

# FCC CERTIFICATION REPORT

Test Report No.: EM/2011/60041

**Applicant : Fujitsu Toshiba Mobile Communications Limited**

**Address of Applicant : 1-1, Kamiodanaka 4, Nakahara, Kawasaki, 211-8588,  
JAPAN**

**Manufacturer : Fujitsu Toshiba Mobile Communications Limited**

**Address of Manufacturer : 1-1, Kamiodanaka 4, Nakahara, Kawasaki, 211-8588,  
JAPAN**

**Equipment Under Test (EUT) :**

**Product Name: CDMA TSI11**

**Brand Name : N/A**

**Model Number : TSI11**

**FCC ID : YUW-TSI11**

**Added Model(s) : N/A**

**Standards : FCC Part 15:2010, Subpart B, Class B**

**Date of Receipt : Jun. 09, 2011**

**Date of Test : Jun. 09 ~ Jul. 28, 2011**

**Date of Issue(First): Aug. 01, 2011**

<b>Test Result :</b>	<b>PASS</b>
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In the configuration tested, the EUT complied with the standards specified above.

**Remarks :**

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report shall not be reproduced except in full, without the written approval of the laboratory. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

**Test By:**

*Mark Liu*

**Date**

Aug. 01, 2011

**Mark Liu(Engineer)**

**Prepared By:**

*Kay Ke*

**Date**

Aug. 01, 2011

**Kay Ke(Clerk)**

**Approved By**

*Ion Lin*

**Date**

Aug. 01, 2011

**Ion Lin(Assistant Manager)**

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## Version

Version No.	Description	Date
00	Original report	Aug. 01, 2011

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## 1. General Information

### 1.1 Applicant & Manufacturer Information

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Manufacturer : Fujitsu Toshiba Mobile Communications Limited

Address of Manufacturer : 1-1, Kamiodanaka 4, Nakahara, Kawasaki, 211-8588,  
JAPAN

### 1.2 General Description of EUT

Product Name: CDMA TSI11

Brand Name : N/A

Model Number: TSI11

FCC ID : YUW-TSI11

Added Model(s) : N/A

Model Difference : N/A

Filing Type : Certification

WLAN:

Wi-Fi	Frequency Range	Channels	Rated Power	Modulation Technology	Type of Emission
11b/g	2412-2462	11	b : 18.05dBm g : 23.43dBm	DSSS, OFDM	b : 11M7G1D g : 16M4G1D
11n	HT20 2412-2462	11	n : 23.44dBm	OFDM	n : 17M6G1D
Antenna Designation:			1/4 lambda , -1.7dBi		
Modulation type:			CCK, DQPSK, DBPSK for DSSS 64QAM. 16QAM, QPSK, BPSK for OFDM		
Transition Rate:			802.11 b: 1/2/5.5/11 Mbps; 802.11 g: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 72.2Mbps		

The EUT is compliance with IEEE 802.11 b/g/n Standard.

This report applies for WLAN, and complies with FCC rule part 15C.

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# Bluetooth:

Bluetooth Version:	V2.1 + EDR (GFSK + $\pi/4$ DQPSK + 8DPSK)
Channel number:	79 channels
Modulation type:	Frequency Hopping Spread Spectrum
Transmit Power:	0.96dBm
Frequency Range:	2.402GHz – 2.480GHz
Dwell Time:	$\leq 0.4s$
Operating Mode:	Point-to-Point
Antenna Designation:	1/4 lambda, -1.7dBi

The EUT is compliance with Bluetooth 2.1 + EDR and IEEE 802.11 b/g/n Standard.  
The test report compliance for Bluetooth.

# GSM :

Product Name	CDMA TSI11
Brand Name(Trade Name)	N/A
Model Name	TSI11
Marketing name	N/A
Operation Voltage range(V)	NV 3.9 HV 4.2 LV 3.7
Hardware Version	CS1.0
Software Version	6002.0102.02
IMEI Range	35662504xxxxxx(000000~999999)
FCC ID No.	YUW-TSI11
GPRS/EDGE Multi-slot Class	GPRS: <input type="checkbox"/> 8 <input type="checkbox"/> 10 <input checked="" type="checkbox"/> 12 <input type="checkbox"/> other( ) EDGE: <input type="checkbox"/> 8 <input type="checkbox"/> 10 <input type="checkbox"/> 12 <input checked="" type="checkbox"/> other( No Support )
GSM Power Class (900/1800/1900)	4/1/1
GSM/GPRS Release Versions	R6/R6
GSM/CDMA2000 Frequency Range	<input checked="" type="checkbox"/> 900 <input checked="" type="checkbox"/> 1800 <input type="checkbox"/> 850 <input checked="" type="checkbox"/> 1900 <input checked="" type="checkbox"/> BC0 <input type="checkbox"/> BC1 <input type="checkbox"/> BC2 <input type="checkbox"/> BC3 <input type="checkbox"/> BC6 <input type="checkbox"/> Others ( )
Modulation Mode	<input checked="" type="checkbox"/> GMSK <input type="checkbox"/> 8-PSK <input type="checkbox"/> QPSK <input type="checkbox"/> other( )
Earphone Jack	3.5mm

