONTENTS**

<b>1. TEST LABORATORY .....</b>	<b>4</b>
1.1. TESTING LOCATION .....	4
1.2. TESTING ENVIRONMENT.....	4
1.3. PROJECT DATA .....	4
1.4. SIGNATURE .....	4
<b>2. CLIENT INFORMATION.....</b>	<b>5</b>
<b>2.1. APPLICANT INFORMATION.....</b>	<b>5</b>
<b>2.2. MANUFACTURER INFORMATION.....</b>	<b>5</b>
<b>3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE) .....</b>	<b>6</b>
3.1. ABOUT EUT .....	6
3.2. INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST .....	6
3.3. INTERNAL IDENTIFICATION OF AE USED DURING THE TEST .....	6
<b>4. REFERENCE DOCUMENTS.....</b>	<b>7</b>
4.1. DOCUMENTS SUPPLIED BY APPLICANT .....	7
4.2. REFERENCE DOCUMENTS FOR TESTING.....	7
<b>5. LABORATORY ENVIRONMENT.....</b>	<b>7</b>
<b>6. SUMMARY OF TEST RESULTS .....</b>	<b>8</b>
6.1. SUMMARY OF TEST RESULTS.....	8
6.2. STATEMENTS.....	8
<b>7. TEST EQUIPMENTS UTILIZED.....</b>	<b>9</b>
<b>ANNEX A: MEASUREMENT RESULTS.....</b>	<b>10</b>
A.1. MEASUREMENT METHOD.....	10
A.2. RADIATED EMISSION.....	10
A.3. AC POWERLINE CONDUCTED EMISSION .....	12
<b>ANNEX B: TEST FIGURE LIST.....</b>	<b>13</b>
FIG. 1 RADIATED EMISSION: CHANNEL 0, 30 MHz - 1 GHz.....	13
FIG. 2 RADIATED EMISSION: CHANNEL 0, 1 GHz - 4 GHz.....	13
FIG. 3 RADIATED EMISSION: CHANNEL 0, 4 GHz - 18 GHz.....	14
FIG. 4 RADIATED EMISSION: CHANNEL 39, 30 MHz - 1 GHz.....	14
FIG. 5 RADIATED EMISSION: CHANNEL 39, 1 GHz - 4 GHz.....	15
FIG. 6 RADIATED EMISSION: CHANNEL 39, 4 GHz - 18 GHz.....	15
FIG. 7 RADIATED EMISSION: CHANNEL 78, 30 MHz - 1 GHz.....	16
FIG. 8 RADIATED EMISSION: CHANNEL 78, 1 GHz - 4 GHz.....	16
FIG. 9 RADIATED EMISSION: CHANNEL 78, 4 GHz - 18 GHz.....	17
FIG. 10 RADIATED EMISSION (POWER): 2.45GHz - 2.5GHz .....	17

FIG. 11	RADIATED EMISSION: 18 GHZ - 26 GHZ.....	18
FIG. 12	AC POWERLINE CONDUCTED EMISSION WITH CHARGER .....	19

## 1. Test Laboratory

### 1.1. Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT  
Address: No 52, Huayuan beilu, Haidian District, Beijing, P.R.China  
Postal Code: 100191  
Telephone: 00861062303288  
Fax: 00861062304793

### 1.2. Testing Environment

Normal Temperature: 15-35°C  
Extreme Temperature: -20/+55°C  
Relative Humidity: 20-75%

### 1.3. Project data

Project Leader: Zi Xiaogang  
Testing Start Date: 2009-10-29  
Testing End Date: 2009-11-05

### 1.4. Signature



---

**Zi Xiaogang**  
**(Prepared this test report)**



---

**Sun Xiangqian**  
**(Reviewed this test report)**



---

**Lu Bingsong**  
**Deputy Director of the laboratory**  
**(Approved this test report)**

## **2. Client Information**

### **2.1. Applicant Information**

Company Name: TCT Mobile Limited  
Address /Post: 4/F, South Building, No.2966, Jinke Road, Zhangjiang High-Tech Park,  
Pudong, Shanghai, 201203, P.R.China  
City: Shanghai  
Postal Code: 201203  
Country: China  
Telephone: 0086-21-61460876  
Fax: 0086-21-61460602

### **2.2. Manufacturer Information**

Company Name: TCT Mobile Limited  
Address /Post: 4/F, South Building, No.2966, Jinke Road, Zhangjiang High-Tech Park,  
Pudong, Shanghai, 201203, P.R.China  
City: Shanghai  
Postal Code: 201203  
Country: China  
Telephone: 0086-21-61460876  
Fax: 0086-21-61460602

### 3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

#### 3.1. About EUT

Description	GSM/GPRS/EDGE 850/1800/1900 Tri-band mobile phone
Model Name	Jade A
Marketing Name	OT-800A
FCC ID	RAD106
Frequency	GSM 850MHz; PCS 1900MHz; DCS 1800MHz
Antenna	Internal
Power supply	Battery or Charger (AC Adaptor)
Output power	30.87 dBm maximum ERP measured for GSM850
Extreme vol. Limits	3.5VDC to 4.2VDC (nominal: 3.8VDC)
Extreme temp. Tolerance	-30°C to +50°C

Note: Photographs of EUT are shown in ANNEX A of this test report.

#### 3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
N03	011851003178913	Lot0	V178

\*EUT ID: is used to identify the test sample in the lab internally.

#### 3.3. Internal Identification of AE used during the test

AE ID*	Description	Type	SN
AE1	Battery	CAB30P0000C1	/
AE2	Travel Adapter	CBA30Y0AG0C1	/

\*AE ID: is used to identify the test sample in the lab internally.

