A Test Lab Techno Corp.

No.140-1, Chang-an St., Bade City, Tao-Yuan County 334, Taiwan (R.O.C.)
Tel：+886-3-2710188 / Fax：+886-3-2710190

P15B Measurement Report

Report No.	:	**0809FE12**
Applicant	:	**Toshiba Information Systems (UK) Ltd, Mobile Communications Division**
Product Type	:	**Mobile Phone**
Trade Name	:	**TOSHIBA**
Model Name	:	**830T, CL4-J01**
FCC ID	:	**SP2-CL4-J01**
Dates of Test	:	**Aug. 28 ~ Sep. 24 , 2008**
Test Specification	:	**Part 15 Subpart B**
Location of Test Lab.	:	**Chang-an Lab.**

1. The test operations have to be performed with cautious behavior, the test results are as attached.
2. The test results are under chamber environment of A Test Lab Techno Corp. A Test Lab Techno Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples.
3. The measurement report has to be written approval of A Test Lab Techno Corp. It may only be reproduced or published in full.

Country Huang 20081030
Measurement Center Manager

John Cheng 20081030
Testing Engineer

Declaration of Conformity

We here by verify that:

The test data, data evaluation, test procedures and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4:2003. All test were conducted by *A Test Lab Techno Corp. No.140-1, Chang-an St., Bade City, Tao-Yuan County 334, Taiwan (R.O.C.)* Also, we attest to the accuracy of each.

We further submit that the energy emitted by the sample EUT tested as described in the report is in compliance with Class B radiated and conducted emission limit of FCC Rules Part 15 Subpart B (15.107 & 15.109).

EUT	**:**	**Mobile Phone**
Applicant	**:**	**Toshiba Information Systems (UK) Ltd, Mobile Communications Division Delta House, The Crescent, Southwood Business Park, Farnborough, GU14 0NL, Hampshire UK**
Trade Name	**:**	**TOSHIBA**
Model Name	**:**	**830T, CL4-J01**
FCC ID	**:**	**SP2-CL4-J01**

Approved by :  **Country Huang 2008/10/30**

Prepared by :  **John Cheng 2008/10/30**

A Test Lab Techno Corp.

No.140-1, Chang-an St., Bade City, Tao-Yuan County 334, Taiwan (R.O.C.)
Tel：03-2710188 / Fax：03-2710190

Contents

1. GENERAL

1.1 Description of Equipment under Test (EUT)

Applicant： Toshiba Information Systems (UK) Ltd, Mobile Communications Division
Delta House, The Crescent, Southwood Business Park, Farnborough,
GU14 0NL, Hampshire UK

Manufacturer	：	TOSHIBA CORPORATION
Manufacturer Address	：	1-1, Asahigaoka 3-Chome, Hino-Shi, Tokyo 191-8555, Japan
Product Type	：	Mobile Phone
Trade Name	：	TOSHIBA
Model Name	：	830T, CL4-J01
FCC ID	：	SP2-CL4-J01
Software Ver	：	21.0012
Hardware Ver	：	CS-1
Antenna Gain	：	-2.4dBi
Frequency of Channel	：	See Table 1
Type of Modulation	：	Direct Sequence Spread Spectrum
Type of Antenna	：	Internal Type

During testing the EUT was operated at Tx or Rx mode for each emission measured. This was done in order to ensure that maximum emission levels were attained.

CH No.	Freq.	CH No.	Freq.	CH No.	Freq.	CH No.	Freq.
0	2402.00	20	2422.00	40	2442.00	60	2462.00
1	2403.00	21	2423.00	41	2443.00	61	2463.00
2	2404.00	22	2424.00	42	2444.00	62	2464.00
3	2405.00	23	2425.00	43	2445.00	63	2465.00
4	2406.00	24	2426.00	44	2446.00	64	2466.00
5	2407.00	25	2427.00	45	2447.00	65	2467.00
6	2408.00	26	2428.00	46	2448.00	66	2468.00
7	2409.00	27	2429.00	47	2449.00	67	2469.00
8	2410.00	28	2430.00	48	2450.00	68	2470.00
9	2411.00	29	2431.00	49	2451.00	69	2471.00
10	2412.00	30	2432.00	50	2452.00	70	2472.00
11	2413.00	31	2433.00	51	2453.00	71	2473.00
12	2414.00	32	2434.00	52	2454.00	72	2474.00
13	2415.00	33	2435.00	53	2455.00	73	2475.00
14	2416.00	34	2436.00	54	2456.00	74	2476.00
15	2417.00	35	2437.00	55	2457.00	75	2477.00
16	2418.00	36	2438.00	56	2458.00	76	2478.00
17	2419.00	37	2439.00	57	2459.00	77	2479.00
18	2420.00	38	2440.00	58	2460.00	78	2480.00
19	2421.00	39	2441.00	59	2461.00		

Table 1. Bluetooth Frequency of Each Channel (Working Frequency)

1.2 Introduction

The following measurement report is submitted on behalf of **Toshiba Information Systems (UK) Ltd, Mobile Communications Division** In support of a Class B certification in accordance with Part2 Subpart J and Part 15 Subpart A and B of the Commission's and Regulations.

1.3 Summary of Tests

47 CFR Part 15 Subpart B			
Reference	**Test**	**Results**	**Note**
15.107	**Conducted Emission Limits**	**PASS**	
15.209	**Radiated Emissions Limits**	**PASS**	

1.4 Description of Support Equipment

Computer	**: DELL**
Model No.	**: DIMENSION E521**
Serial No.	**: 5D8NN1S / 4D8NN1S**
FCC ID	**: FCC DOC**
Keyboard	**: DELL**
Model No.	**: SK-8115**
Serial No.	**: MY-0DJ325-71619-7113-1366 / MY-0DJ325-71619-71B-1197**
FCC ID	**: FCC DOC**
Monitor	**: DELL**
Model No.	**: E177FPc**
Serial No.	**: CN-0FJ179-64180-6BT-4LYS / CN-0FJ179-64180-6BT-4LZS**
FCC ID	**: FCC DOC**
Mouse	**: DELL**
Model No.	**: M056U0A**
Serial No.	**: F1F026E1 / F1G016FR**
FCC ID	**: FCC DOC**

1.5 Configuration of System under Test

PC USB Link

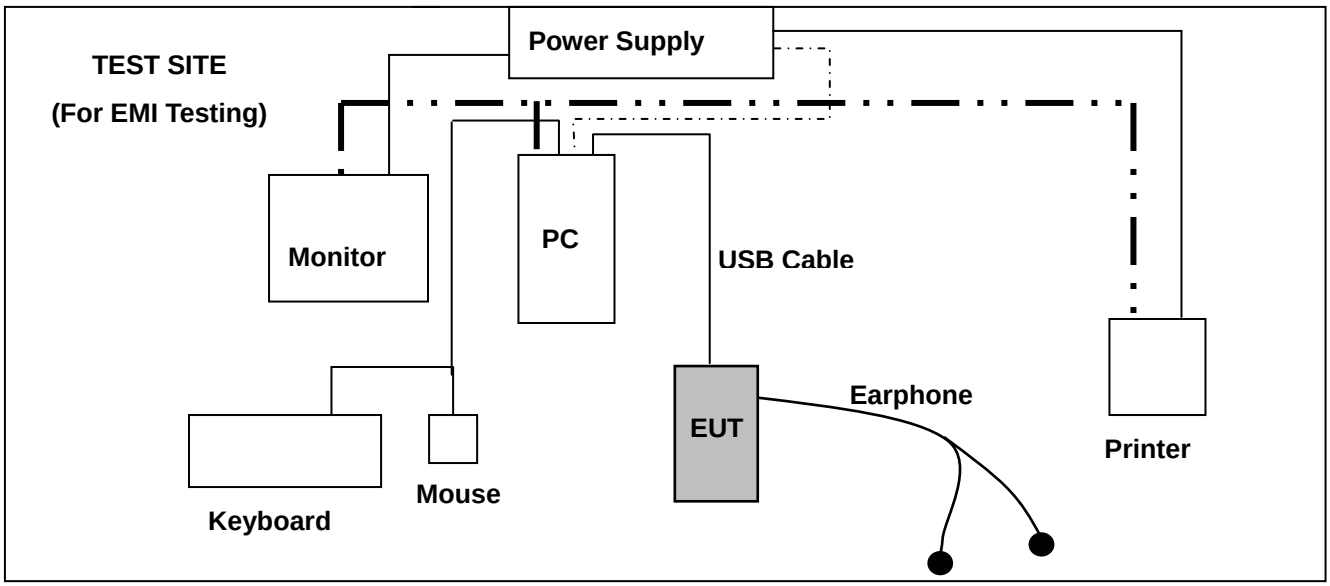
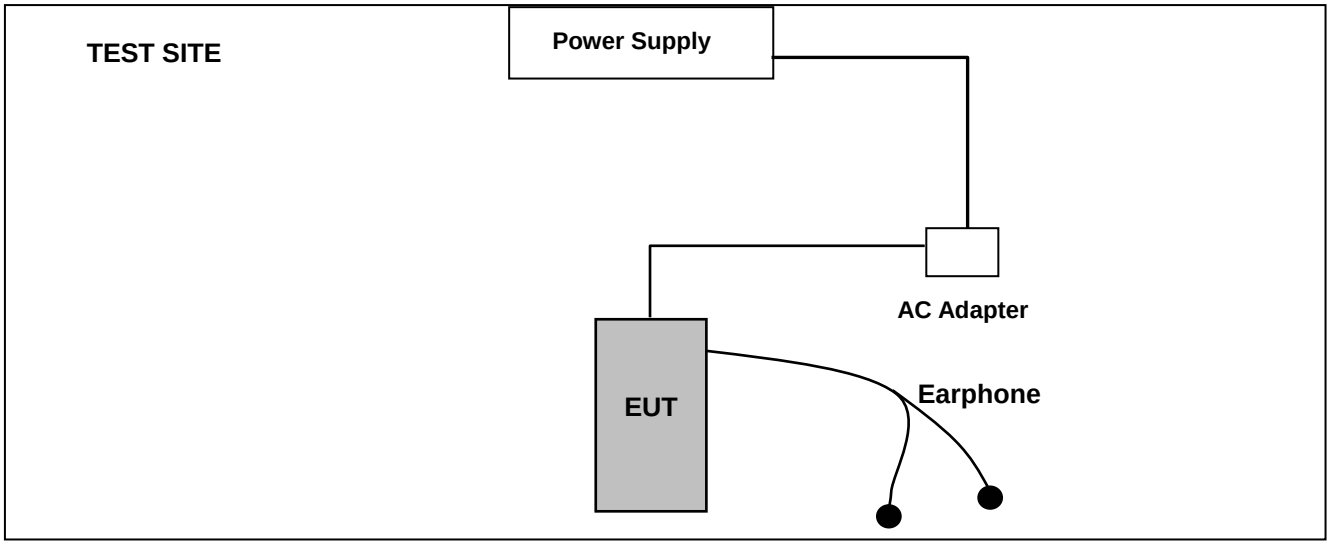


Figure 1. Configuration of System Under Test

During EMI testing the EUT (Mobile Phone)'s USB port connected to the USB port of AE PC & Earphone port connected to earphone. A mouse was connected to the mouse port of IBM PC. And a keyboard was connected to the mouse port of IBM PC. And a printer was connected to the parallel port.

AC Adapter Link



During EMI testing the EUT (Mobile Phone)'s Power port was connected to AC Adapter. EUT (Mobile Phone)'s Earphone connected to earphone.

1.6 Test Procedure

All measurements contained in this report were performed according to the techniques described in Measurement procedure ANSI C63.4-2003 "Measurement of un-Intentional Radiators."

1.7 General Test Condition

The conditions under which the EUT operates were varied to determine their effect on the equipment's emission characteristics. The final configuration of the test system and the mode of operation used during these tests were chosen as that which produced the highest emission levels. However, only those conditions which the EUT was considered likely to encounter in normal use were investigated. The system's radiated and conducted emissions were investigated while the computer alternately transferred data to the EUT as well as to the monitor and printer. Using a test program which sent a continuous data and transferred data to and from the EUT was proven to worst case emissions. The system's physical layout and cabling was randomly arranged to ensure that maximum emission levels were attained.

2. Conducted Emissions Requirements

2.1 General & Setup:

The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the back wall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3162/2 SH Line Impedance Stabilization Networks (LISN). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPR quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 2.6.

2.2 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Advantest	R3132	160300103	Mar. 06, 2008	Mar. 06, 2009
Test Receiver	R&S	ESCI	100367	Jun. 05, 2008	Jun. 05, 2009
LISN	EMCO	3816/2 SH	00060110	Jun. 04, 2008	Jun. 04, 2009
LISN	EMCO	3816/2 SH	00060111	Jun. 30, 2008	Jun. 30, 2009
Transient Limiter	ELECTRO-METRICS	EM-7600	777	Jun. 26, 2008	Jun. 26, 2009

2.3 Test Configuration:

PC USB Link Mode

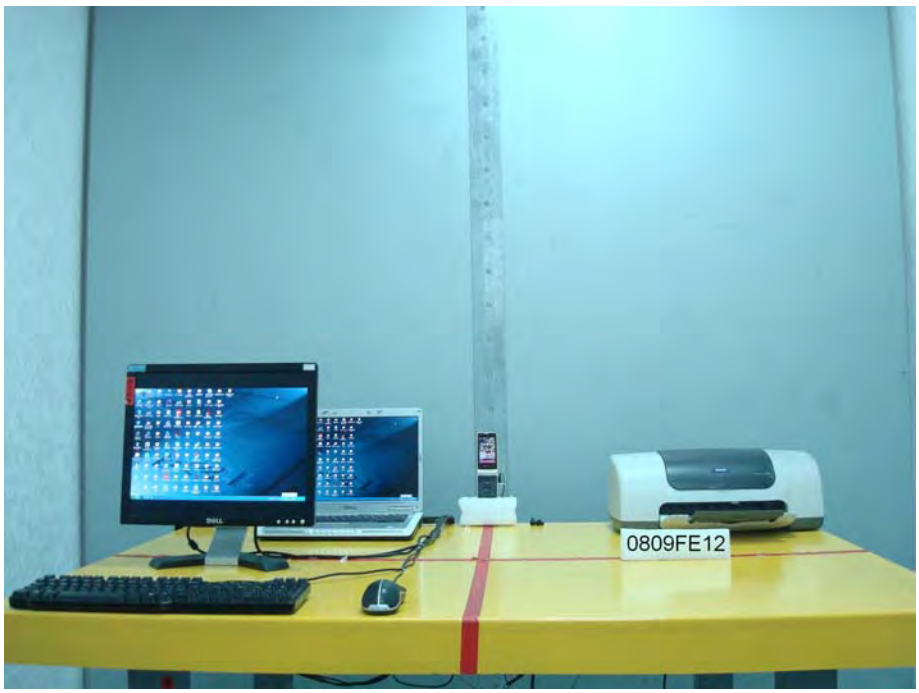


Figure 2. Front View of the Test Configuration

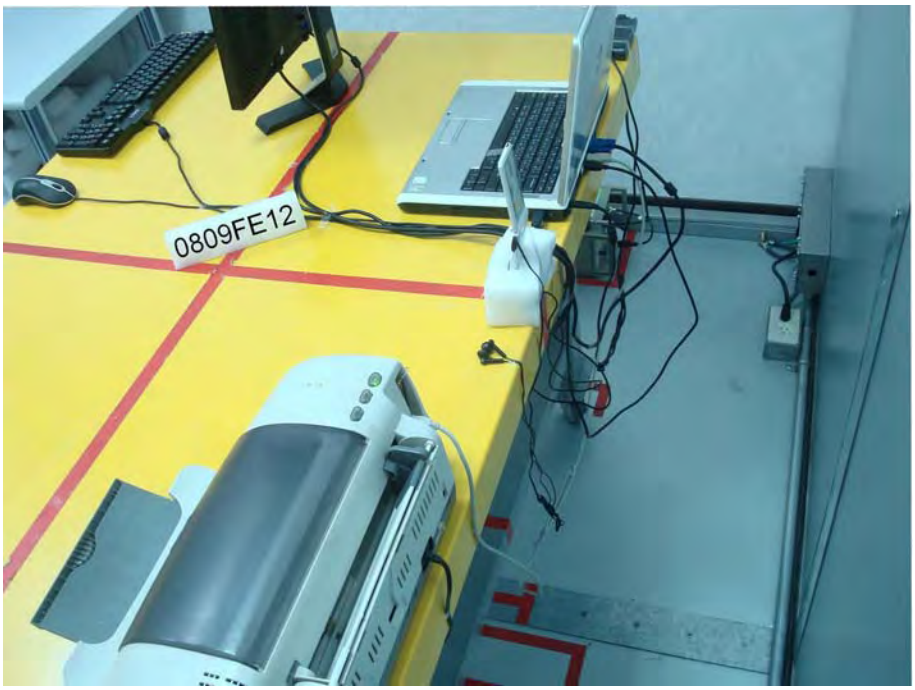


Figure 3. Rear View of the Test Configuration

AC Adapter Mode

Figure 4. Front View of the Test Configuration

Figure 5. Rear View of the Test Configuration

2.4 Test condition:

EUT tested in accordance with the specifications given by the Manufacturer, and exercised in the most unfavorable manner.