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### Config List :

<b>TG03</b>						
		Config 1	Config 2	Config 3	Config 4	Config 5
Applicable standard (FCC)		part 15B				
Accessories		UE + Battery + AC Adaptor #1 + SHF	UE + Battery + AC Adaptor #1 + SHF	UE + Battery + AC Adaptor # 1 + SHF	UE + Battery + AC Adaptor # 1	UE + Battery + Data Cable
		<b>Camera</b>	<b>Music</b>	<b>RFID</b>	<b>IR link</b>	<b>Data link</b>
		GSM 1900/CDMA WLAN + BT + GPS	GSM+WLAN + BT + GPS	GSM+WLAN + BT + GPS	GSM+WLAN + BT + GPS	GSM+WLAN + BT + GPS
EN No.	Description					
8.2	radiated emission (30M-1GHz)(1-13GHz)	Charge + camera mode	Charge + play mode	Charge + RFID mode	Charge + IR mode	Data link
8.3	conducted emission (DC Power)	NA	NA	NA	NA	N/A
8.4	conducted emission (AC Power)	Charge + camera mode	Charge + play mode	Charge + RFID mode	Charge + IR mode	Data link

### 1.3 Details of EUT

Tested Power Supply : 3.9Vdc from re-chargeable battery

Model No. : TSI11UAA, Supplier: SANYO Electric

Modes/Function : 1. Config 1 Mode. 2. Config 2 Mode.

Worst case : 1. Config 1 Mode.

### 1.4 Operation Procedure

1. Set down EUT with support units and turn on the power of all equipment.
2. Pre-test the EUT in all modes by each model, then figure the worst case out.
3. Tests under the normal operation pattern.

### 1.5 Description of Support Units

PRODUCT	MANUFACTURER	MODEL NO.	SERIAL NO.
Communication test set	R&S	CMU 200	N/A
GPS Simulator	ADIVIC	MP9100	N/A
Wireless AP	BUFFALO	WHR-HP-G54	84074786280927
BT Audio	CREATIVE	D200	N/A

### 1.6 Modification List

No have the modification by SGS Taiwan Electronics & Communication Laboratory

### 1.7 Cable List

Cable Type	Length	Shield
Earphone	0.6m	Non-shielding

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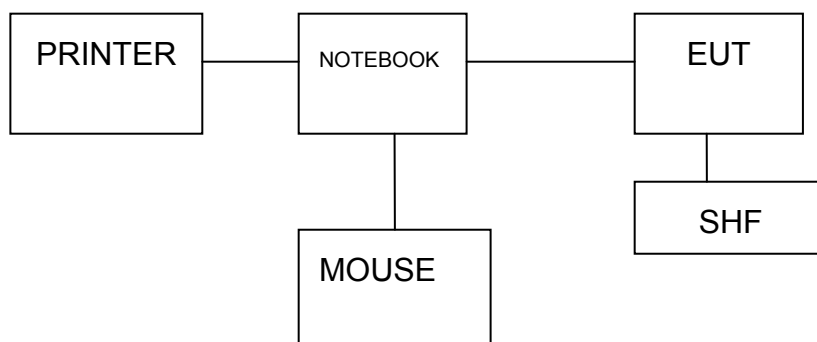
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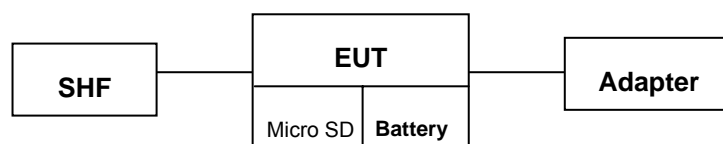
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## 1.8 Test Set-Up Configuration

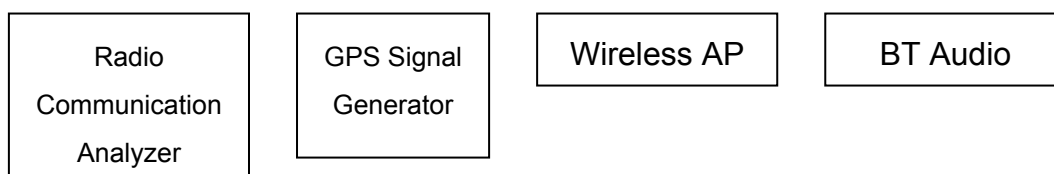
**Config 5**



**Config 1, 2, 3, 4**



**(Remote side)**



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## 1.9 Measurement Procedure

Conducted Emission Testing was performed according ANSI C63.4:2009 in a shielded room with peripherals placed on a table, 0.8m high over a metal floor. It was located more than required distance away from the shielded room wall.