## 4. Reference Documents

### 4.1. Documents supplied by applicant

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

### 4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

	FCC CFR 47, Part 15, Subpart C:	
	15.205 Restricted bands of operation;	July 10,
FCC Part15	15.209 Radiated emission limits, general requirements;	2008
	15.247 Operation within the bands 902–928MHz,	Edition
	2400–2483.5 MHz, and 5725–5850 MHz.	
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2003
FCC Public Notice DA 00-705	Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems	March 2000

## 5. LABORATORY ENVIRONMENT

**Shielding Room1** (6.0 meters×3.0 meters×2.7 meters) did not exceed following limits along the conducted RF performance testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Ground system resistance	< 0.5 Ω
Uniformity of field strength	Between 0 and 6 dB, from 80MHz to 3000 MHz

**Control room** did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. =30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

**Fully-anechoic chamber1** (6.8 meters×3.08 meters×3.53 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

Uniformity of field strength	Between 0 and 6 dB, from 80MHz to 3000 MHz
------------------------------	--

**Shielding Room2** (7.30 metersx4.00 metersx3.80 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Uniformity of field strength	Between 0 and 6 dB, from 80MHz to 3000 MHz

## 6. SUMMARY OF TEST RESULTS

### 6.1. Summary of Test Results

Abbreviations used in this clause:

- P** Pass
- F** Fail
- NA** not applicable
- NM** not measured

SUMMARY OF MEASUREMENT RESULTS	Sub-clause	Verdict
Radiated Emission	15.247, 15.205, 15.209	<b>P</b>
AC Powerline Conducted Emission	15.107, 15.207	<b>P</b>

Please refer to **ANNEX A** for detail.

The measurement is made according to Public notice DA 00-705 and ANSI C63.4.

### 6.2. Statements

TMC has evaluated the test cases requested by the applicant /manufacturer as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.2

## 7. Test Equipments Utilized

### Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Vector Signal Analyzer	FSU26	200030	Rohde & Schwarz	2010-06-18
2	Bluetooth Tester	CBT32	100649	Rohde & Schwarz	2010-01-22

### Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Test Receiver	ESI40	831564/002	Rohde & Schwarz	2010-02-12
2	BiLog Antenna	3142B	9908-1403	EMCO	2010-03-15
3	Dual-Ridge Waveguide Horn Antenna	3115	9906-5827	EMCO	2009-12-25
4	Universal Radio Communication Tester	CMU200	105948	Rohde & Schwarz	2010-08-14

### Anechoic chamber

Fully anechoic chamber by Frankonia German.

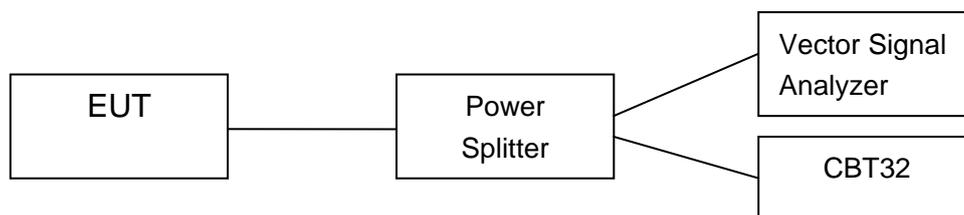
## ANNEX A: MEASUREMENT RESULTS

### A.1. Measurement Method

#### A.1.1. Conducted Measurements

The measurement is made according to Public notice DA 00-705 and ANSI C63.4.

- 1). Connect the EUT to the test system correctly.
- 2). Set the EUT to the required work mode (Transmitter, receiver or transmitter & receiver).
- 3). Set the EUT to the required channel.
- 4). Set the EUT hopping mode (hopping or hopping off).
- 5). Set the spectrum analyzer to start measurement.
- 6). Record the values. Vector Signal Analyzer



#### A.1.2. Radiated Emission Measurements

In the case of radiated emission, the used settings are as follows,

Sweep frequency from 30 MHz to 1GHz, RBW = 100 kHz, VBW = 300 kHz;

Sweep frequency from 1 GHz to 26GHz, RBW = 1MHz, VBW = 1MHz;

### A.2. Radiated Emission

#### Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209	20dB below peak output power

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

The measurement is made according to Public notice DA 00-705 and ANSI C63.4

#### Limit in restricted band:

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

**Measurement Results:**

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	30 MHz ~ 1 GHz	Fig.1	<b>P</b>
	1 GHz ~ 4 GHz	Fig.2	<b>P</b>
	4 GHz ~ 18 GHz	Fig.3	<b>P</b>
Ch 39 2441 MHz	30 MHz ~ 1 GHz	Fig.4	<b>P</b>
	1 GHz ~ 4 GHz	Fig.5	<b>P</b>
	4 GHz ~ 18 GHz	Fig.6	<b>P</b>
Ch 78 2480 MHz	30 MHz ~ 1 GHz	Fig.7	<b>P</b>
	1 GHz ~ 4 GHz	Fig.8	<b>P</b>
	4 GHz ~ 18 GHz	Fig.9	<b>P</b>
Power	2.45GHz~2.5GHz	Fig.10	<b>P</b>
For all channels	18 GHz ~ 26 GHz	Fig.11	<b>P</b>

**See annex B for test graphs.**

**Conclusion: PASS**

### A.3. AC Powerline Conducted Emission

#### Test Condition

Voltage (V)	Frequency (Hz)
110	60

#### Measurement Result and limit:

Bluetooth (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)	Conclusion
		With Charger	
0.15 to 0.5	66 to 56	Fig.12	P
0.5 to 5	56		
5 to 30	60		

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

The measurement is made according to Public notice DA 00-705 and ANSI C63.4

See annex B for test graphs.