2.5 Conducted Emissions Limits:

Frequency range (MHz)	Limits (dBuV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5.0	56	46
5.0 to 30	60	50

2.6 Measurement Data of Conducted Emissions:

2.6.1 Conducted Emissions (Subpart B)

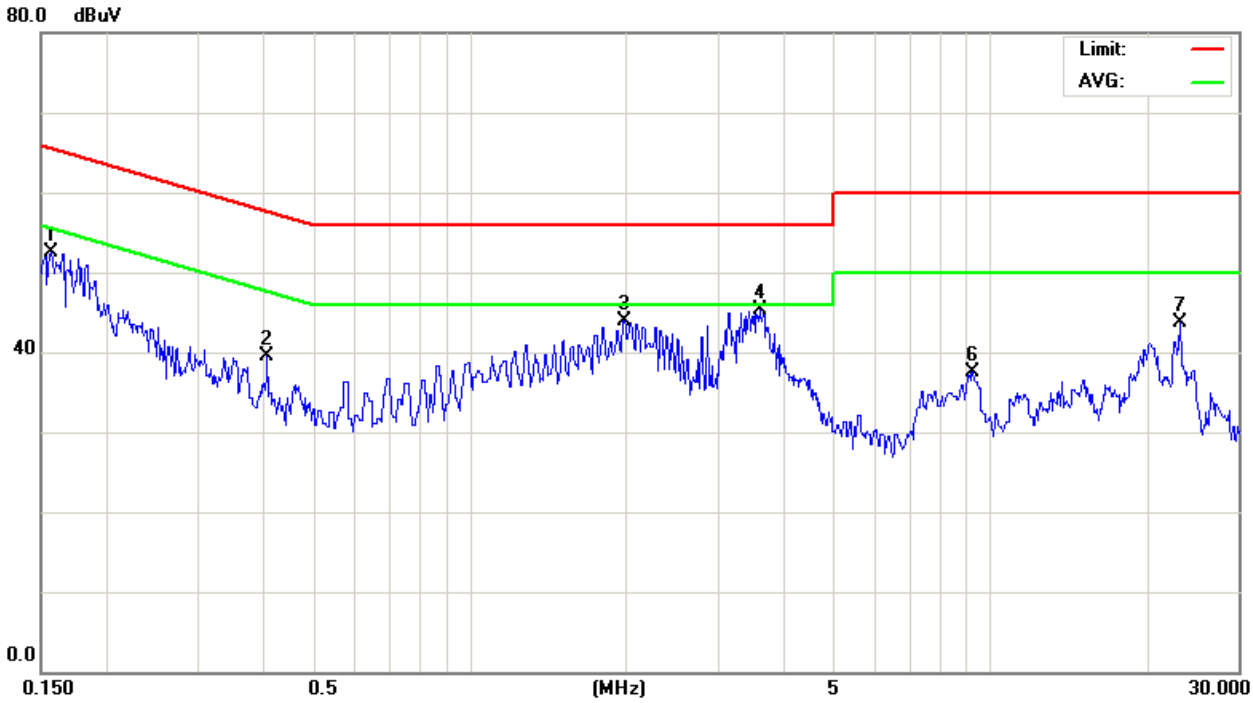
The following table show a summary of the highest emissions of power line conducted emissions to the HOT and NATURAL conductor of the EUT power.

Applicant : Toshiba Information Systems (UK) Ltd, Mobile Communications Division
Model No : 830T
EUT : Mobile Phone
Test Mode : PC USB Link _ Stand by
Test Date : 09/17/2008
Please refer to next pager of detail testing data.

Notes:

1. L1: One end & Ground L2: The other end & Ground
2. Height of table on which the EUT was placed: 0.8 m.
3. The Quasi-Peak Value have already met the Average Value Limit showed on above limits.
4. The above test results are obtained under the normal condition.

File :SB6(PC) Data :#3 Date: 2008/9/17 Time: 下午 09:30:29



Site site#1 Phase: L1 Temperature: 26 ℃

Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %

EUT:

M/N: 08-0221-EO

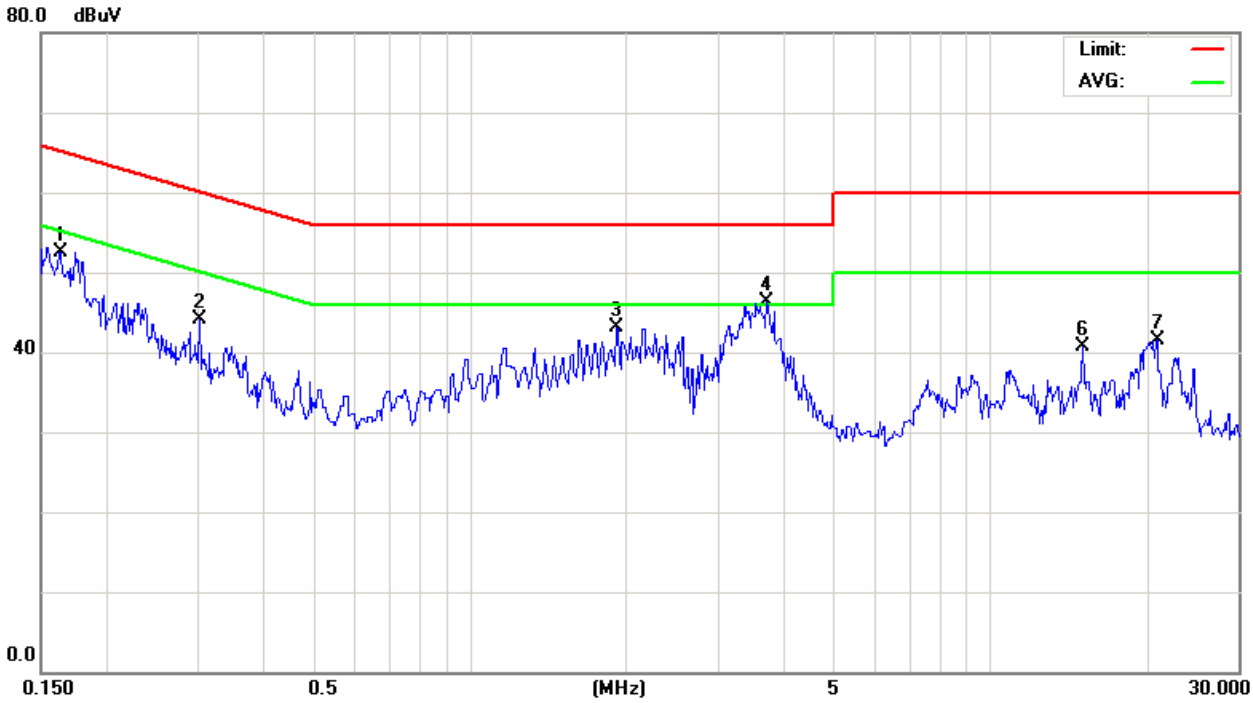
Mode: Idel

Note: DELL NB01

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1570	42.73	9.73	52.46	65.62	-13.16	peak	
2		0.4072	29.64	9.78	39.42	57.70	-18.28	peak	
3		1.9758	34.04	9.85	43.89	56.00	-12.11	peak	
4	*	3.6049	35.43	9.93	45.36	56.00	-10.64	peak	
5		3.6049	25.36	9.93	35.29	46.00	-10.71	AVG	
6		9.2500	27.48	10.09	37.57	60.00	-22.43	peak	
7		23.1000	33.29	10.38	43.67	60.00	-16.33	peak	

*:Maximum data x:Over limit !:over margin ●Reference Only

File :SB6(PC) Data :#4 Date: 2008/9/17 Time: 下午 09:38:22



Site site#1 Phase: *L2* Temperature: 26 ℃

Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %

EUT:

M/N: 08-0221-EO

Mode: Idel

Note: DELL NB01

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1625	42.84	9.73	52.57	65.33	-12.76	peak	
2		0.3024	34.35	9.77	44.12	60.17	-16.05	peak	
3		1.9129	33.22	9.83	43.05	56.00	-12.95	peak	
4	*	3.7128	36.36	9.94	46.30	56.00	-9.70	peak	
5		3.7128	24.88	9.94	34.82	46.00	-11.18	AVG	
6		15.0500	30.59	10.21	40.80	60.00	-19.20	peak	
7		20.8500	31.27	10.32	41.59	60.00	-18.41	peak	

*:Maximum data x:Over limit !:over margin ●Reference Only

2.6.2 Conducted Emissions (Subpart B)

The following table show a summary of the highest emissions of power line conducted emissions to the HOT and NATURAL conductor of the EUT power.

Applicant	: Toshiba Information Systems (UK) Ltd, Mobile Communications Division
Model No	: 830T
EUT	: Mobile Phone
Test Mode	: PC USB Link _ Bluetooth 1.2 Link Mode
Test Date	: 09/17/2008

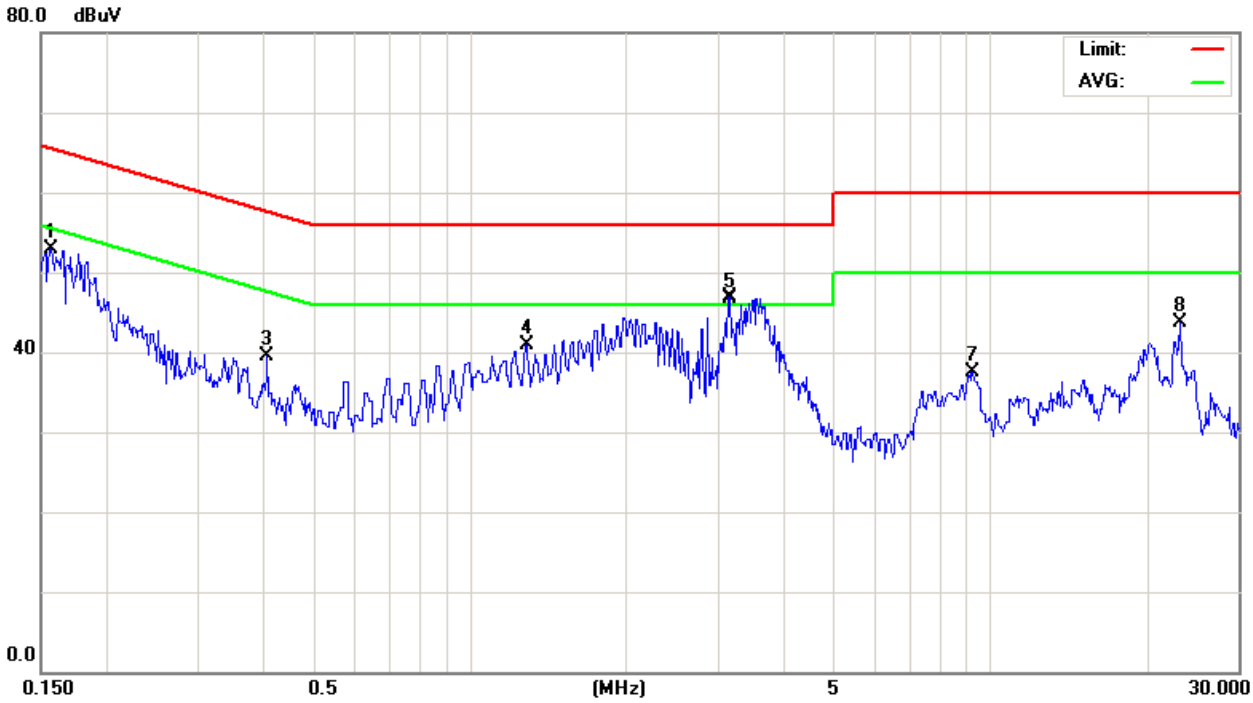
Please refer to next pager of detail testing data.

Notes:

1. L1: One end & Ground L2: The other end & Ground
2. Height of table on which the EUT was placed: 0.8 m.
3. The Quasi-Peak Value have already met the Average Value Limit showed on above limits.
4. The above test results are obtained under the normal condition.

Conducted Emission Measurement

File :SB6(PC) Data :#1 Date: 2008/9/17 Time: 下午 09:14:19



Site site#1 Phase: L1 Temperature: 26 ℃

Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %

EUT:

M/N: 08-0221-EO

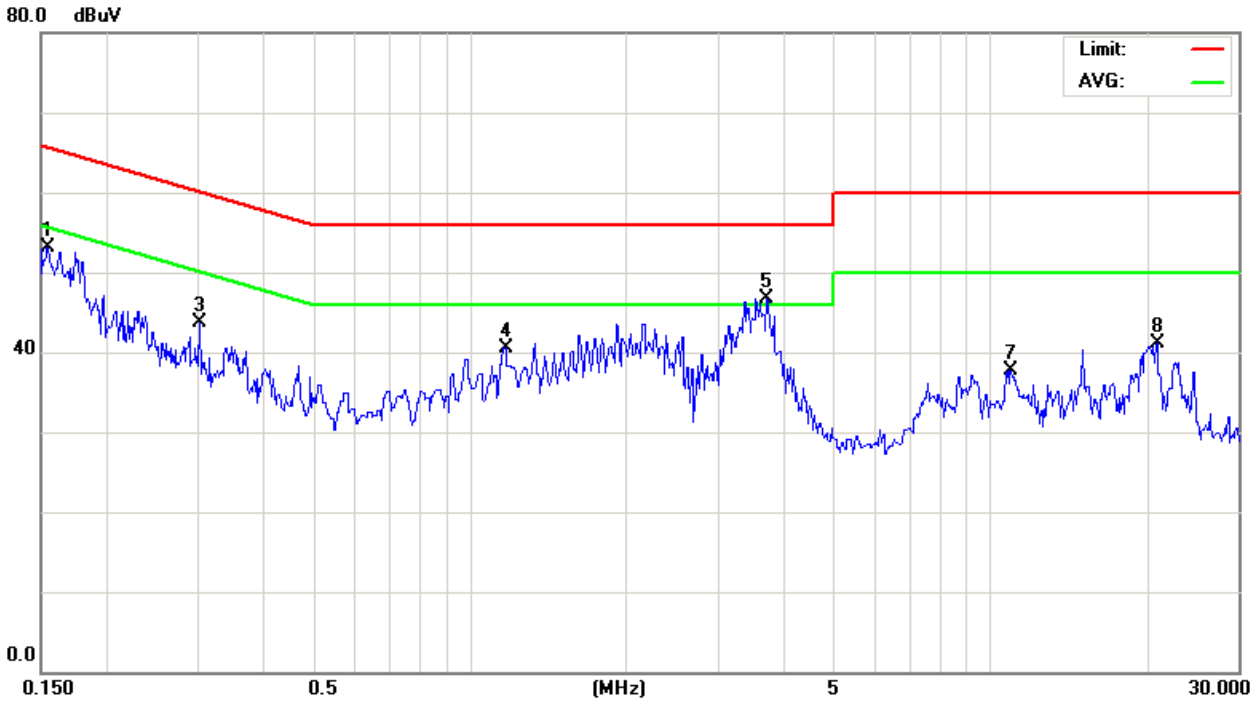
Mode: BT

Note: DELL NB01

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1570	43.23	9.73	52.96	65.62	-12.66	peak	
2		0.1570	23.17	9.73	32.90	55.62	-22.72	AVG	
3		0.4075	29.64	9.78	39.42	57.70	-18.28	peak	
4		1.2829	31.12	9.81	40.93	56.00	-15.07	peak	
5	*	3.1459	36.89	9.91	46.80	56.00	-9.20	peak	
6		3.1459	19.19	9.91	29.10	46.00	-16.90	AVG	
7		9.2500	27.48	10.09	37.57	60.00	-22.43	peak	
8		23.1000	33.29	10.38	43.67	60.00	-16.33	peak	

*:Maximum data x:Over limit !:over margin ●Reference Only

File :SB6(PC) Data :#2 Date: 2008/9/17 Time: 下午 09:21:12



Site site#1 Phase: L2 Temperature: 26 ℃

Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %

EUT:

M/N: 08-0221-EO

Mode: BT

Note: DELL NB01

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1542	43.40	9.73	53.13	65.77	-12.64	peak	
2		0.1542	22.97	9.73	32.70	55.77	-23.07	AVG	
3		0.3026	33.85	9.77	43.62	60.17	-16.55	peak	
4		1.1660	30.78	9.80	40.58	56.00	-15.42	peak	
5	*	3.7130	36.86	9.94	46.80	56.00	-9.20	peak	
6		3.7130	17.96	9.94	27.90	46.00	-18.10	AVG	
7		10.9500	27.59	10.10	37.69	60.00	-22.31	peak	
8		20.8500	30.77	10.32	41.09	60.00	-18.91	peak	

*:Maximum data x:Over limit !:over margin ●Reference Only

2.6.3 Conducted Emissions (Subpart B)

The following table show a summary of the highest emissions of power line conducted emissions to the HOT and NATURAL conductor of the EUT power.