Radiated Emission Testing was performed according to ANSI C63.4:2009 at the 9\*6\*6 3m Semi-Anechoic chamber test site. The EUT was placed in a 0.8m high table along with the peripherals. The turn table was separated from the antenna distance 3meters. Cables were placed in a position to produce maximum emissions as determined by experimentation, and operation mode was selected for maximum. The frequencies and amplitudes of maximum emission were measured at varying azimuths, antenna heights and antenna polarities. Reported are maximized emission levels.

## 1.10 Standards Applicable for Testing

Table of tests to be carried out under FCC Part 15, Subpart B

Test Standards	Status
FCC Part 15, Subpart B	Applicable
Deviation from Standard	No Deviation

## 1.11 Summary of Results

Highest Emission					
Standard	Test Type	Result	Phase/Polar.	Frequency (MHz)	Margin(dB)
FCC Part 15 Subpart B Class B/CISPR 22	Conducted Emission	PASS	Line	0.9600	-11.23(QP)
			Neutral	1.0500	-10.13(QP)
	Radiated Emission	PASS	Ver.	36.8200	-8.83(QP)

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## 2. Radio Disturbance

### 2.1 Test Results

	Results
Conducted Emission	Pass
Radiated Emission	Pass

### 2.2 Frequency Range

Conducted Emission : 150 kHz - 30 MHz

Radiated Emission : See below table

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement 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

### 2.3 Limits Of Conducted And Radiated Emission

#### 2.3.1 Limit Of Conducted Emission Of FCC Part 15, Subpart B/CISPR 22

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi - peak	Average	Quasi - peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Note : (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz.

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected there to, shall not exceed the level of field strengths specified above.

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## 2.3.2 Limit Of Radiated Emissions Of FCC Part 15, Subpart B/CISPR 22

### FCC Limit:

- Detector Function : Quasi – Peak

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 3m)
	dBuV/m	dBuV/m
30~88	39	40
88~216	43.5	43.5
216~960	46.44	46
Above 960	49.54	54

- Detector Function : Peak , Average

FREQUENCY (MHz)	Class A (dBuV) (at 3m)		Class B (dBuV) (at 3m)	
	Peak	Average	Peak	Average
Above 1000	79.3	59.3	73.9	53.9

### CISPR Limit:

- Detector Function : Quasi – Peak

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 10m)
	dBuV/m	dBuV/m
30-230	40	30
230-1000	47	37

- Detector Function : Peak , Average – Class A

Frequency range GHz	Average Limit dB(μV/m)	Peak Limit dB(μV/m)
1 to 3	56	76
3 to 6	60	80

- Detector Function : Peak , Average – Class B

Frequency range GHz	Average Limit dB(μV/m)	Peak Limit dB(μV/m)
1 to 3	50	70
3 to 6	54	74

Note : The lower limit applies at the transition frequency.

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## 2.4. Test of Conducted Emission

### 2.4.1 Test Equipments

Description	Manufacturer	Model No.	Serial No.	Last Calibration Date	Next Calibration Date
EMI Test Receiver	ROHDE&SCHWARZ	ESCS 30	828985/004	Sep. 23, 2010	Sep. 22, 2011
Coaxial Cables	N/A	WK CE Cable	N/A	Nov. 27, 2010	Nov. 26, 2011
L.I.S.N	Rolf-Heine	NNB-2/16Z	99012	Mar. 31, 2011	Mar. 30, 2012
L.I.S.N	FCC	FCC-LISN-50/250-25-2-01	04034	Mar. 31, 2011	Mar. 30, 2012
Software	Farad	EZ-EMC-VER2A1.1(USB)	N/A	N/A	N/A

### 2.4.2 Test Site

SGS Taiwan LTD. Electronics & Communication Laboratory  
No.134, Wu Kung Road. Wuku Industrial Zone, Taipei County 248, Taiwan (R.O.C.)

### 2.4.3 Operating Environment

Temperature : 24 degree C                      Humidity : 58 %RH  
Atmospheric Pressure : 996 mBar