**Conclusion: PASS**

## ANNEX B: TEST FIGURE LIST

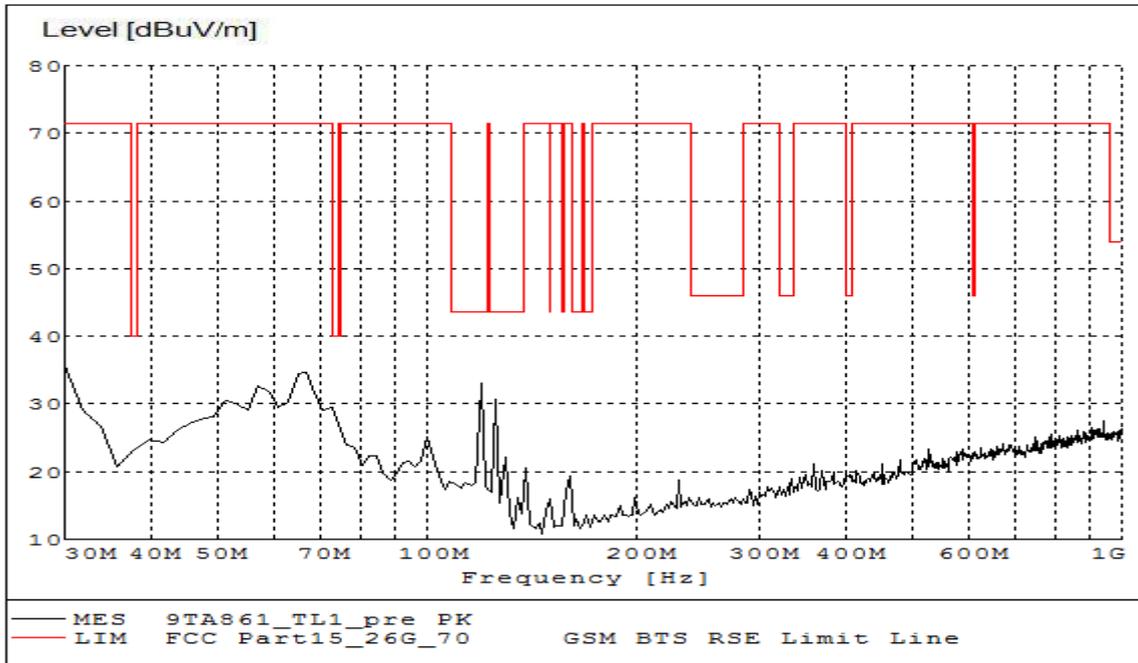


Fig. 1 Radiated emission: Channel 0, 30 MHz - 1 GHz

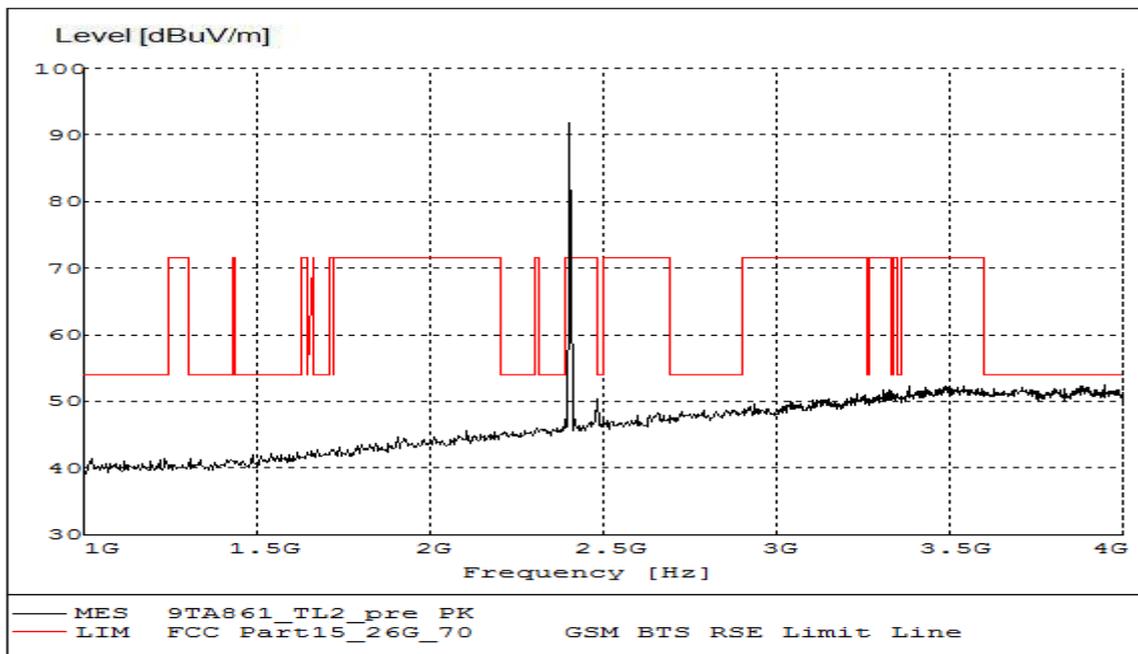