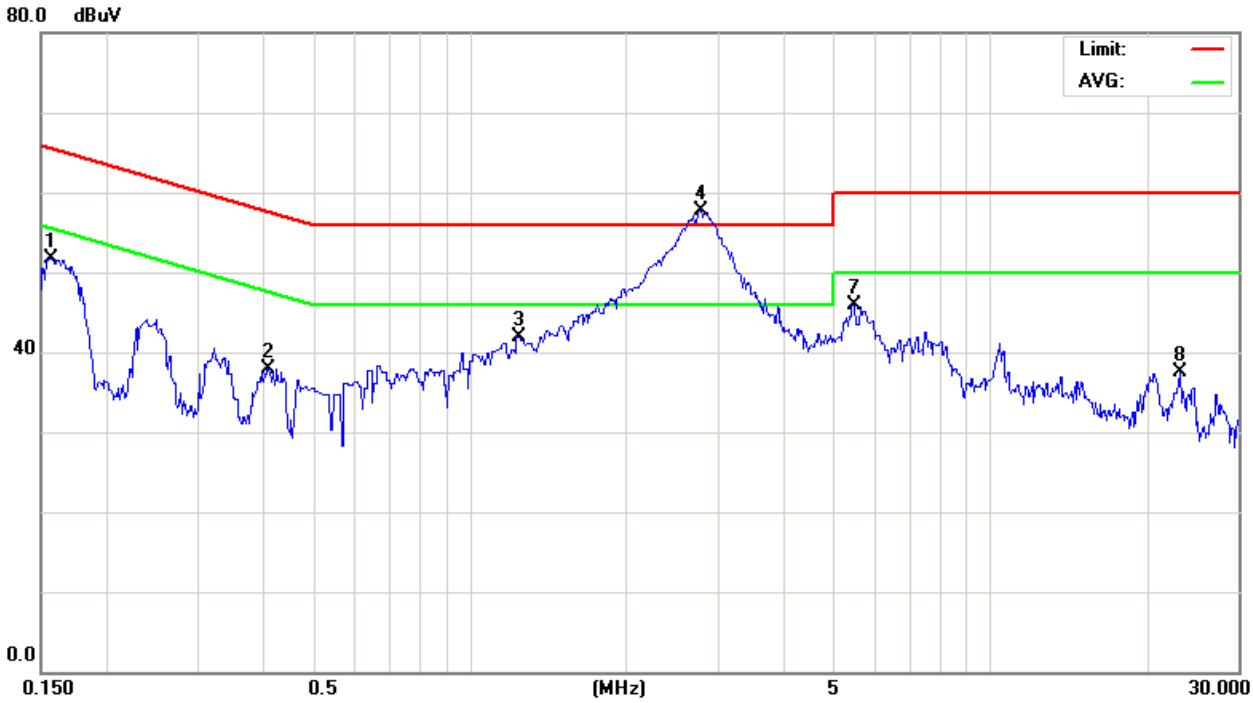
Applicant	: Toshiba Information Systems (UK) Ltd, Mobile Communications Division
Model No	: 830T
EUT	: Mobile Phone
Test Mode	: AC Adapter _ Stand by
Test Date	: 09/24/2008

Please refer to next pager of detail testing data.

Notes:

1. L1: One end & Ground L2: The other end & Ground
2. Height of table on which the EUT was placed: 0.8 m.
3. The Quasi-Peak Value have already met the Average Value Limit showed on above limits.
4. The above test results are obtained under the normal condition.

File :SB6(充電模式IDLE) Data :#1 Date: 2008-9-24 Time: 下午 10:47:36



Site site#1 Phase: L1 Temperature: 26 ℃

Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %

EUT:

M/N: 08-0221-SEO

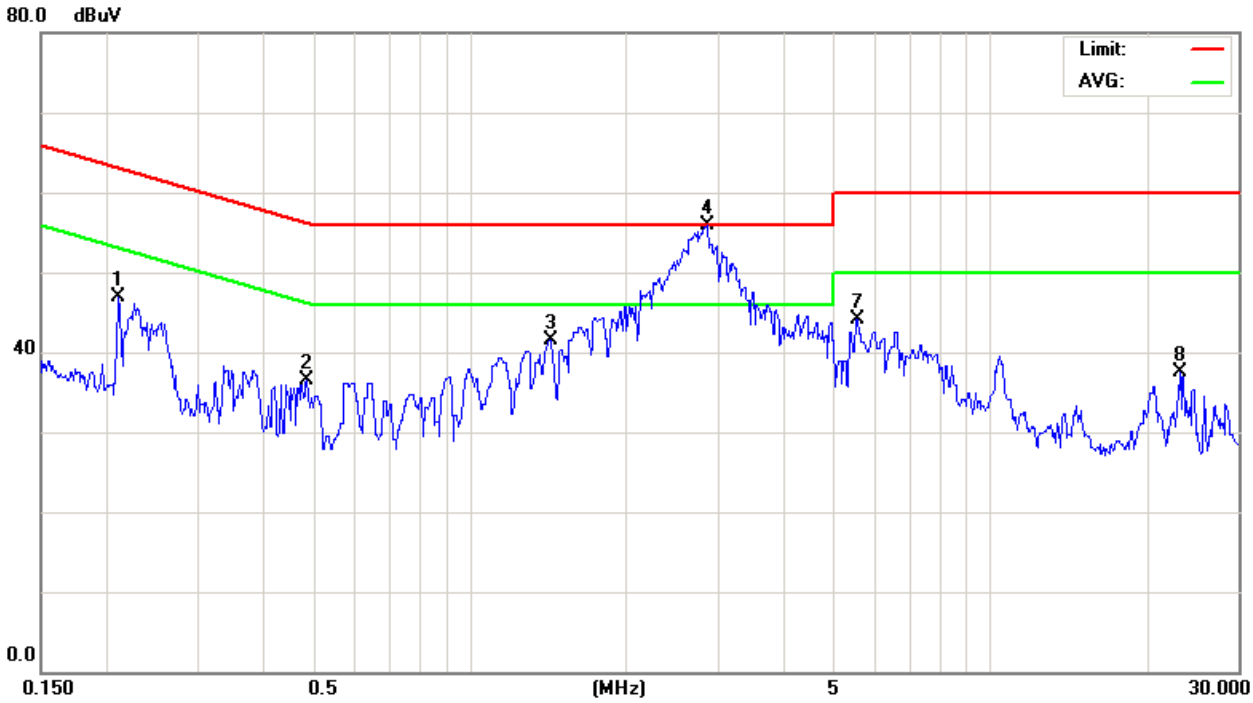
Mode: IDLE

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1563	41.95	9.73	51.68	65.65	-13.97	peak	
2		0.4090	28.19	9.78	37.97	57.67	-19.70	peak	
3		1.2380	32.01	9.81	41.82	56.00	-14.18	peak	
4	*	2.7680	47.85	9.90	57.75	56.00	1.75	peak	
5		2.7680	38.90	9.90	48.80	56.00	-7.20	QP	
6		2.7680	25.90	9.90	35.80	46.00	-10.20	AVG	
7		5.4500	35.80	10.05	45.85	60.00	-14.15	peak	
8		23.1000	27.15	10.38	37.53	60.00	-22.47	peak	

*:Maximum data x:Over limit !:over margin ●Reference Only

File :SB6(充電模式IDLE) Data :#2 Date: 2008-9-24 Time: 下午 10:56:21



Site site#1 Phase: *L2* Temperature: 26 ℃

Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %

EUT:

M/N: 08-0221-SEO

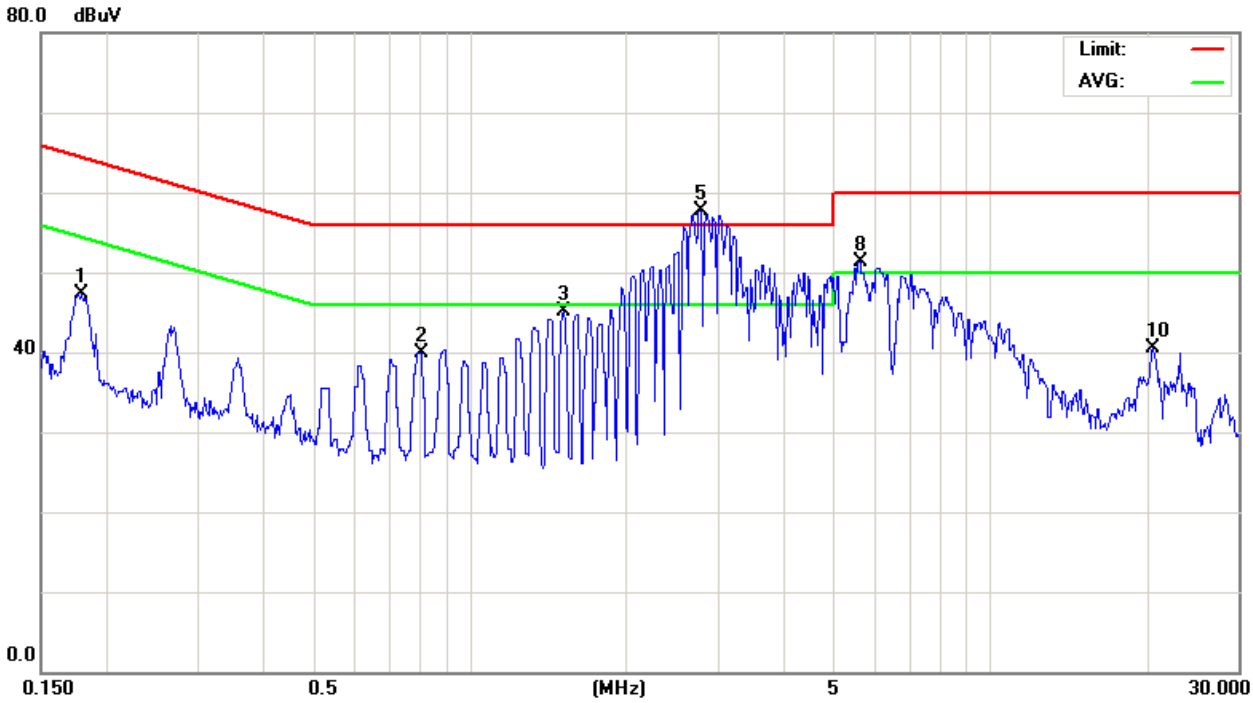
Mode: IDLE

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2116	37.14	9.74	46.88	63.14	-16.26	peak	
2		0.4846	26.65	9.78	36.43	56.26	-19.83	peak	
3		1.4270	31.71	9.81	41.52	56.00	-14.48	peak	
4	*	2.8580	46.01	9.91	55.92	56.00	-0.08	peak	
5		2.8580	36.19	9.91	46.10	56.00	-9.90	QP	
6		2.8580	21.29	9.91	31.20	46.00	-14.80	AVG	
7		5.5500	33.97	10.04	44.01	60.00	-15.99	peak	
8		23.1000	27.11	10.38	37.49	60.00	-22.51	peak	

*:Maximum data x:Over limit !:over margin ●Reference Only

File :SB6(充電模式IDLE) Data :#3 Date: 2008-9-24 Time: 下午 11:27:08



Site site#1 Phase: *L1* Temperature: 26 ℃

Limit: CISPR22 Class B Conduction(QP) Power: AC 220V/50Hz Humidity: 55 %

EUT:

M/N: 08-0221-SEO

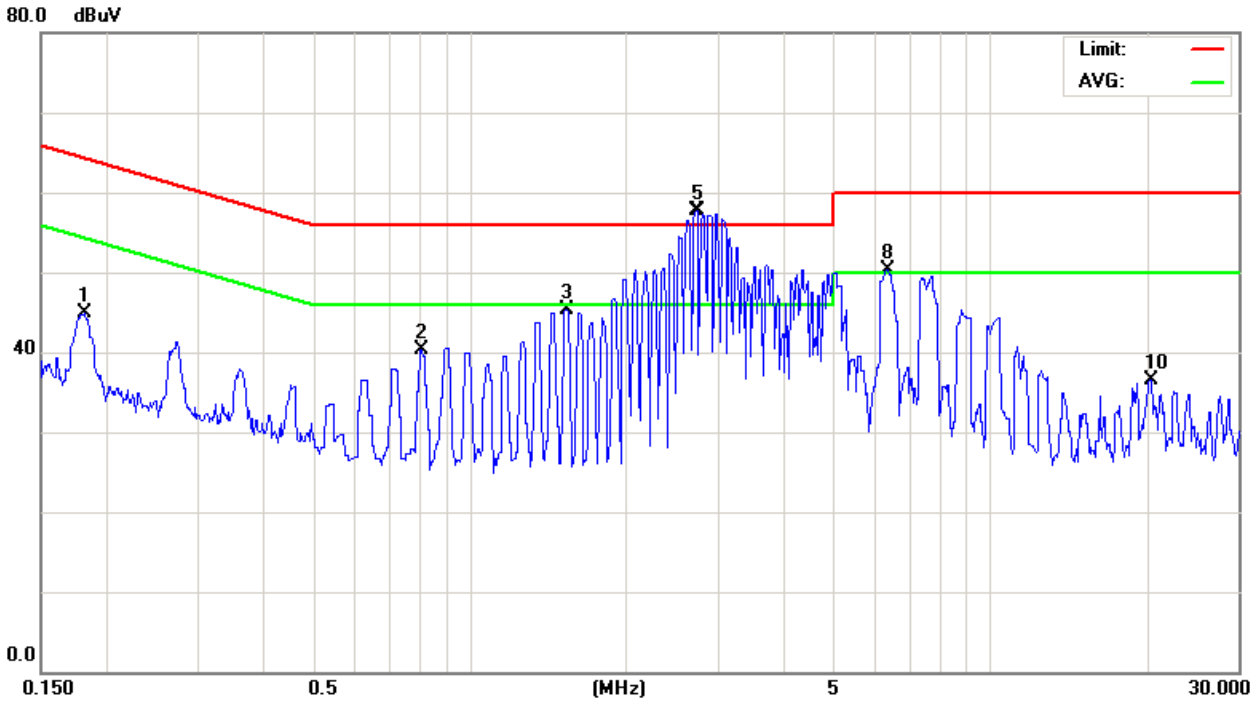
Mode: IDLE

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1794	37.56	9.74	47.30	64.51	-17.21	peak	
2		0.8059	30.17	9.80	39.97	56.00	-16.03	peak	
3		1.5169	35.35	9.81	45.16	56.00	-10.84	peak	
4		1.5169	25.59	9.81	35.40	46.00	-10.60	AVG	
5	*	2.7678	47.77	9.90	57.67	56.00	1.67	peak	
6		2.7678	43.60	9.90	53.50	56.00	-2.50	QP	
7		2.7678	31.70	9.90	41.60	46.00	-4.40	AVG	
8		5.6000	41.34	10.04	51.38	60.00	-8.62	peak	
9		5.6000	22.36	10.04	32.40	50.00	-17.60	AVG	
10		20.4000	30.06	10.38	40.44	60.00	-19.56	peak	