### 2.4.4 Uncertainty of Conducted Emission

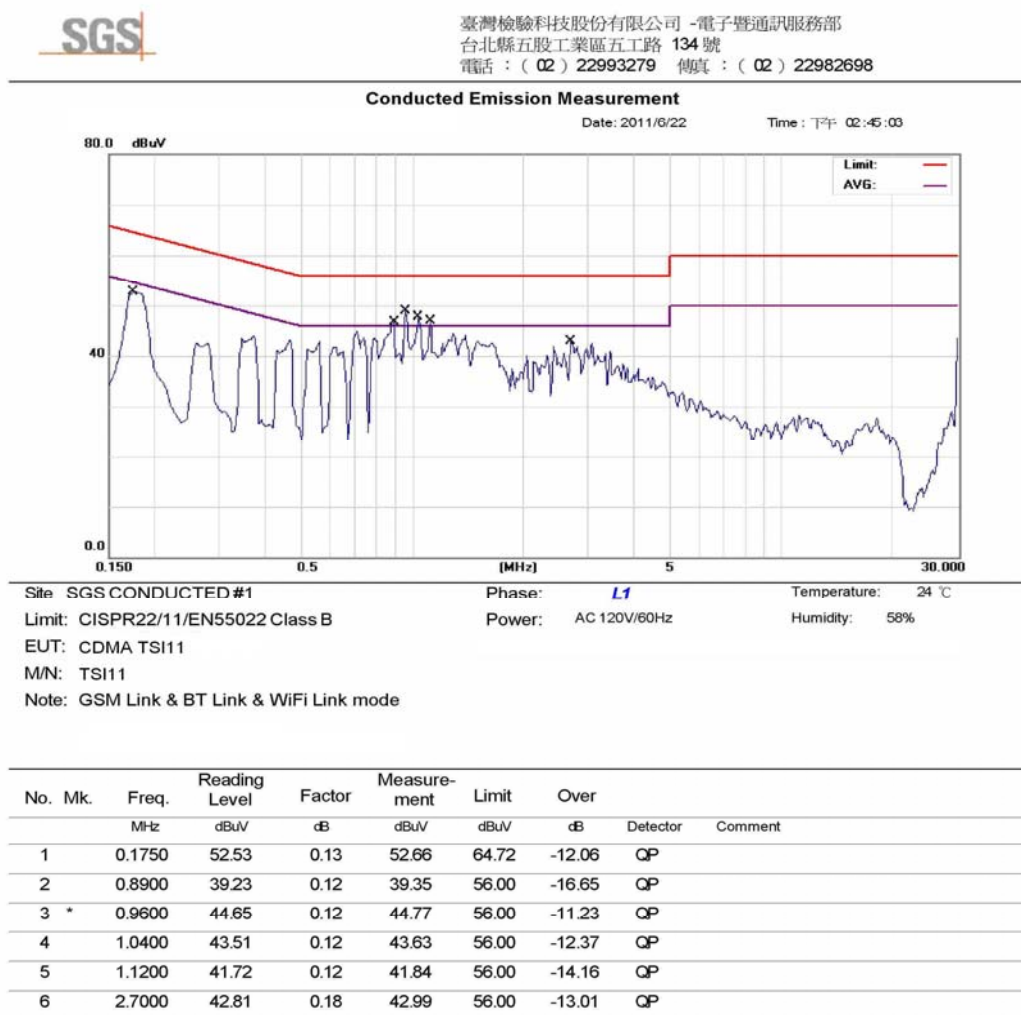
Expanded uncertainty (k=2) of Conducted Emission measurement is 1.82dB.

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## 2.4.5 Measurement Data

## GSM Link &amp; BT Link &amp; WiFi Link Mode

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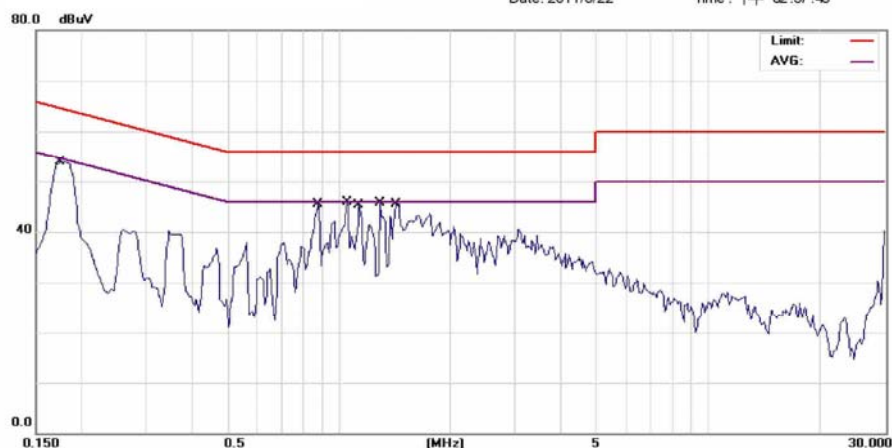


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電話 : ( 02 ) 22993279 傳真 : ( 02 ) 22982698

## Conducted Emission Measurement

Date: 2011/6/22

Time: 下午 02:37:45



Site: SGS CONDUCTED #1

Phase: N

Temperature: 24 °C

Limit: CISPR22/11/EN55022 Class B

Power: AC 120V/60Hz

Humidity: 58%

EUT: CDMA TSI11

M/N: TSI11

Note: GSM Link &amp; BT Link &amp; WiFi Link mode

No.	Mk.	Freq.	Reading Level	Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1750	53.78	0.13	53.91	64.72	-10.81	QP	
2		0.8800	45.28	0.13	45.41	56.00	-10.59	QP	
3	*	1.0500	45.74	0.13	45.87	56.00	-10.13	QP	
4		1.1300	45.24	0.13	45.37	56.00	-10.63	QP	
5		1.2900	45.51	0.14	45.65	56.00	-10.35	QP	
6		1.4200	45.46	0.14	45.60	56.00	-10.40	QP	