Fig. 2 Radiated emission: Channel 0, 1 GHz - 4 GHz

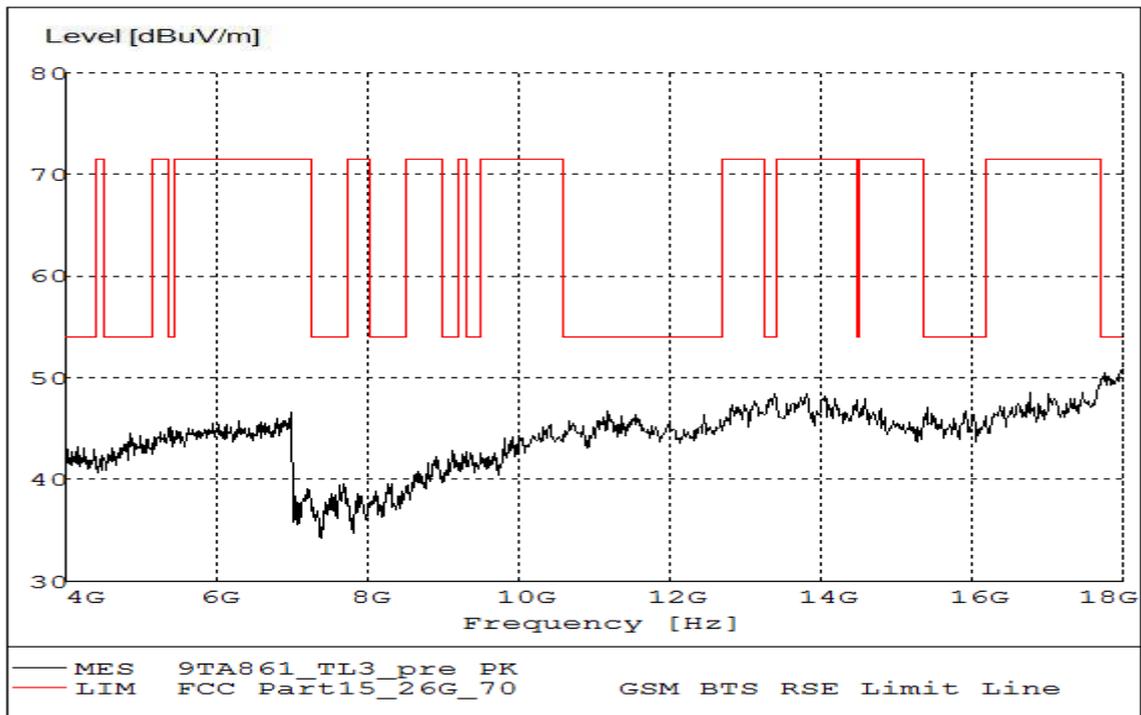


Fig. 3 Radiated emission: Channel 0, 4 GHz - 18 GHz

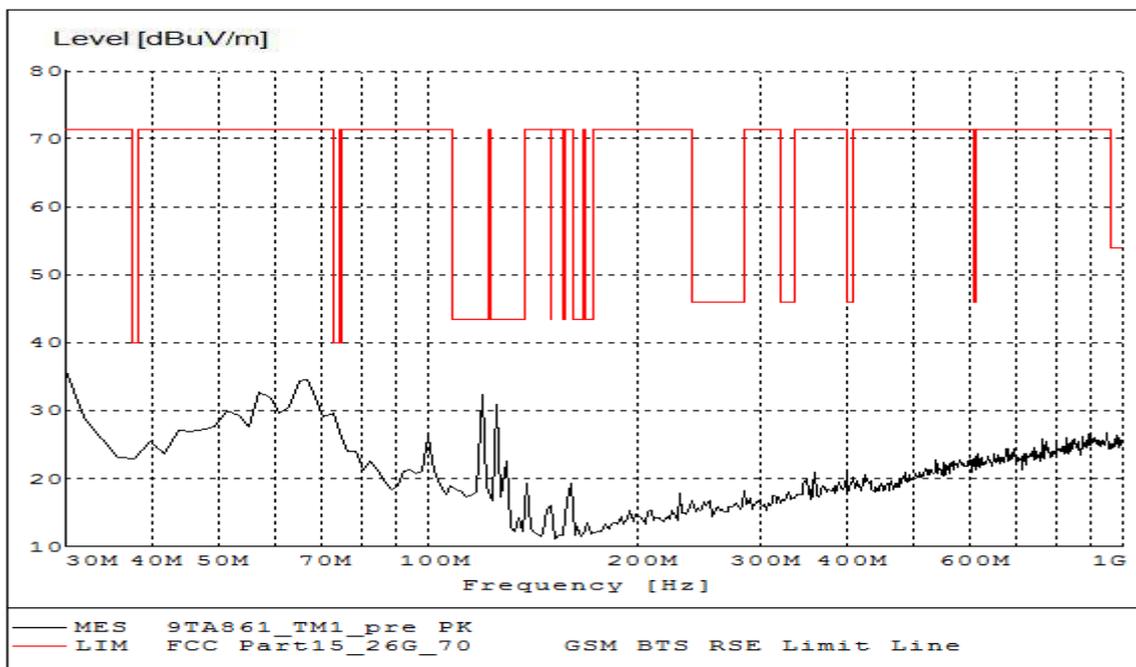