*:Maximum data x:Over limit !:over margin ●Reference Only

File :SB6(充電模式IDLE) Data :#4 Date: 2008/9/24 Time: 下午 11:48:54



Site site#1 Phase: *L2* Temperature: 26 ℃

Limit: CISPR22 Class B Conduction(QP) Power: AC 220V/50Hz Humidity: 55 %

EUT:

M/N: 08-0221-SEO

Mode: IDLE

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1822	35.23	9.74	44.97	64.38	-19.41	peak	
2		0.8059	30.55	9.80	40.35	56.00	-15.65	peak	
3		1.5350	35.45	9.81	45.26	56.00	-10.74	peak	
4		1.5350	21.69	9.81	31.50	46.00	-14.50	AVG	
5	*	2.7230	47.74	9.91	57.65	56.00	1.65	peak	
6		2.7230	43.39	9.91	53.30	56.00	-2.70	QP	
7		2.7230	26.59	9.91	36.50	46.00	-9.50	AVG	
8		6.3500	40.20	10.09	50.29	60.00	-9.71	peak	
9		6.3500	18.01	10.09	28.10	50.00	-21.90	AVG	
10		20.3000	26.20	10.33	36.53	60.00	-23.47	peak	

*:Maximum data x:Over limit !:over margin ●Reference Only

2.6.4 Conducted Emissions (Subpart B)

The following table show a summary of the highest emissions of power line conducted emissions to the HOT and NATURAL conductor of the EUT power.

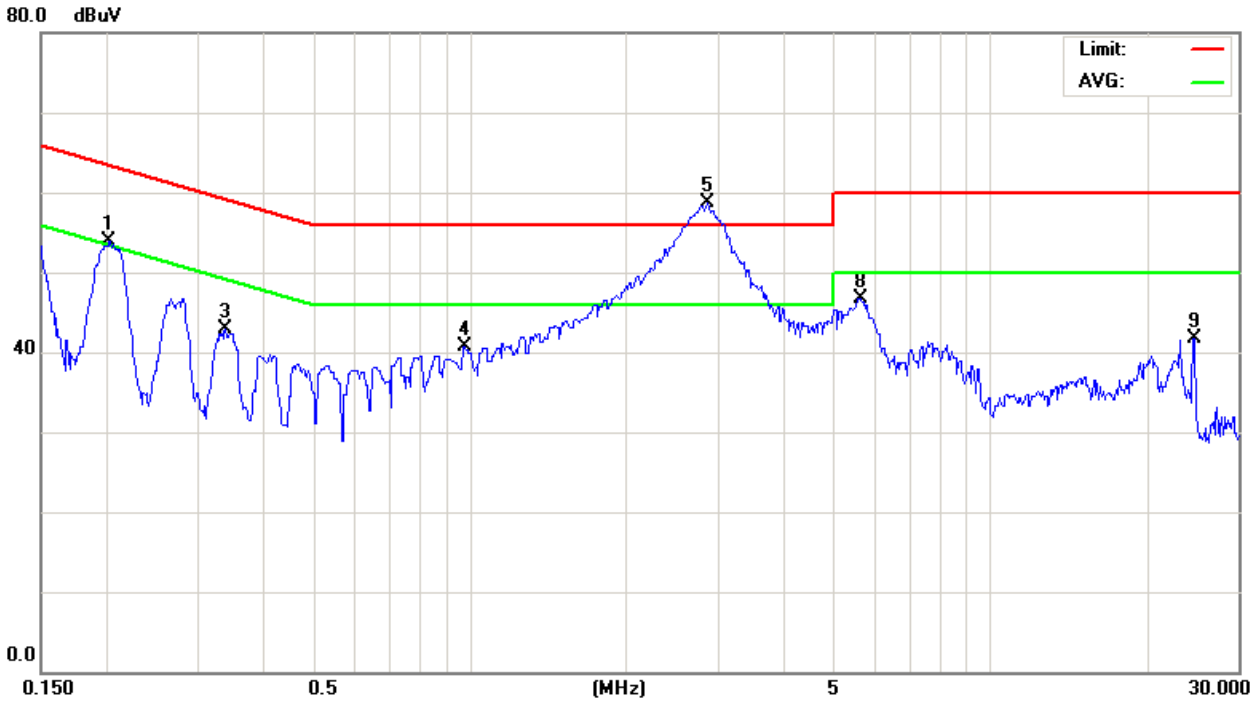
Applicant	: Toshiba Information Systems (UK) Ltd, Mobile Communications Division
Model No	: 830T
EUT	: Mobile Phone
Test Mode	: AC Adapter _ Bluetooth 1.2_Link Mode
Test Date	: 09/10/2008

Please refer to next pager of detail testing data.

Notes:

1. L1: One end & Ground L2: The other end & Ground
2. Height of table on which the EUT was placed: 0.8 m.
3. The Quasi-Peak Value have already met the Average Value Limit showed on above limits.
4. The above test results are obtained under the normal condition.

File :Julia(BT-110V) Data :#1 Date: 2008/9/10 Time: 下午 07:48:29



Site site#1 Phase: L1 Temperature: 26 ℃

Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %

EUT:

M/N: Julia

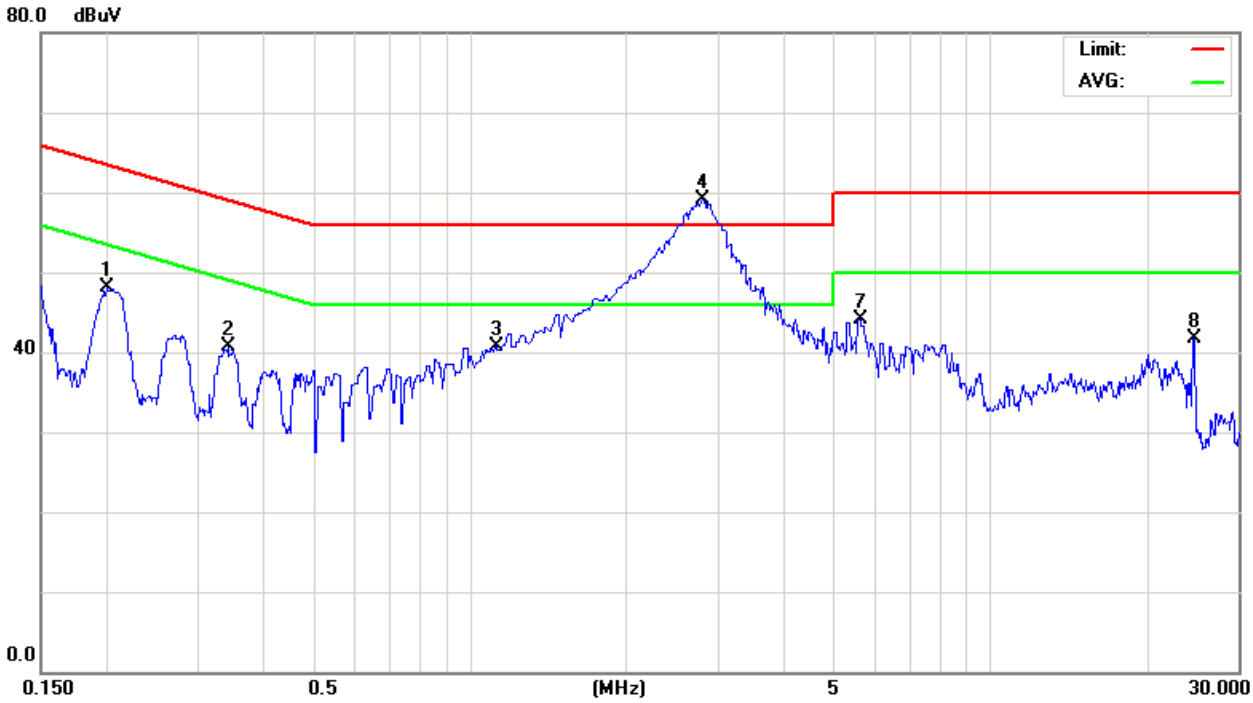
Mode: BT

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2025	44.23	9.74	53.97	63.50	-9.53	peak	
2		0.2025	21.36	9.74	31.10	53.50	-22.40	AVG	
3		0.3390	33.05	9.78	42.83	59.23	-16.40	peak	
4		0.9770	30.88	9.81	40.69	56.00	-15.31	peak	
5	*	2.8580	48.74	9.91	58.65	56.00	2.65	peak	
6		2.8580	45.29	9.91	55.20	56.00	-0.80	QP	
7		2.8580	28.29	9.91	38.20	46.00	-7.80	AVG	
8		5.6000	36.66	10.04	46.70	60.00	-13.30	peak	
9		24.5500	31.38	10.34	41.72	60.00	-18.28	peak	

*:Maximum data x:Over limit !:over margin ●Reference Only

File :Julia(BT-110V) Data :#2 Date: 2008/9/10 Time: 下午 07:59:13



Site site#1 Phase: L2 Temperature: 26 ℃

Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %

EUT:

M/N: Julia

Mode: BT

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2004	38.34	9.74	48.08	63.59	-15.51	peak	
2		0.3418	30.85	9.78	40.63	59.16	-18.53	peak	
3		1.1210	30.84	9.80	40.64	56.00	-15.36	peak	
4	*	2.7950	49.12	9.90	59.02	56.00	3.02	peak	
5		2.7950	45.50	9.90	55.40	56.00	-0.60	QP	
6		2.7950	25.80	9.90	35.70	46.00	-10.30	AVG	
7		5.6000	34.13	10.04	44.17	60.00	-15.83	peak	
8		24.5500	31.41	10.34	41.75	60.00	-18.25	peak	

*:Maximum data x:Over limit !:over margin ●Reference Only

3. Radiated Emissions Requirements

3.1 Final radiation measurements were made on a three-meter:

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter. The spectrum was examined from 250 MHz to 2.5 GHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to working & Measurements spectrum range from 30 MHz to 26.5 GHz is investigated.

For measurements below 1 GHz the resolution bandwidth is set to 120 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

A nonconductive material surrounded the EUT to supporting the EUT for standing on tree orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

SCHWARZBECK MESS-ELEKTRONIK Biconilog Antenna (mode VULB9163) at 3 Meter and the SCHWARZBECK Double Ridged Guide Antenna (model BBHA9120D&9170) was used in frequencies 1 - 26.5 GHz at a distance of 3 or 1 meter. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20dB/decade).

For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post - detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts pre meter (uV/m).

The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro colts per meter (dBuV/m).
The actual field is intensity in referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

(1) Amplitude (dBuV/m) = FI (dBuV) +AF (dBuV) +CL (dBuV)-Gain (dB)

FI= Reading of the field intensity.

AF= Antenna factor.

CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

(2) Actual Amplitude (dBuV/m) = Amplitude (dBuV)-Dis(dB)

The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:

(a) For fundamental frequency :

Transmitter Output < +30dBm

(b) For spurious frequency :

Spurious emission limits = fundamental emission limit /10

3.2 Test Equipment List:

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4408B	MY45107753	Jun. 05, 2008	Jun. 05, 2009
Pre Amplifier	Agilent	8449B	3008A02237	Jun. 03, 2008	Jun. 03, 2009
Pre Amplifier	Agilent	8447D	2944A10961	Jun. 10, 2008	Jun. 10, 2009
Test Receiver	R&S	ESCI	100367	Jun. 05, 2008	Jun. 05, 2009
Biconilog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	Jun. 26, 2008	Jun. 26, 2009
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	Jun. 26, 2008	Jun. 26, 2009
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	Jun. 09, 2008	Aug. 07, 2009
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120E	0899	Jun. 26, 2008	Jun. 26, 2009

3.3 Test Configuration:

PC USB Link Mode

Figure 6. Front View of the Test Configuration

Figure 7. Rear View of the Test Configuration

3.4 Test condition:

EUT tested in accordance with the specifications given by the manufacturer, and exercised in the most unfavorable manner.

3.5 Radiated Emissions Limits:

Frequency range (MHz)	Peak(dBuV)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960	54

3.6 Measurement Data of Radiated Emissions:

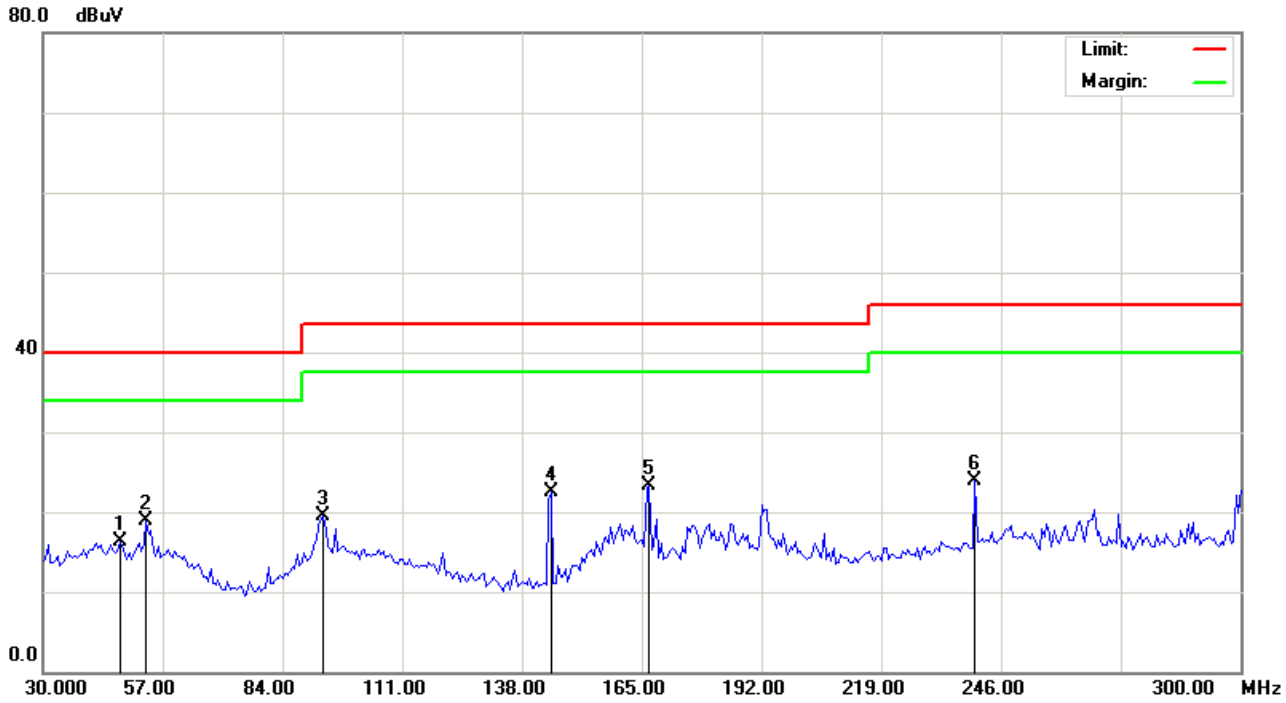
3.6.1 Open Field Radiated Emissions (Subpart B)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following.