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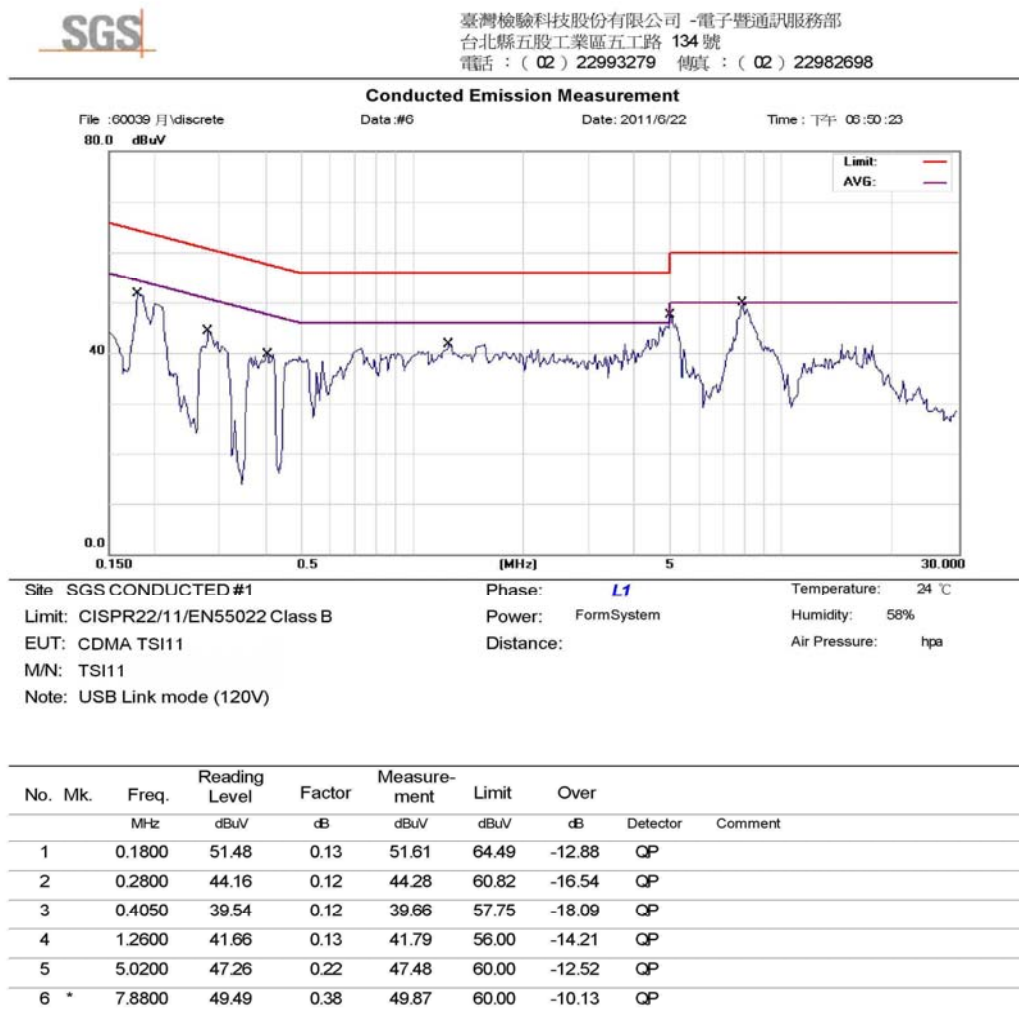
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## USB Link Mode