Fig. 4 Radiated emission: Channel 39, 30 MHz - 1 GHz

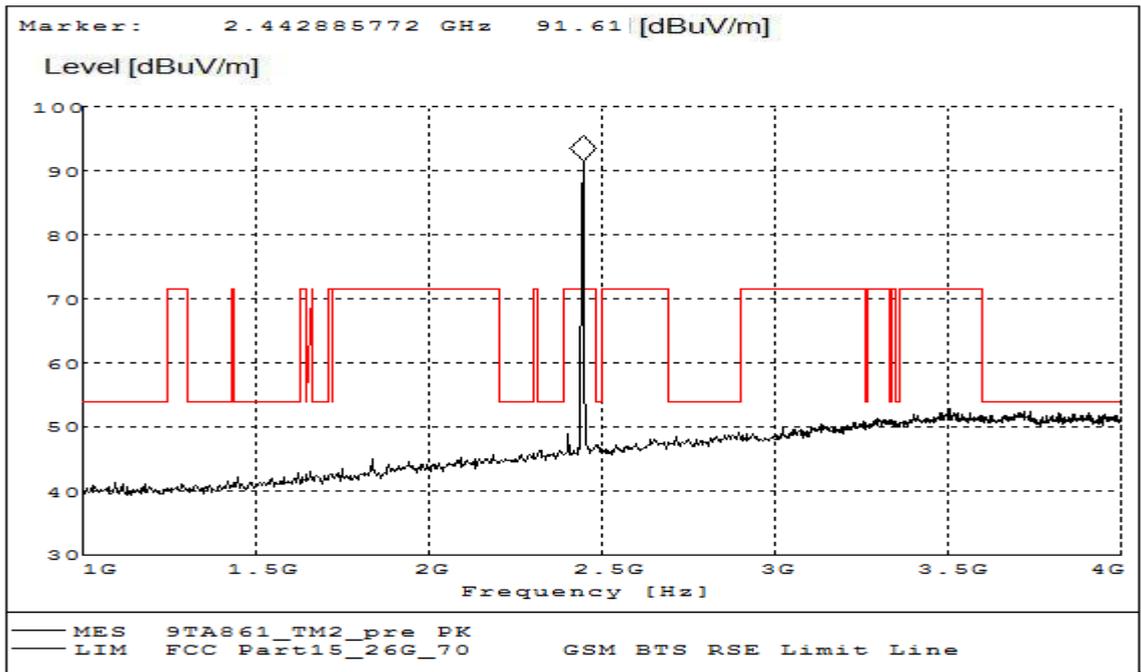


Fig. 5 Radiated emission: Channel 39, 1 GHz - 4 GHz

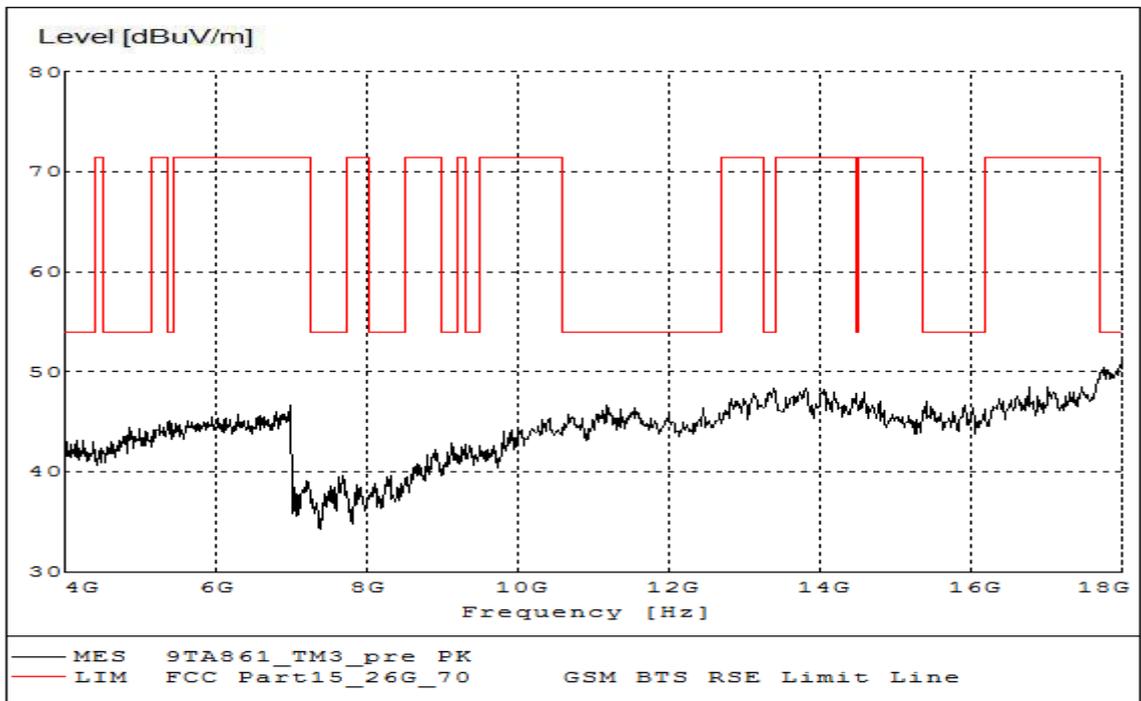