Applicant : Toshiba Information Systems (UK) Ltd, Mobile Communications Division
Model No : 830T
EUT : Mobile Phone
Test Mode : PC USB Link_ Stand by
Test Date : 09/17/2008
Please refer to next pager of detail testing data.
Notes:

1. Margin= Amplitude - Limits
2. Distance of Measurement: 3 Meter (30-1000MHz) & (1-10GHz), 1 Meter (10-26.5GHz)
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Amplitude= Reading Amplitude - Amplifier gain + Cable loss + Antenna factor
   (Auto calculate in spectrum analyzer)

File :SB6(IDLE) Data :#1 Date: 2008-9-17 Time: 下午 08:17:41



Site site#1
Limit: FCC Class B 3M Radiation
EUT:
M/N: 08-0221-CSEO
Mode:
Note: 接NB01後面下方USB孔

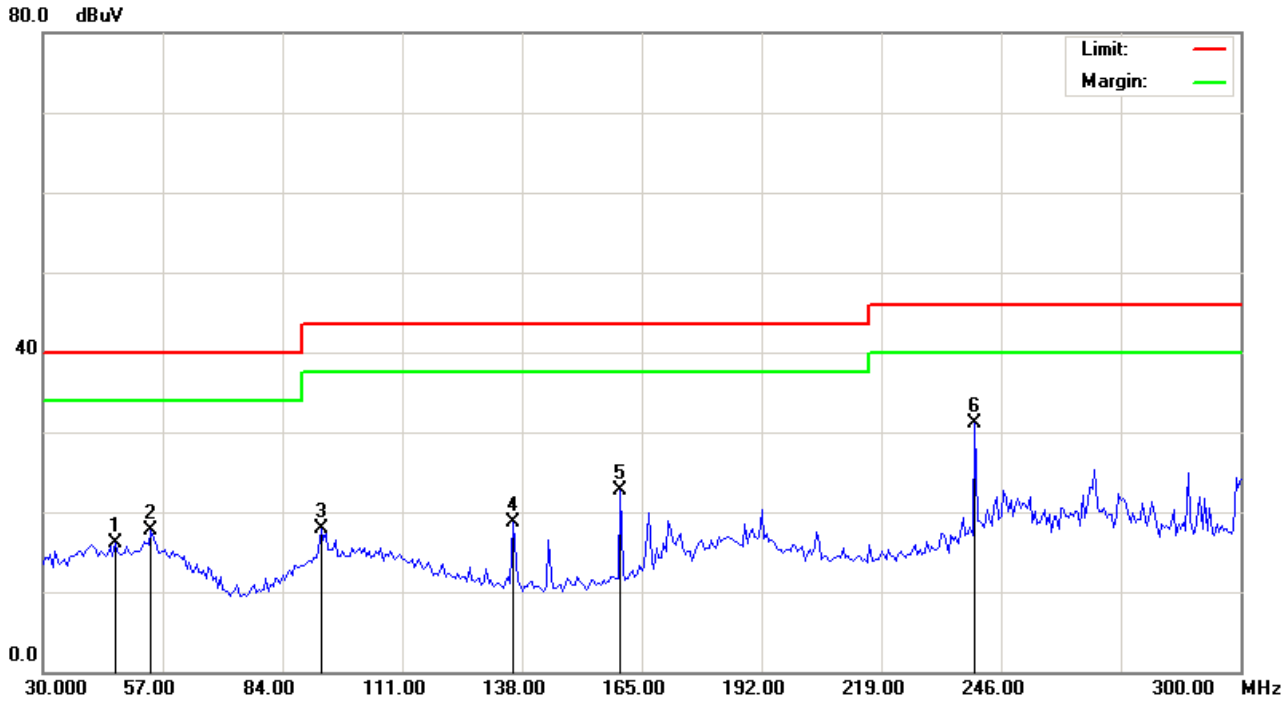
Polarization: ***Vertical***
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		47.2800	28.27	-11.98	16.29	40.00	-23.71	peak			
2		53.2200	31.10	-12.19	18.91	40.00	-21.09	peak			
3		93.1800	32.04	-12.45	19.59	43.50	-23.91	peak			
4		144.4800	38.71	-16.20	22.51	43.50	-20.99	peak			
5	*	166.6200	38.56	-15.34	23.22	43.50	-20.28	peak			
6		240.0600	35.42	-11.43	23.99	46.00	-22.01	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :SB6(IDLE) Data :#3 Date: 2008-9-17 Time: 下午 08:26:22



Site site#1
Limit: FCC Class B 3M Radiation
EUT:
M/N: 08-0221-CSEO
Mode:
Note: 接NB01後面下方USB孔

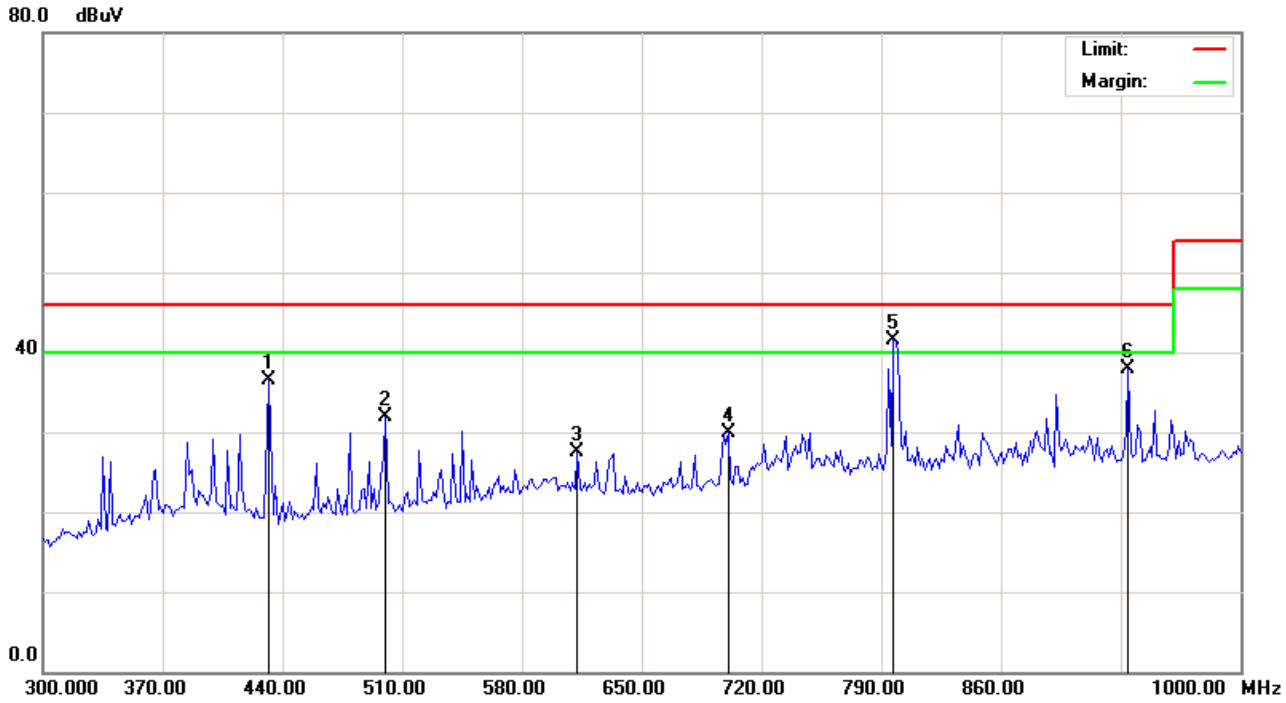
Polarization: ***Horizontal***
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		46.2000	28.03	-11.91	16.12	40.00	-23.88	peak			
2		54.3000	29.93	-12.21	17.72	40.00	-22.28	peak			
3		92.6400	30.38	-12.57	17.81	43.50	-25.69	peak			
4		135.8400	34.81	-16.03	18.78	43.50	-24.72	peak			
5		160.1400	38.17	-15.49	22.68	43.50	-20.82	peak			
6	*	240.0600	42.59	-11.43	31.16	46.00	-14.84	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :SB6(IDLE) Data :#2 Date: 2008-9-17 Time: 下午 08:22:04



Site site#1
Limit: FCC Class B 3M Radiation
EUT:
M/N: 08-0221-CSEO
Mode:
Note: 接NB01後面下方USB孔

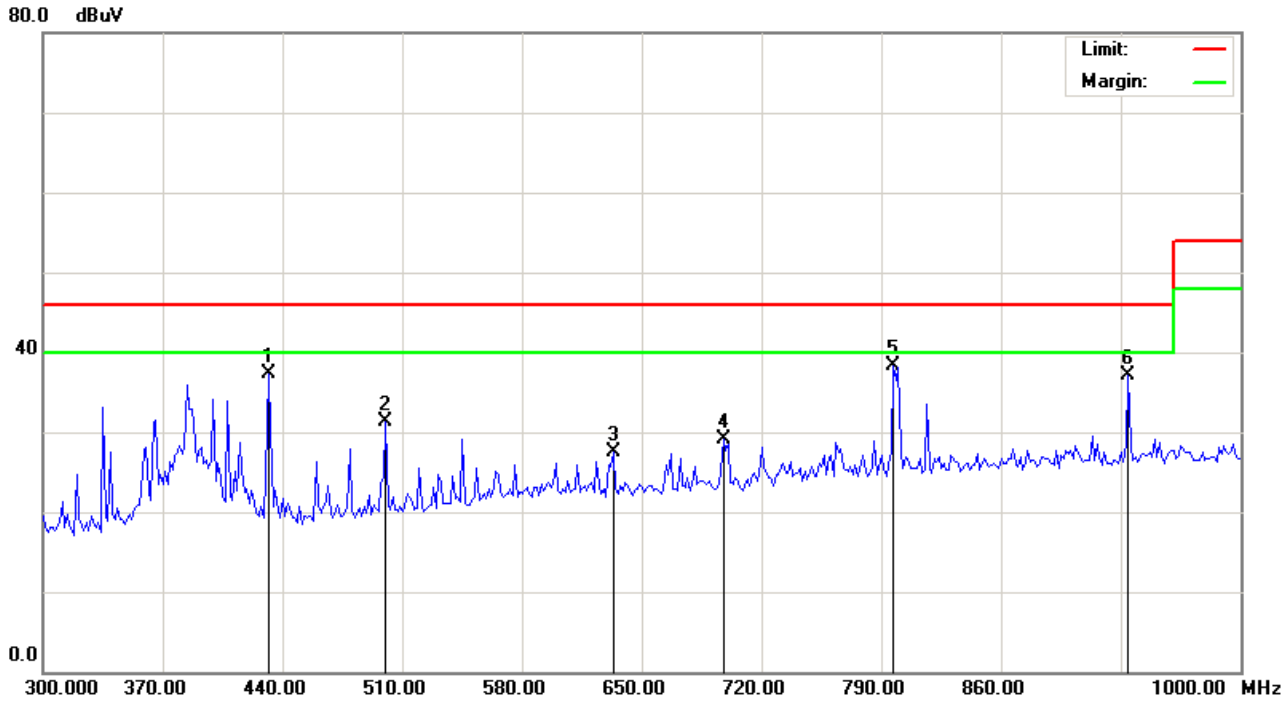
Polarization: ***Vertical***
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		431.6000	44.56	-8.03	36.53	46.00	-9.47	peak			
2		500.2000	39.02	-7.17	31.85	46.00	-14.15	peak			
3		612.2000	31.95	-4.52	27.43	46.00	-18.57	peak			
4		700.4000	33.85	-3.88	29.97	46.00	-16.03	peak			
5	*	797.0000	43.92	-2.34	41.58	46.00	-4.42	peak			
6		934.2000	37.91	-0.06	37.85	46.00	-8.15	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :SB6(IDLE) Data :#4 Date: 2008-9-17 Time: 下午 08:30:39



Site site#1
Limit: FCC Class B 3M Radiation
EUT:
M/N: 08-0221-CSEO
Mode:
Note: 接NB01後面下方USB孔

Polarization: ***Horizontal***
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		431.6000	45.32	-8.03	37.29	46.00	-8.71	peak			
2		500.2000	38.52	-7.17	31.35	46.00	-14.65	peak			
3		633.2000	31.81	-4.36	27.45	46.00	-18.55	peak			
4		697.6000	33.01	-3.86	29.15	46.00	-16.85	peak			
5	*	797.0000	40.67	-2.34	38.33	46.00	-7.67	peak			
6		934.2000	37.18	-0.06	37.12	46.00	-8.88	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

3.6.2 Open Field Radiated Emissions (Subpart B)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following.

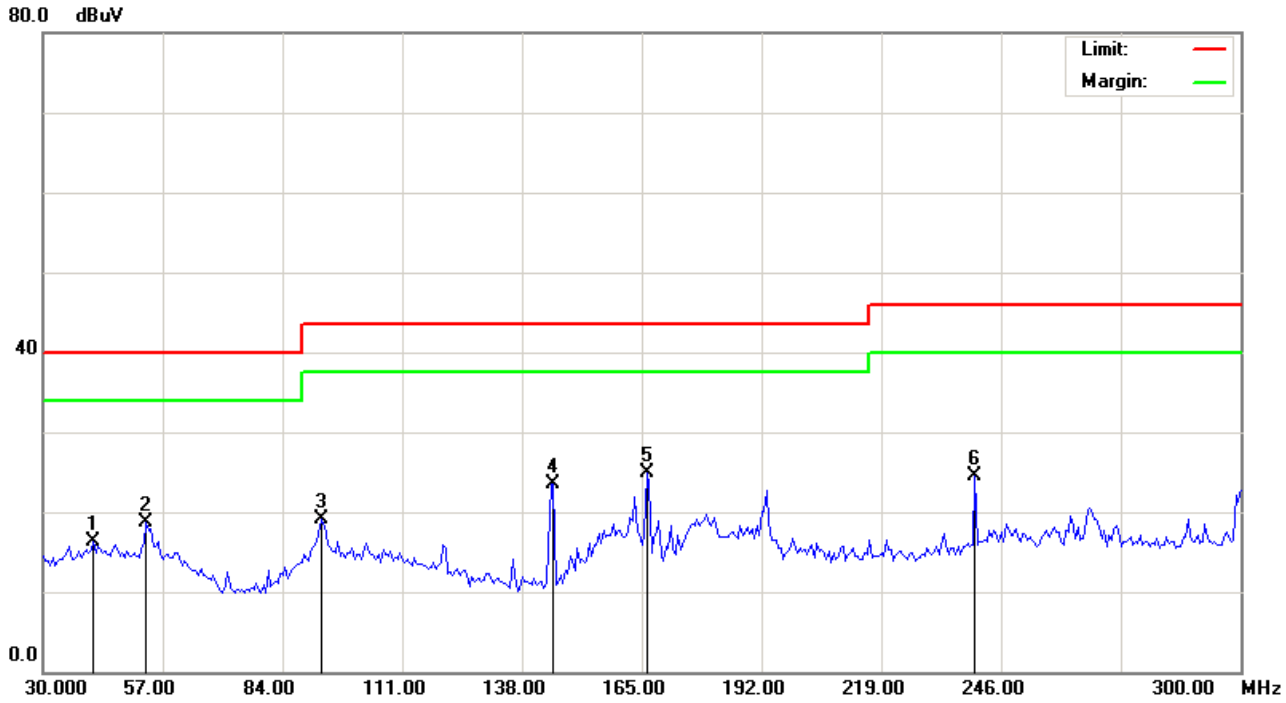
Applicant	: Toshiba Information Systems (UK) Ltd, Mobile Communications Division
Model No	: 830T
EUT	: Mobile Phone
Test Mode	: PC USB Link _ Bluetooth 2.0 Link Mode
Test Date	: 09/17/2008

Please refer to next pager of detail testing data.