L



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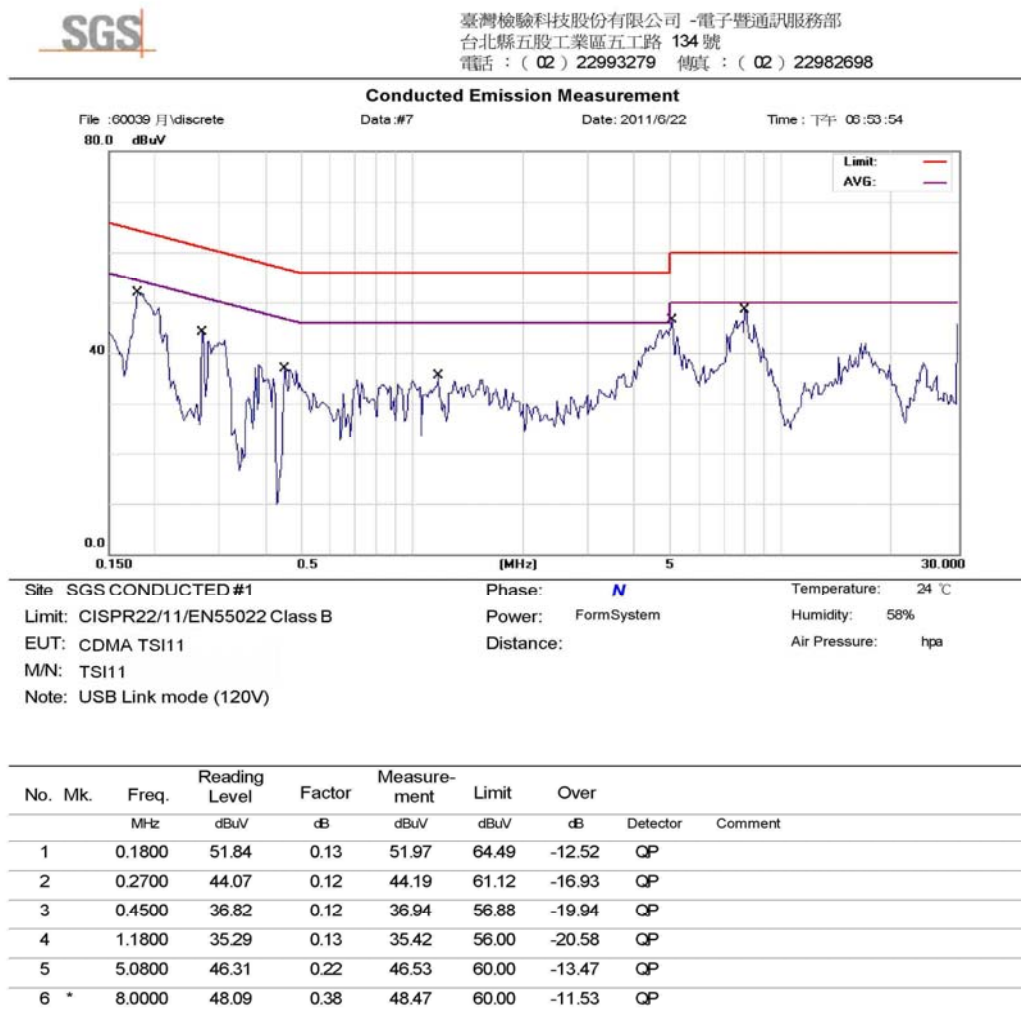
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## 2.5 Test of Radiated Emission

### 2.5.1 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Last Calibration Date	Next Calibration Date
Site NSA	Chamost	966II Chamber	N/A	Nov. 14, 2010	Nov. 13, 2011
EMI Test Receiver	ROHDE&SCHWARZ	ESCS 30	828985/004	Sep. 23, 2010	Sep. 22, 2011
Spectrum Analyzer	R & S	FSP 40	1093.4495.40	May 04, 2011	May 03, 2012
RF-Amplifier (0.1-1300MHz)	HP	8447D	1937A02774	Nov. 27, 2010	Nov. 26, 2011
RF-Amplifier (1-26.5MHz)	HP	8449B	3008A00578	Mar. 02, 2011	Mar. 01, 2012
Coaxial Cables	SUCOFLEX	104PEA	N/A	Nov. 27, 2010	Nov. 26, 2011
Antenna Master	MF.	N/A	N/A	N/A	N/A
Turn Table	MF.	N/A	N/A	N/A	N/A
Controller	MF.	3000	MF780208153	N/A	N/A
Antenna	SCHWAZBECK	VULB9160	3068	Nov. 12, 2010	Nov. 11, 2011
Horn Antenna (For above 1G )	CHAMPRO	HA1-18GG	SN0805-HA02	Jun. 12, 2011	Jun. 11, 2012
Software	Farad	EZ-EMC-VER2A1.1(USB)	N/A	N/A	N/A

### 2.5.2 Test Site

SGS Taiwan LTD. Electronics & Communication Laboratory  
No.134, Wu Kung Road. Wuku Industrial Zone, Taipei County 248, Taiwan (R.O.C.)

### 2.5.3 Operating Environment

Temperature : 25 degree C      Humidity : 60 %RH  
Atmospheric Pressure : 996 mBar

### 2.5.4 Uncertainty of Radiated Emission

Expanded uncertainty (k=2) of radiated emission measurement is 3.4dB.(30MHz-1000MHz)

Expanded uncertainty (k=2) of radiated emission measurement is 5.34dB.(1-18GHz)

Expanded uncertainty (k=2) of radiated emission measurement is 5.64dB.(18-40GHz)