Fig. 6 Radiated emission: Channel 39, 4 GHz - 18 GHz

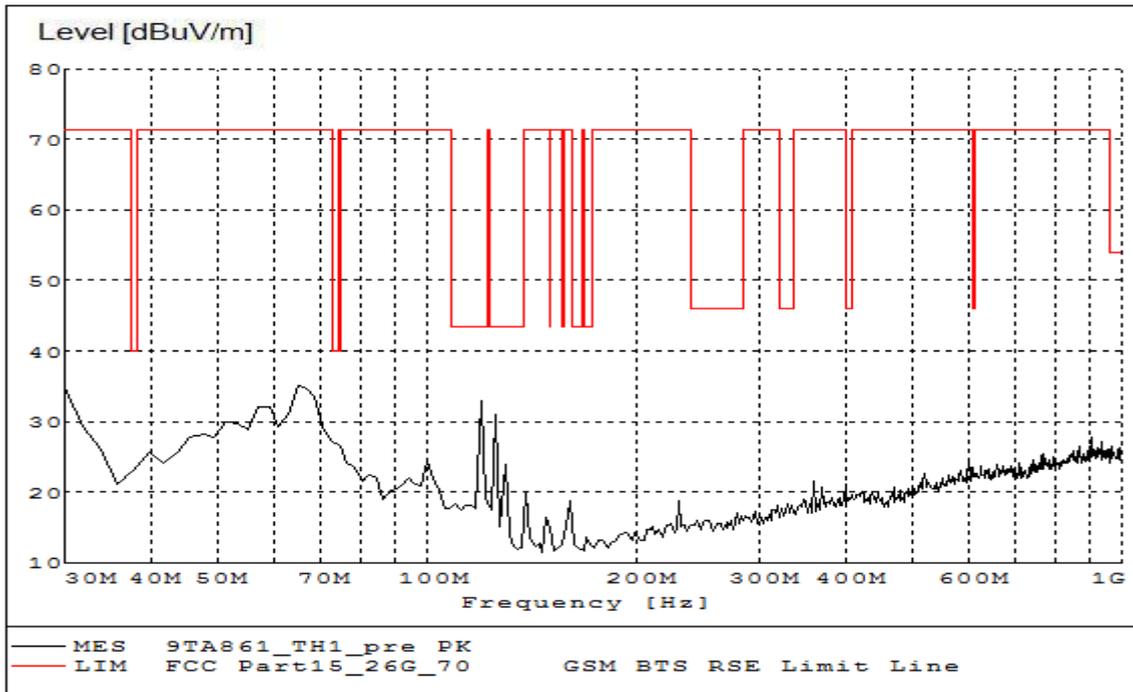


Fig. 7 Radiated emission: Channel 78, 30 MHz - 1 GHz

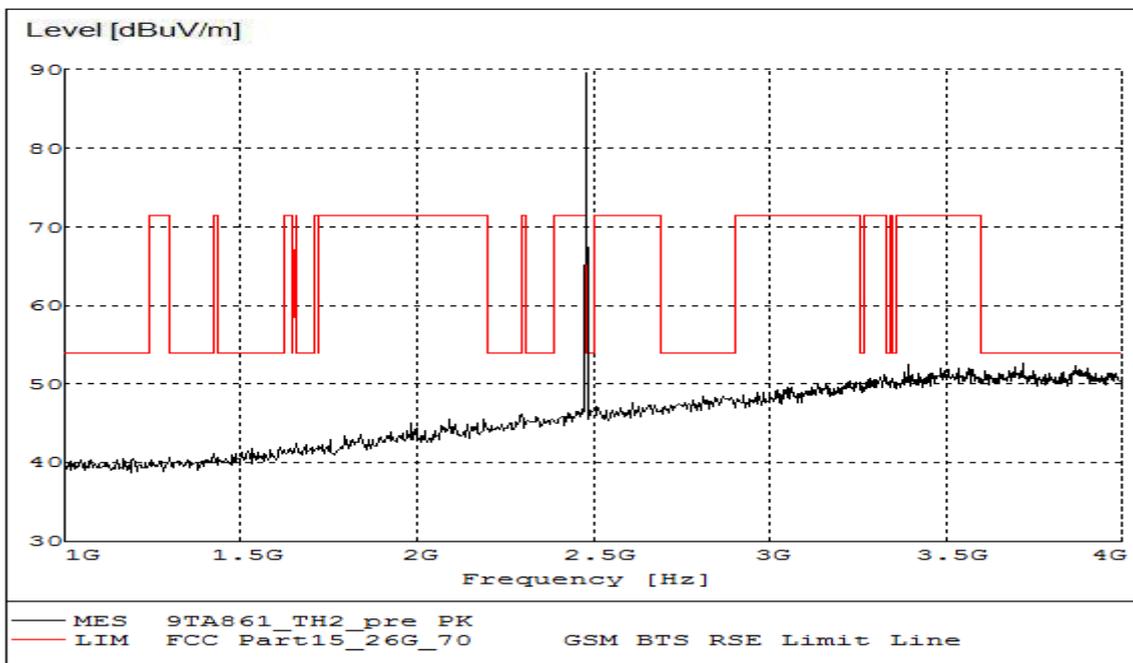


Fig. 8 Radiated emission: Channel 78, 1 GHz - 4 GHz