Notes:

1. Margin= Amplitude - Limits
2. Distance of Measurement: 3 Meter (30-1000MHz) & (1-10GHz), 1 Meter (10-26.5GHz)
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Amplitude= Reading Amplitude - Amplifier gain + Cable loss + Antenna factor
   (Auto calculate in spectrum analyzer)

File :SB6(接NB) Data :#1 Date: 2008-9-17 Time: 下午 07:58:09



Site site#1
Limit: FCC Class B 3M Radiation
EUT:
M/N: 08-0221-CSEO
Mode: BT
Note: 接NB01後面下方USB孔，LINK CH00

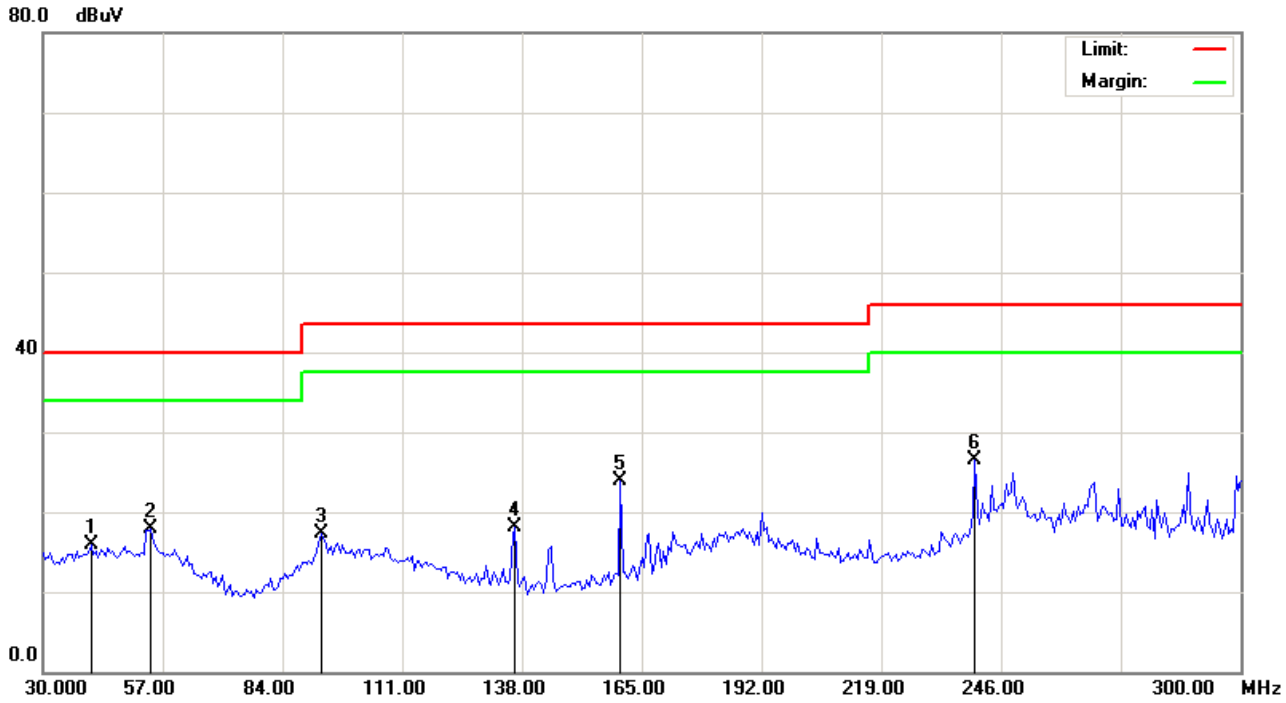
Polarization: ***Vertical***
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		41.3400	28.17	-11.88	16.29	40.00	-23.71	peak			
2		53.2200	30.93	-12.19	18.74	40.00	-21.26	peak			
3		92.6400	31.66	-12.57	19.09	43.50	-24.41	peak			
4		145.0200	39.68	-16.19	23.49	43.50	-20.01	peak			
5	*	166.0800	40.20	-15.33	24.87	43.50	-18.63	peak			
6		240.0600	35.99	-11.43	24.56	46.00	-21.44	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :SB6(接NB) Data :#3 Date: 2008-9-17 Time: 下午 08:06:40



Site site#1
Limit: FCC Class B 3M Radiation
EUT:
M/N: 08-0221-CSEO
Mode: BT
Note: 接NB01後面下方USB孔，LINK CH00

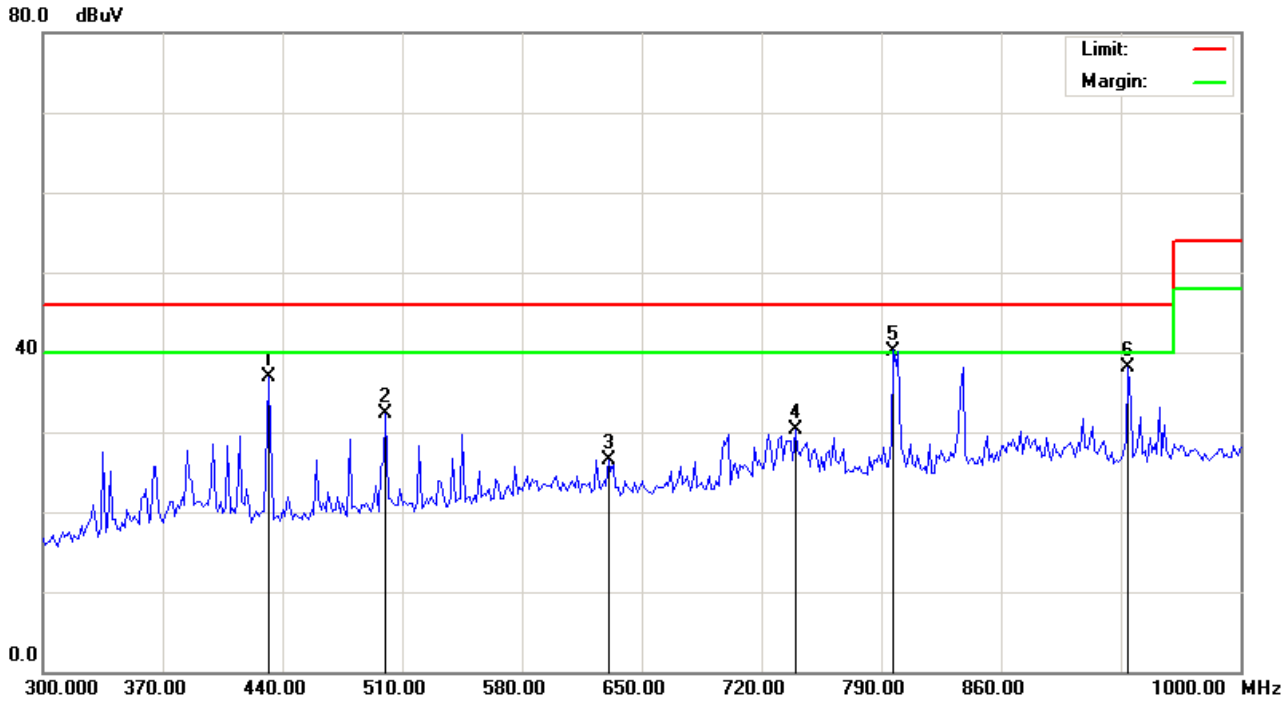
Polarization: ***Horizontal***
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		40.8000	27.78	-11.88	15.90	40.00	-24.10	peak			
2		54.3000	30.12	-12.21	17.91	40.00	-22.09	peak			
3		92.6400	29.84	-12.57	17.27	43.50	-26.23	peak			
4		136.3800	34.16	-16.07	18.09	43.50	-25.41	peak			
5		160.1400	39.31	-15.49	23.82	43.50	-19.68	peak			
6	*	240.0600	37.84	-11.43	26.41	46.00	-19.59	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :SB6(接NB) Data :#2 Date: 2008-9-17 Time: 下午 08:02:24



Site site#1
Limit: FCC Class B 3M Radiation
EUT:
M/N: 08-0221-CSEO
Mode: BT
Note: 接NB01後面下方USB孔，LINK CH00

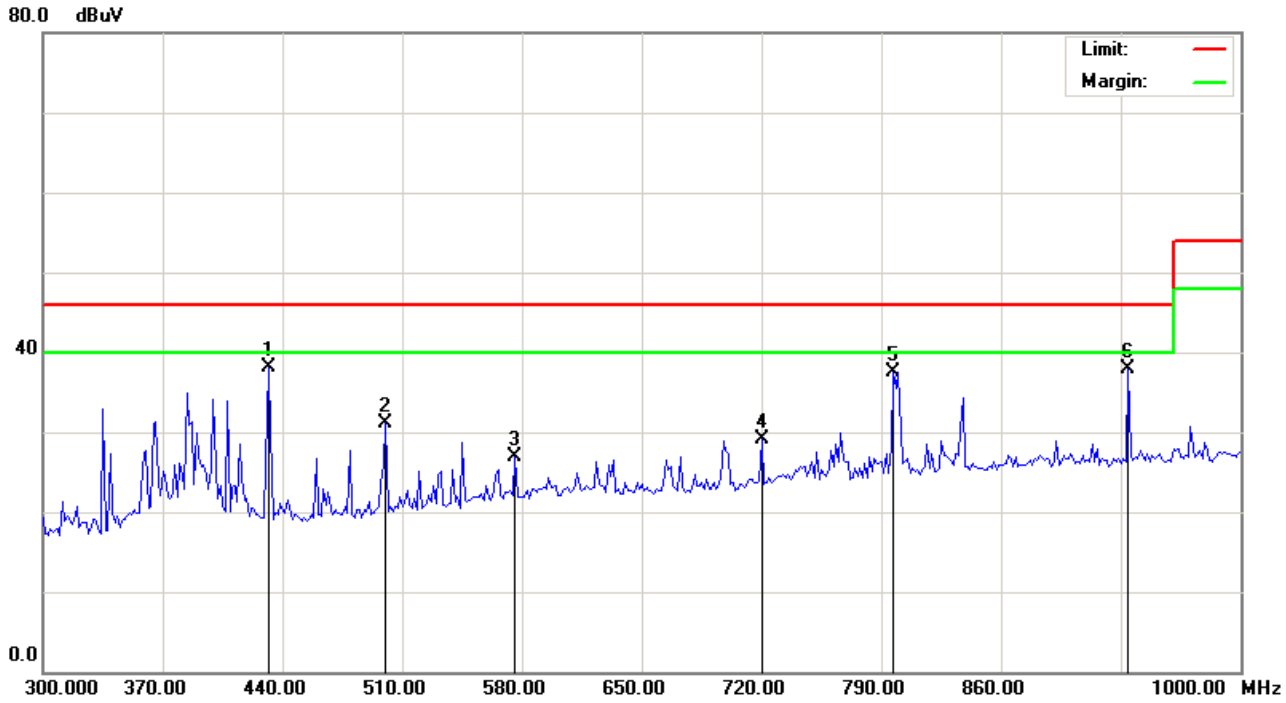
Polarization: ***Vertical***
Power:
Distance: 3m

Temperature: 22 ℃
Humidity: 60 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		431.6000	45.02	-8.03	36.99	46.00	-9.01	peak			
2		500.2000	39.45	-7.17	32.28	46.00	-13.72	peak			
3		630.4000	30.81	-4.36	26.45	46.00	-19.55	peak			
4		739.6000	33.55	-3.29	30.26	46.00	-15.74	peak			
5	*	797.0000	42.54	-2.34	40.20	46.00	-5.80	peak			
6		934.2000	38.23	-0.06	38.17	46.00	-7.83	peak			

*:Maximum data x:Over limit !:over margin ●Reference Only

File :SB6(接NB) Data :#4 Date: 2008-9-17 Time: 下午 08:10:56



Site site#1
Limit: FCC Class B 3M Radiation
EUT:
M/N: 08-0221-CSEO
Mode: BT
Note: 接NB01後面下方USB孔，LINK CH00

Polarization: ***Horizontal***
Power:
Distance: 3m

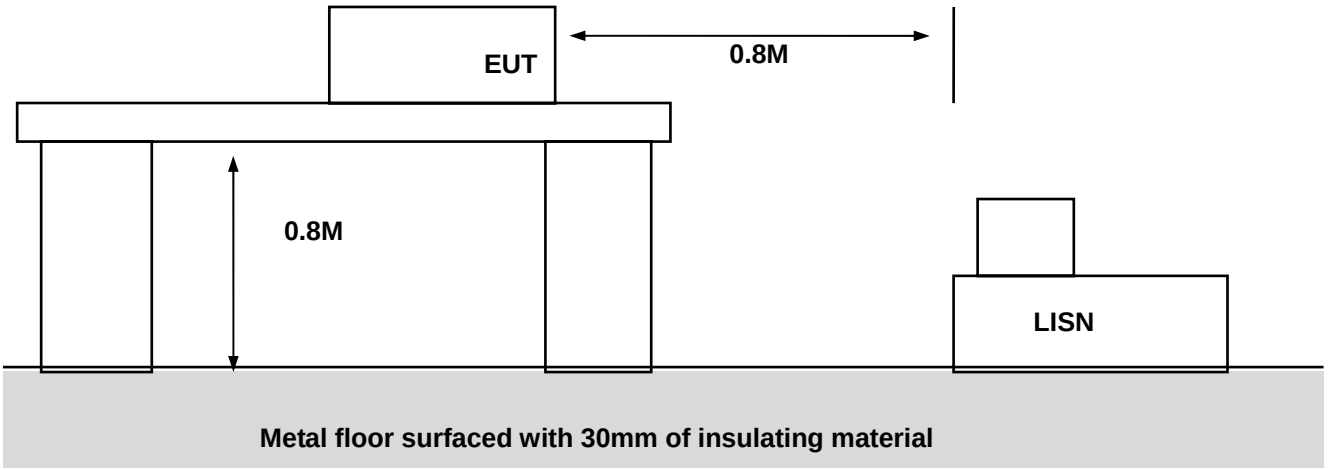
Temperature: 22 ℃
Humidity: 60 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1	*	431.6000	46.07	-8.03	38.04	46.00	-7.96	peak			
2		500.2000	38.28	-7.17	31.11	46.00	-14.89	peak			
3		575.8000	32.19	-5.34	26.85	46.00	-19.15	peak			
4		720.0000	32.68	-3.55	29.13	46.00	-16.87	peak			
5		797.0000	39.90	-2.34	37.56	46.00	-8.44	peak			
6		934.2000	37.88	-0.06	37.82	46.00	-8.18	peak			