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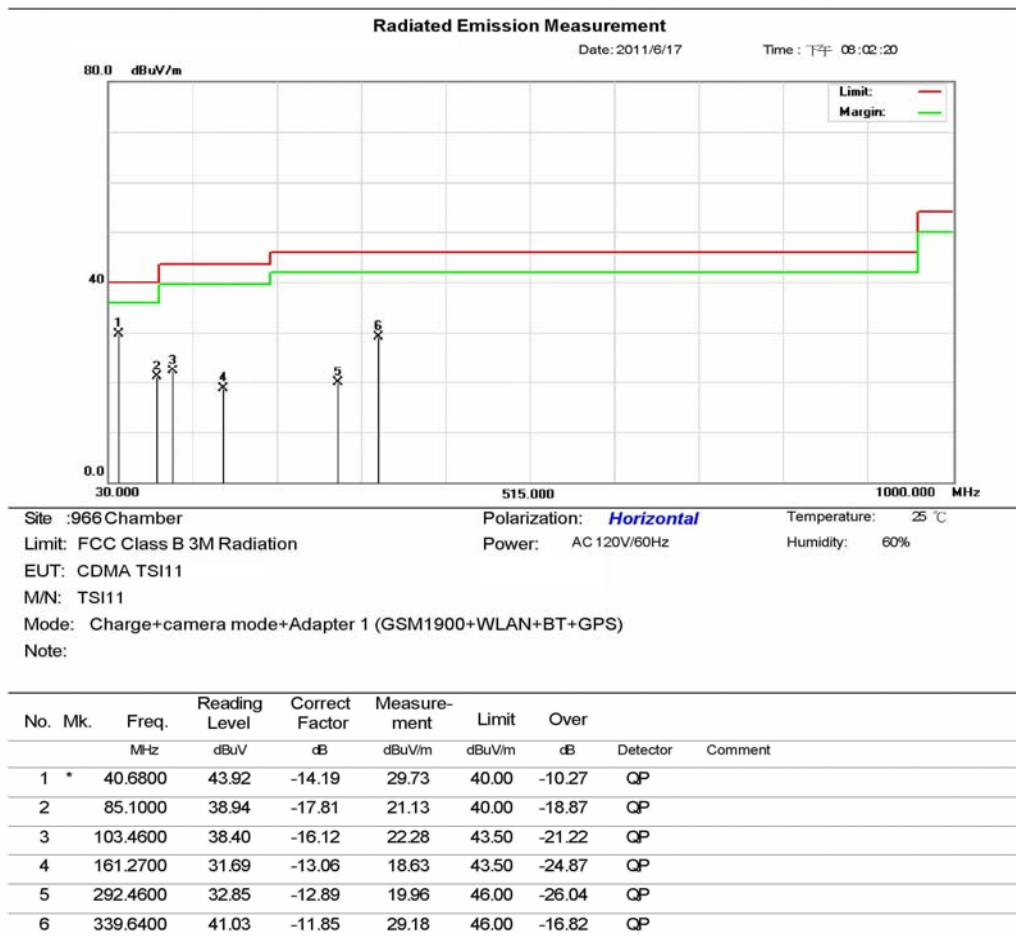


## 2.5.4 Measurement Data

### Charge+Camera Mode+Adapter 1(GSM900+WLAN+BT+GPS)

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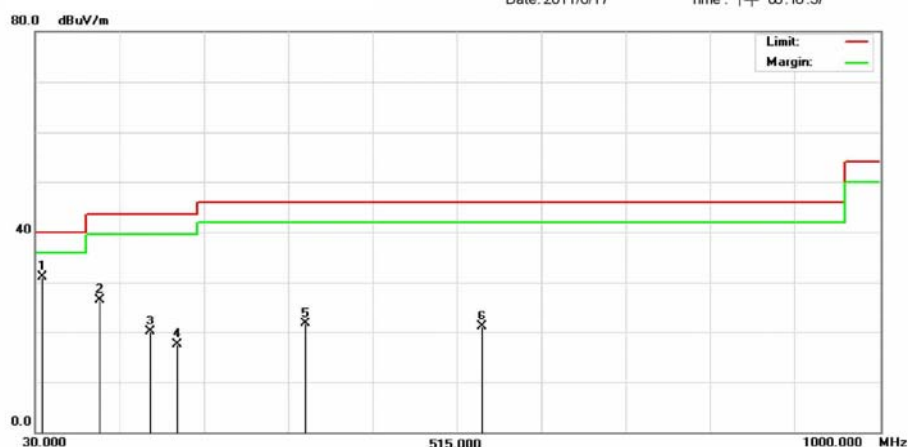
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Tel:02-2299-3279 Fax:02-2298-2698

## Radiated Emission Measurement

Date: 2011/6/17

Time : 下午 08:18:37



Site :966 Chamber

Polarization: **Vertical**

Temperature: 25 °C

Limit: FCC Class B 3M Radiation

Power: AC 120V/60Hz

Humidity: 60%

EUT: CDMA TSI11

MN: TSI11

Mode: Charge+camera mode+Adapter 1 (GSM1900+WLAN+BT+GPS)