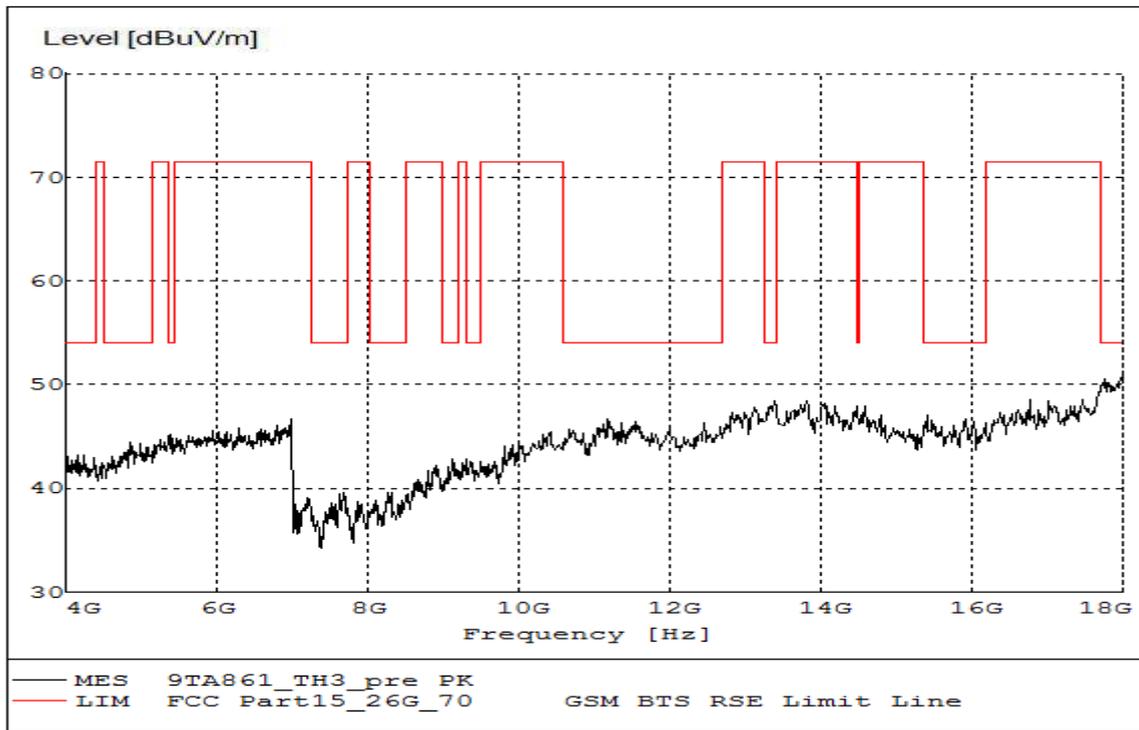


Fig. 9 Radiated emission: Channel 78, 4 GHz - 18 GHz

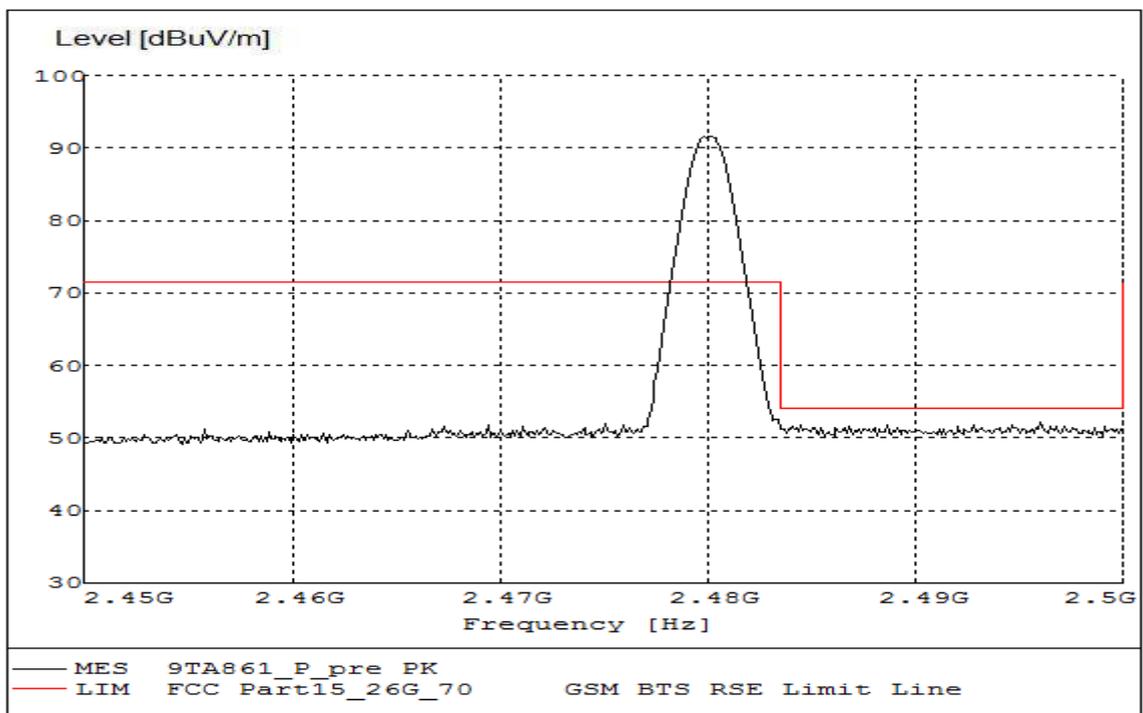
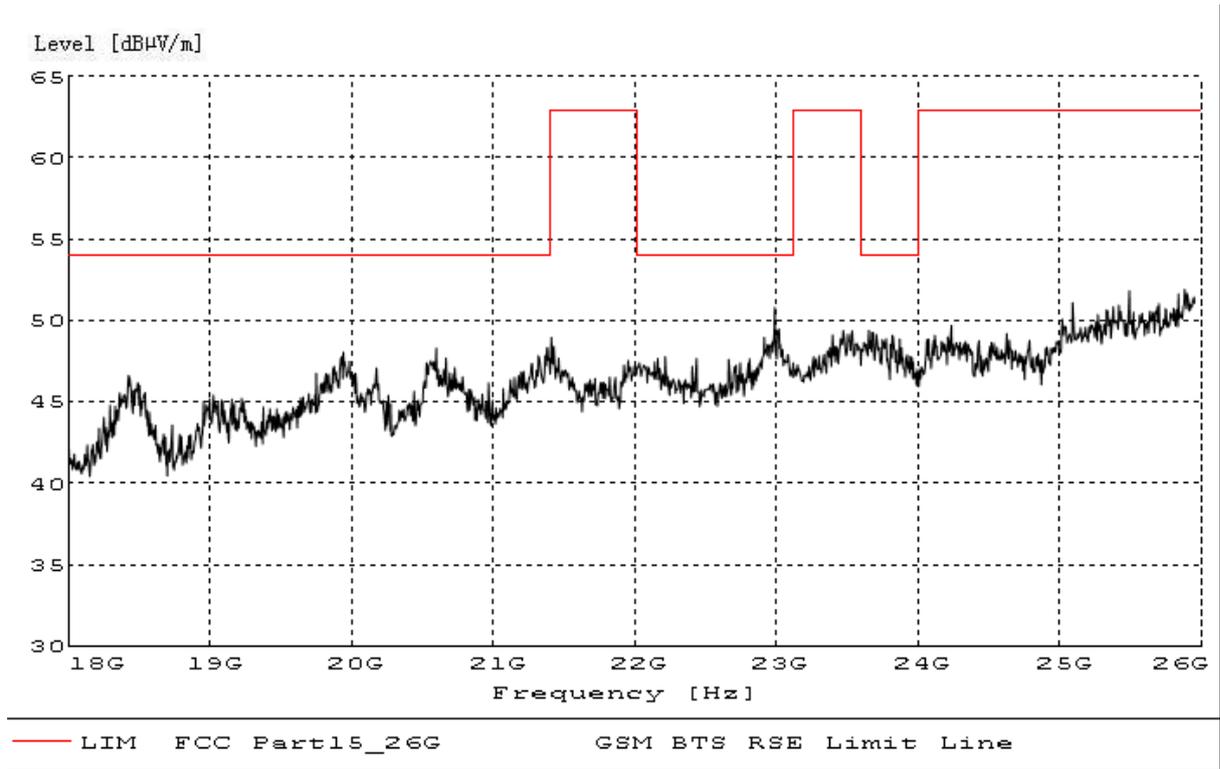