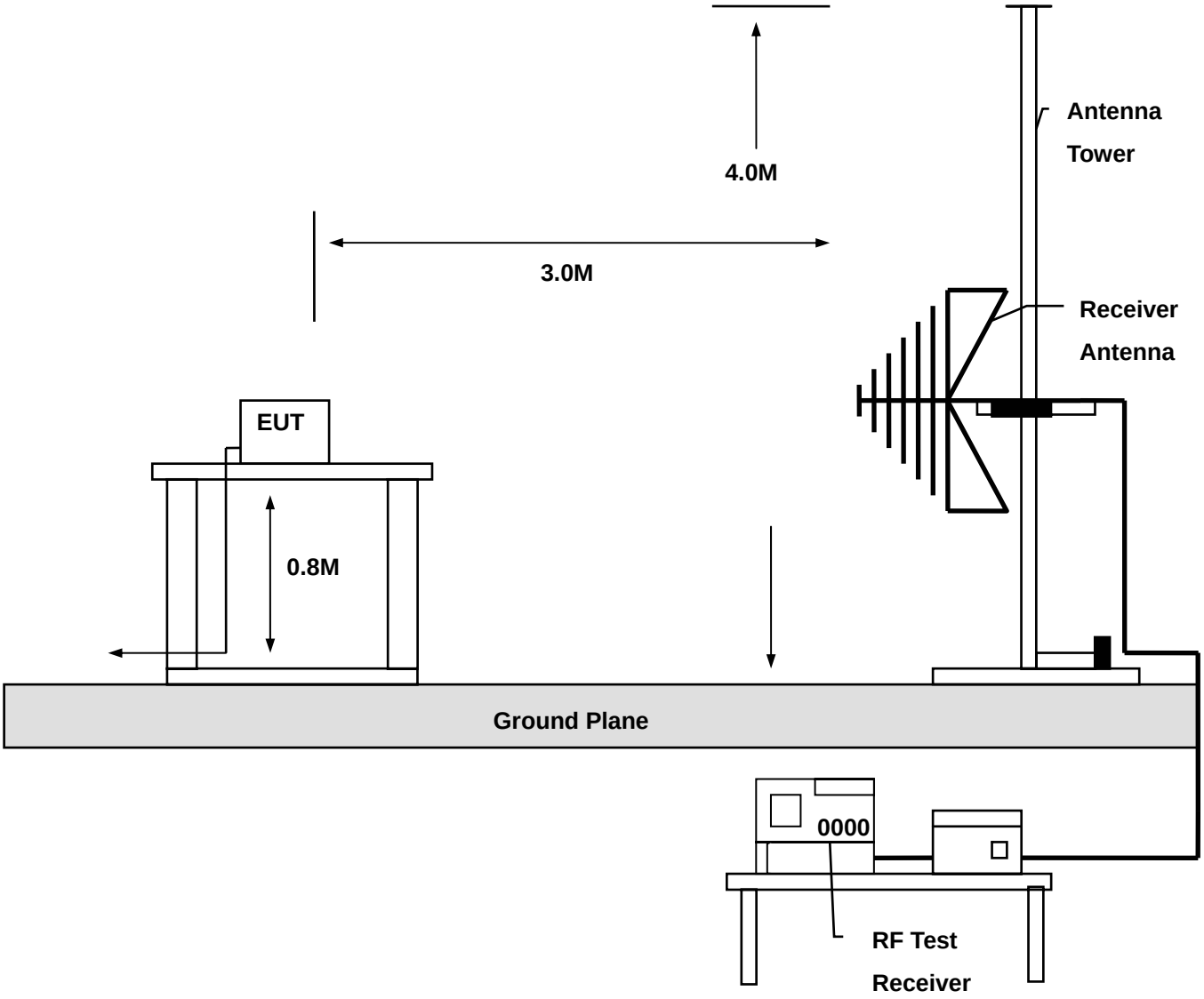
*:Maximum data x:Over limit !:over margin ●Reference Only