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	36.8200	45.62	-14.45	31.17	40.00	-8.83	QP	
2		102.9400	42.71	-16.15	26.56	43.50	-16.94	QP	
3		160.8300	33.08	-13.02	20.06	43.50	-23.44	QP	
4		192.2600	32.94	-15.52	17.42	43.50	-26.08	QP	
5		339.4800	33.52	-11.85	21.67	46.00	-24.33	QP	
6		543.9000	27.90	-6.83	21.07	46.00	-24.93	QP	

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Above 1G

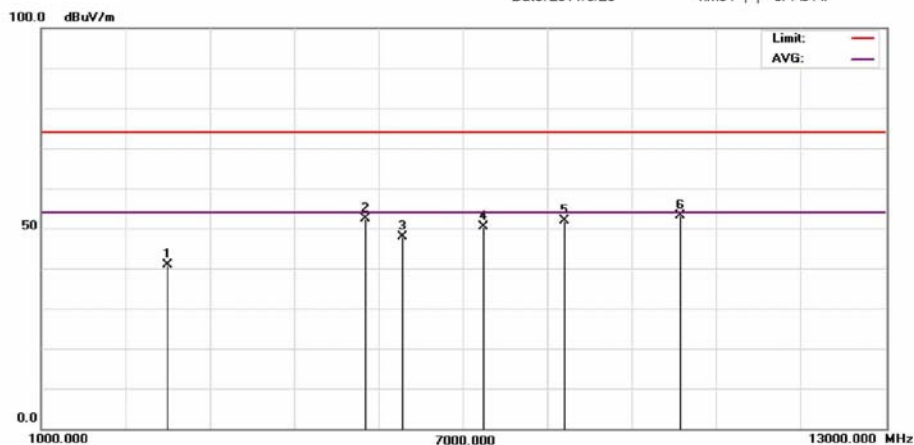
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Tel: 02-2299-3279 Fax: 02-2298-2698

## Radiated Emission Measurement

Date: 2011/6/20

Time: 下午 07:49:47



Site : 966 Chamber

Polarization: Horizontal

Temperature: 25 °C

Limit: FCC Class B 3M Radiation(1G-40G)(Pea

Power: AC 120V/60Hz

Humidity: 60%

EUT: CDMATSI11

MN: TSI11

Mode: Charge+camera mode+Adapter 1 (GSM1900+WLAN+BT+GPS)

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2782.000	39.69	1.29	40.98	74.00	-33.02	peak	
2		5598.000	44.32	8.13	52.45	74.00	-21.55	peak	
3		6126.000	39.04	8.87	47.91	74.00	-26.09	peak	
4		7270.000	39.13	11.29	50.42	74.00	-23.58	peak	
5		8436.000	38.44	13.40	51.84	74.00	-22.16	peak	
6	*	10086.000	34.39	18.64	53.03	74.00	-20.97	peak	

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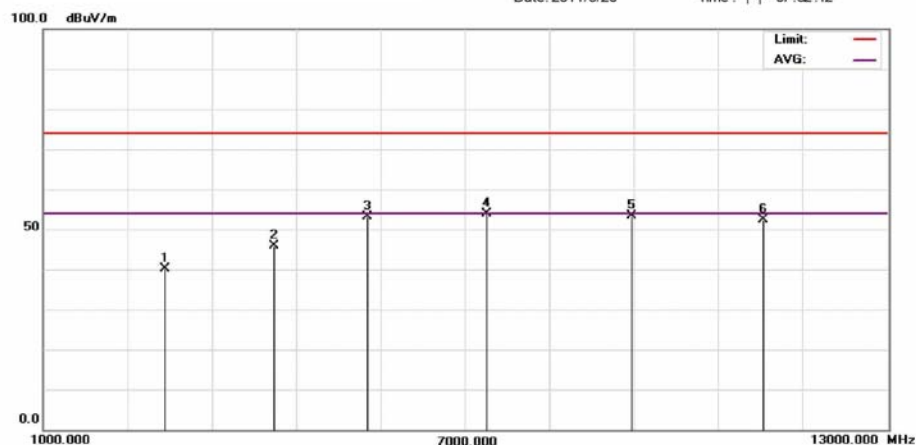
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## Radiated Emission Measurement

Date: 2011/6/20

Time: 下午 07:52:12



Site : 966 Chamber

Polarization: Vertical

Temperature: 25 °C

Limit: FCC Class B 3M Radiation(1G-40G)(Pea

Power: AC 120V/60Hz

Humidity: 60%

EUT: CDMATSI11

MN: TSI11

Mode: Charge+camera mode+Adapter 1 (GSM1900+WLAN+BT+GPS)

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		2728.000	38.93	1.12	40.05	74.00	-33.95	peak	
2		4278.000	41.12	4.77	45.89	74.00	-28.11	peak	
3		5598.000	44.91	8.13	53.04	74.00	-20.96	peak	
4	*	7292.000	42.50	11.34	53.84	74.00	-20.16	peak	
5		9360.000	36.92	16.50	53.42	74.00	-20.58	peak	
6		11230.00	31.66	20.84	52.50	74.00	-21.50	peak	

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