Fig. 10 Radiated emission (Power): 2.45GHz - 2.5GHz



**Fig. 11 Radiated emission: 18 GHz - 26 GHz**

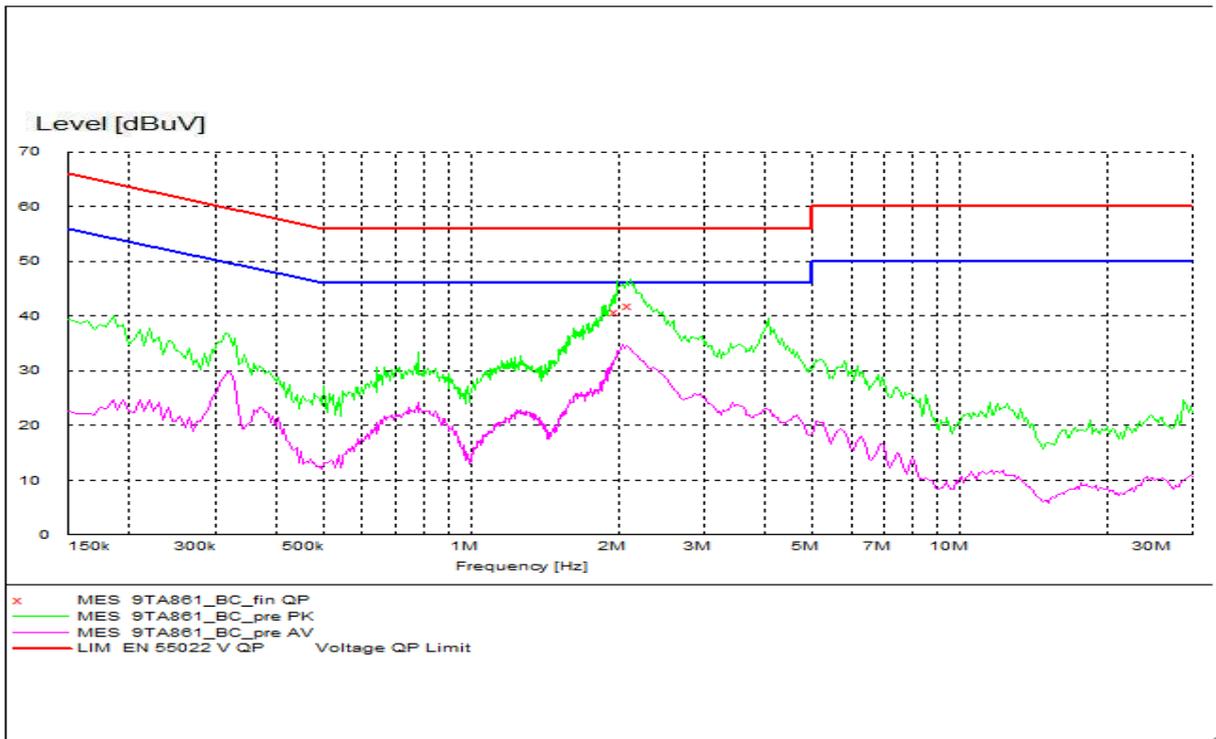


Fig. 12 AC Powerline Conducted Emission with charger

MEASUREMENT RESULT: "9TA861\_BC\_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dB $\mu$ V	dB	dB $\mu$ V	dB		
1.995000	40.70	10.1	56	15.3	L1	GND
2.123040	41.80	10.1	56	14.2	L1	GND

\*\*\* END OF REPORT BODY \*\*\*