Appendix A - EUT Test SETUP

MEASUREMENT OF POWER LINE CONDUCTED RFI VOLTAGE



MEASUREMENT OF RADIATED EMISSION

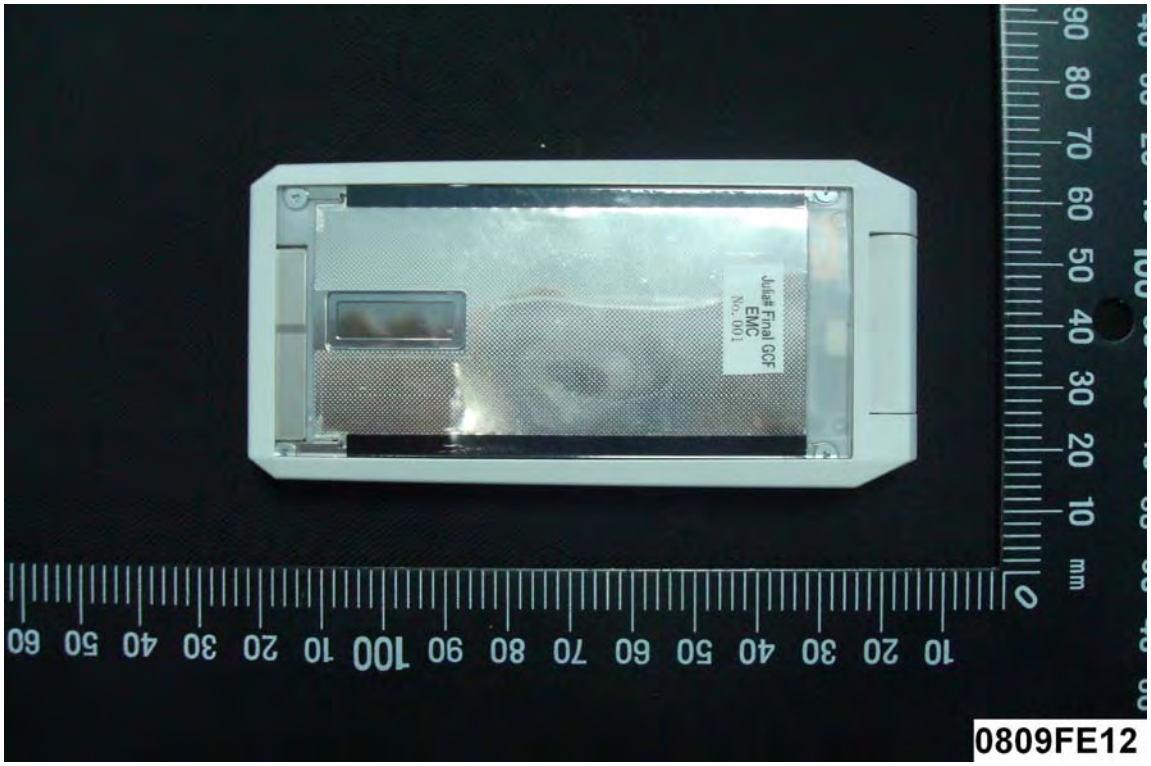


Appendix B - Block Diagram

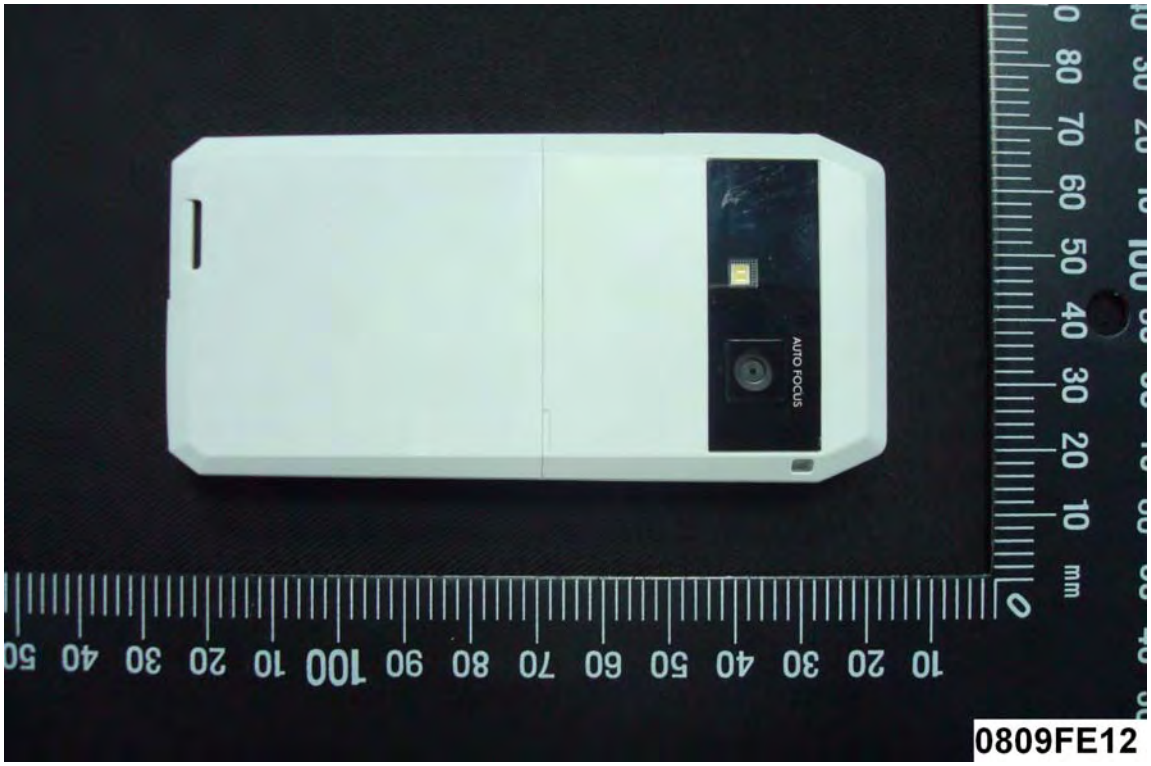
See Next Page

Appendix C - EUT Photographs

EUT Photo _ 1 of 36

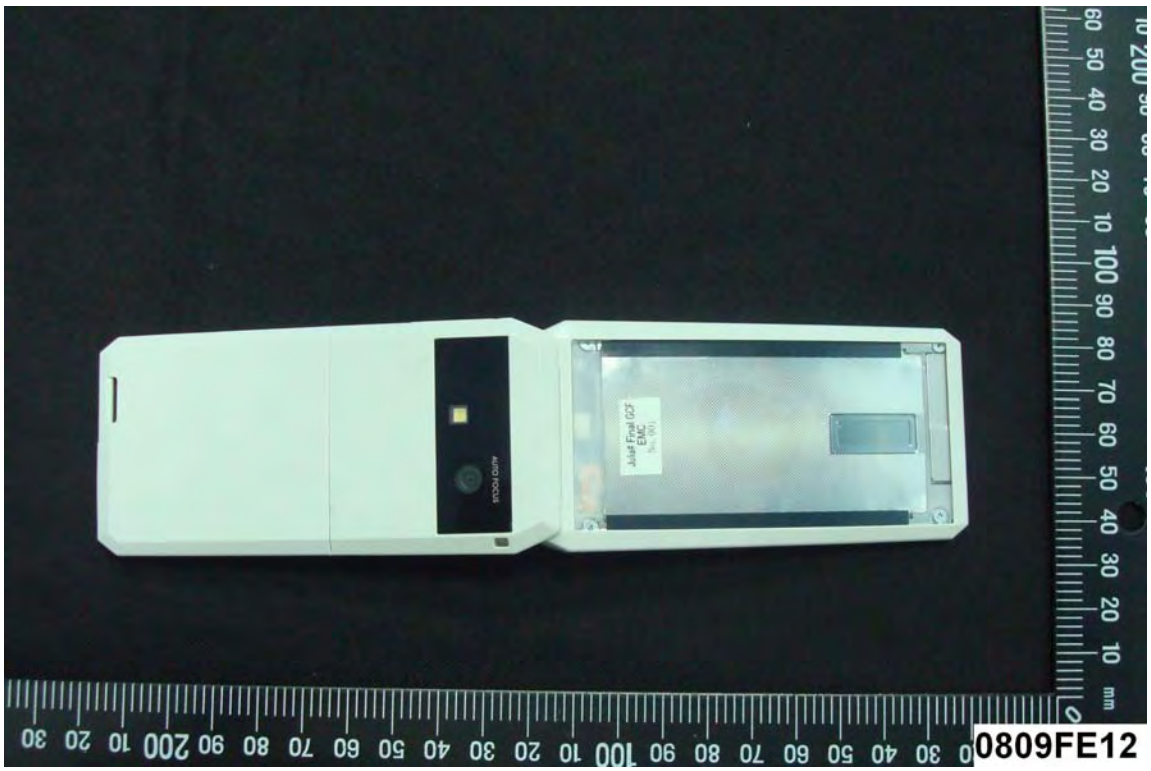


EUT Photo _ 2 of 36

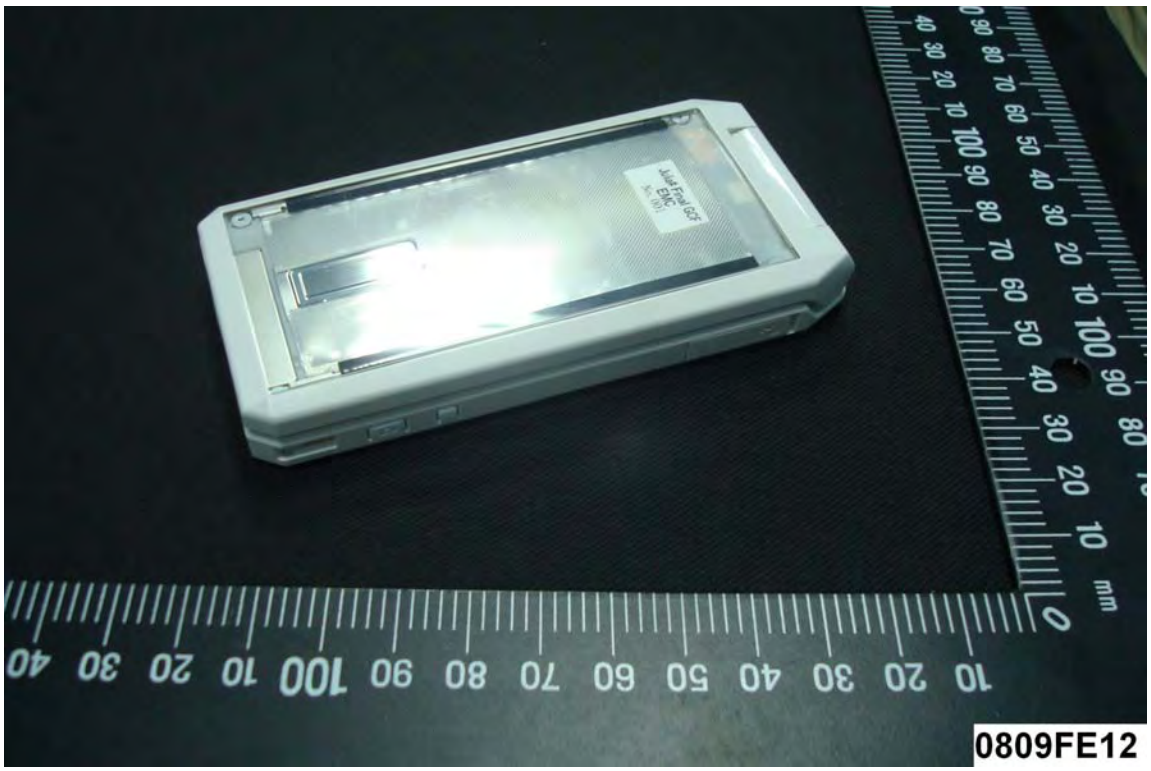


EUT Photo _ 3 of 36

EUT Photo _ 4 of 36

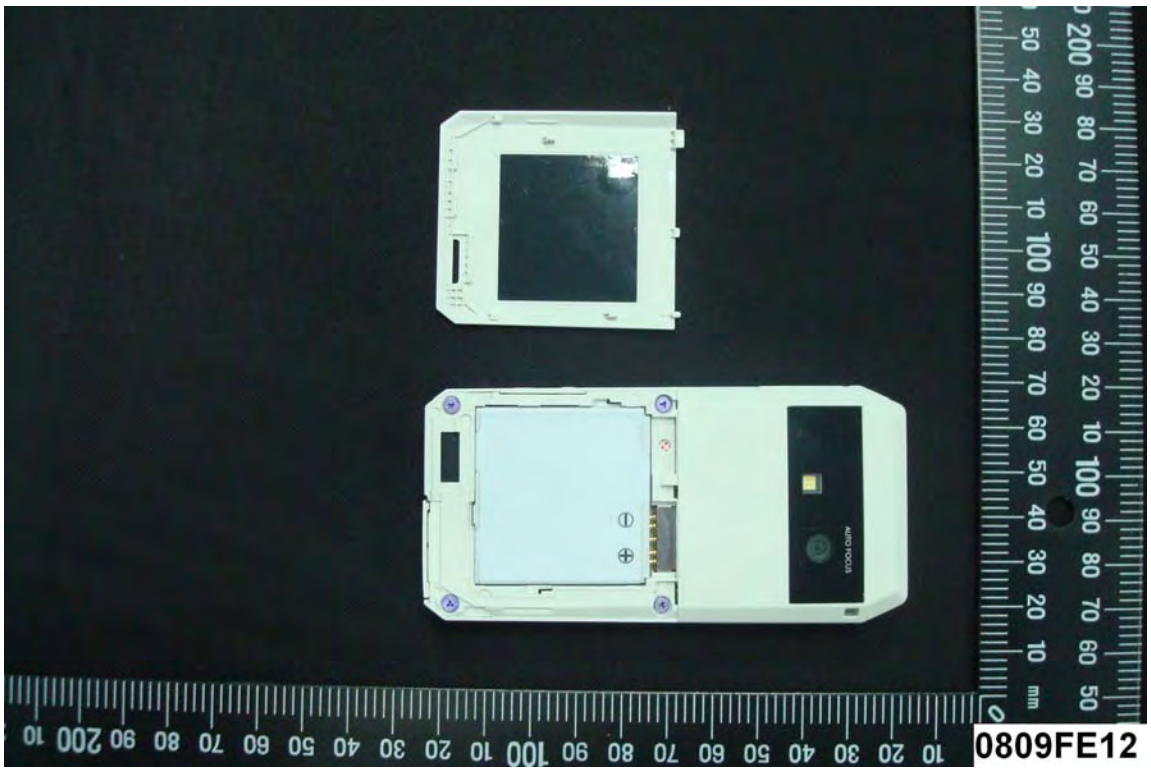


EUT Photo _ 5 of 36

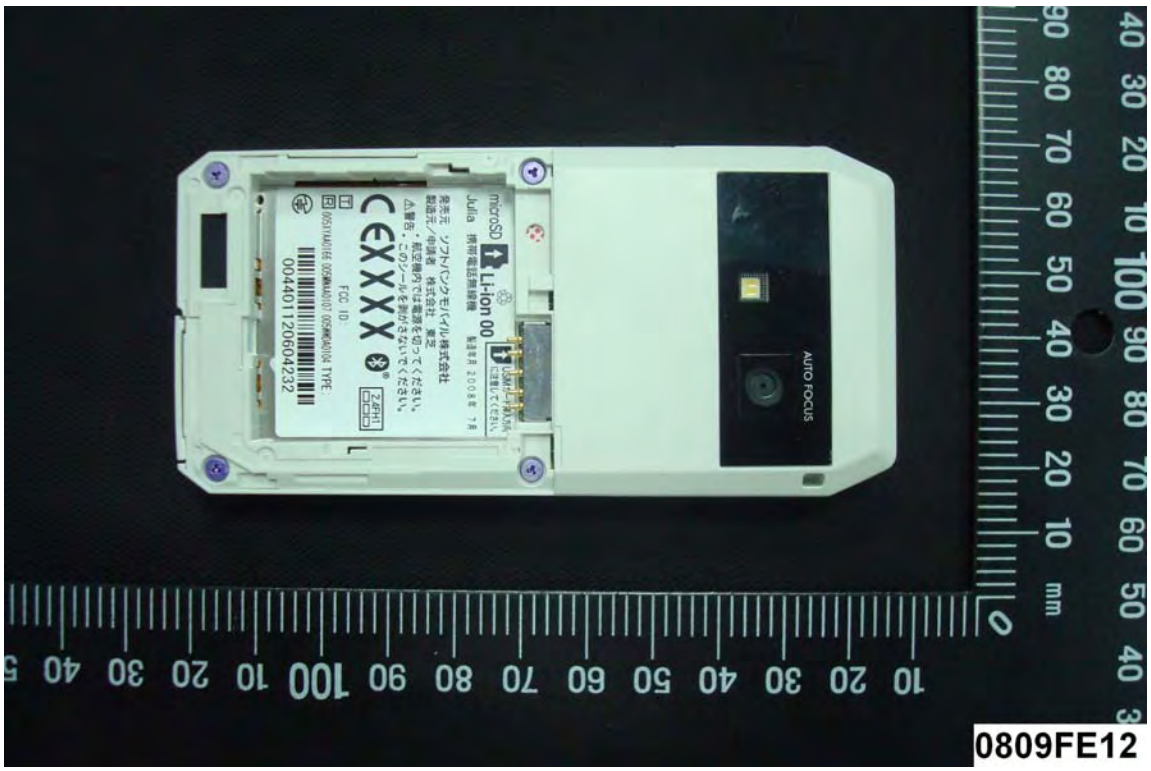


EUT Photo _ 6 of 36

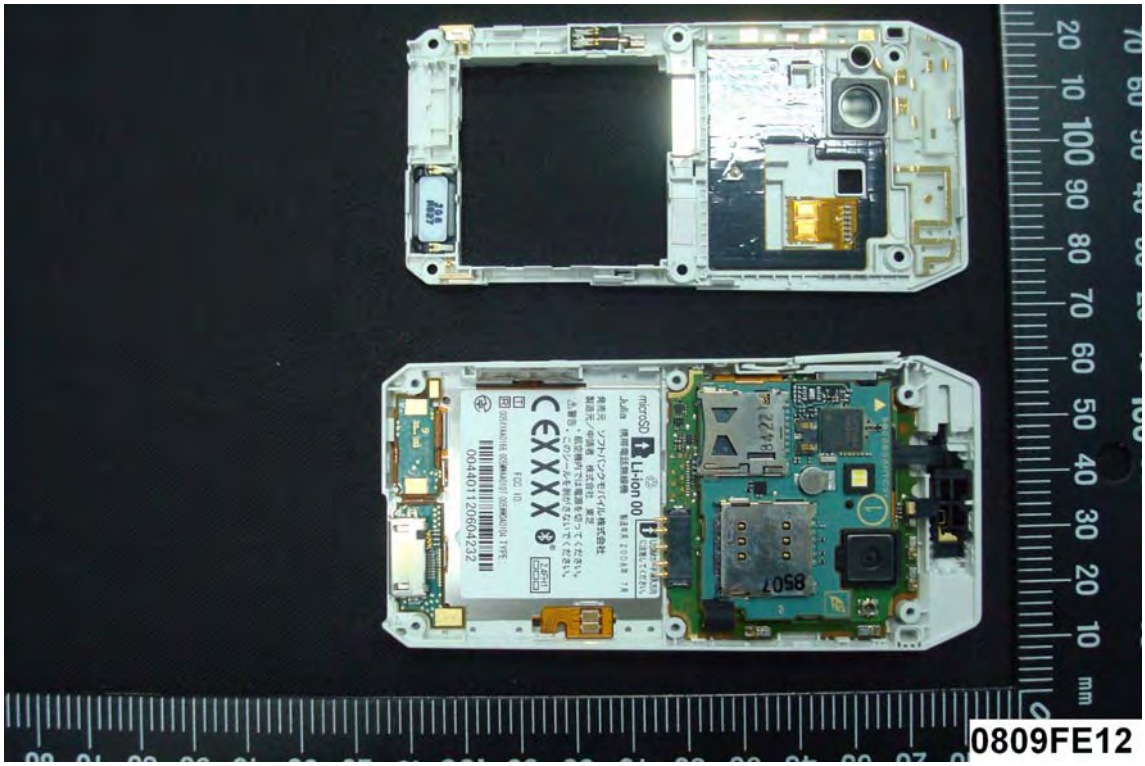
EUT Photo _ 7 of 36



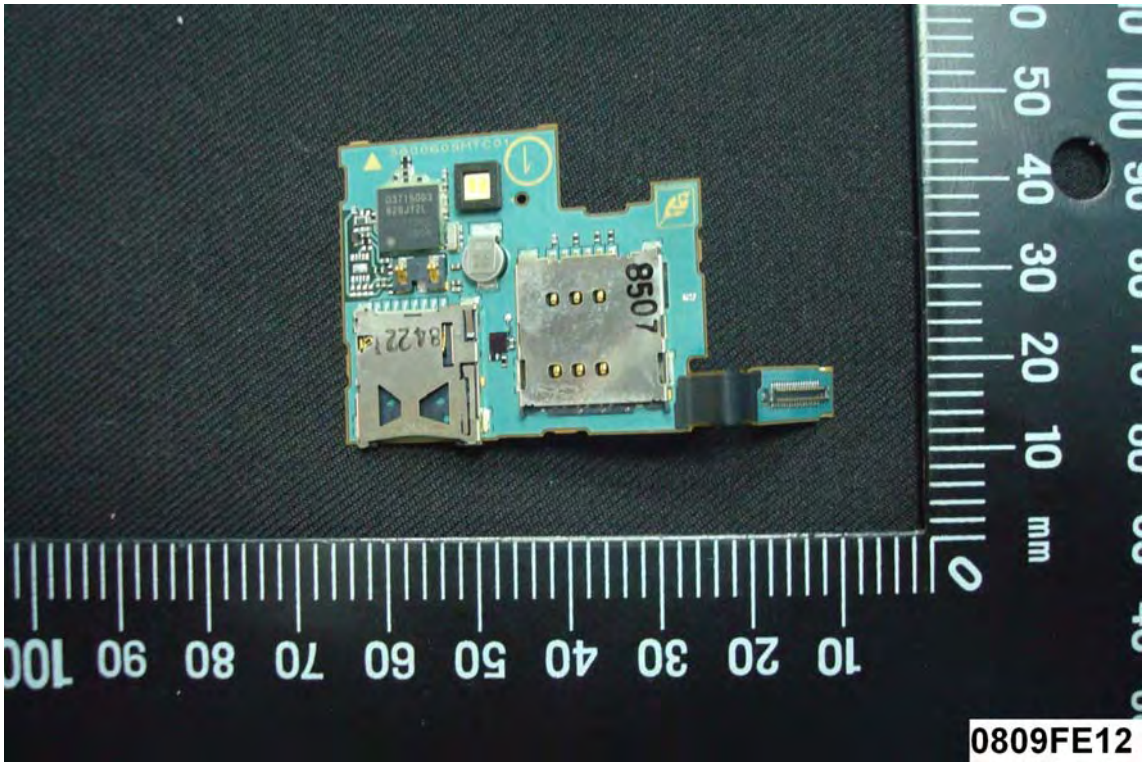
EUT Photo _ 8 of 36



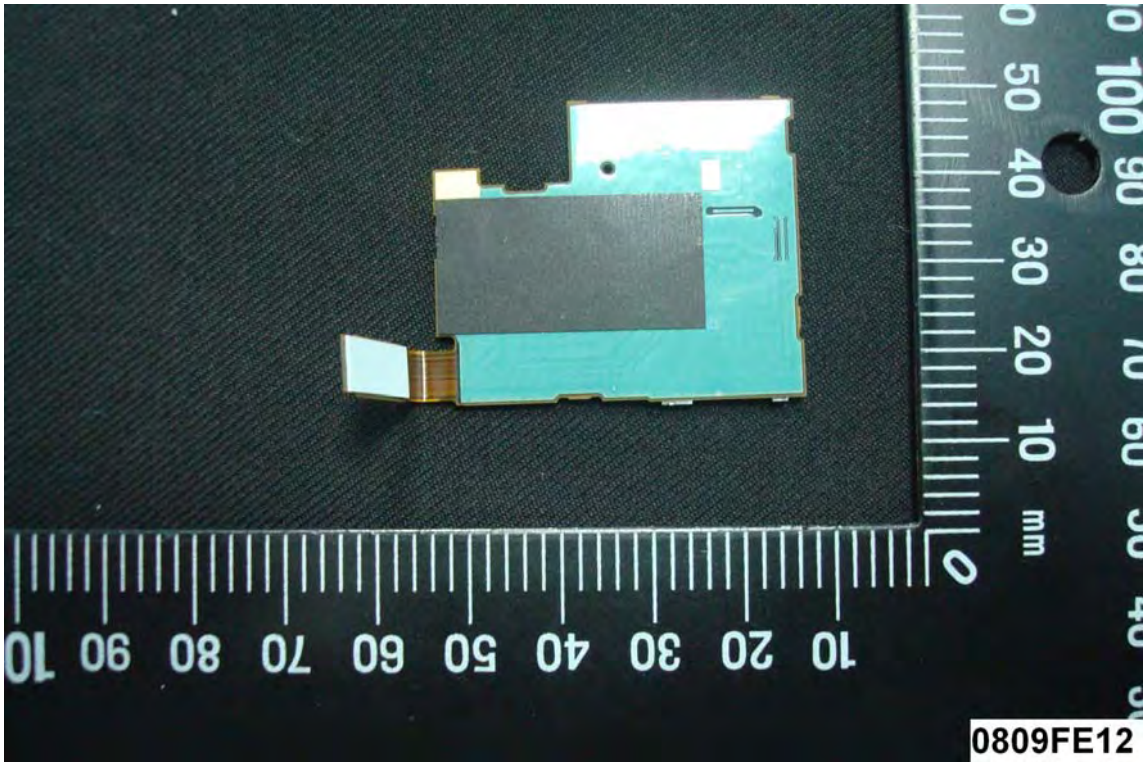
EUT Photo _ 9 of 36



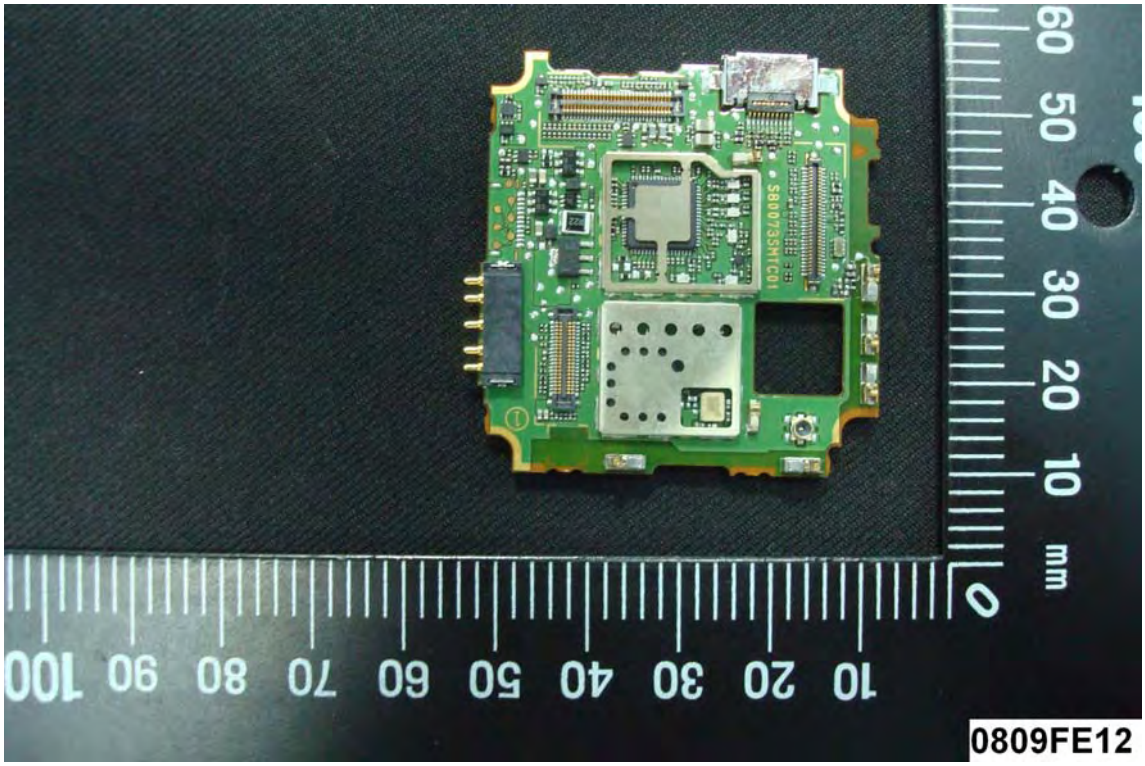
EUT Photo _ 10 of 36



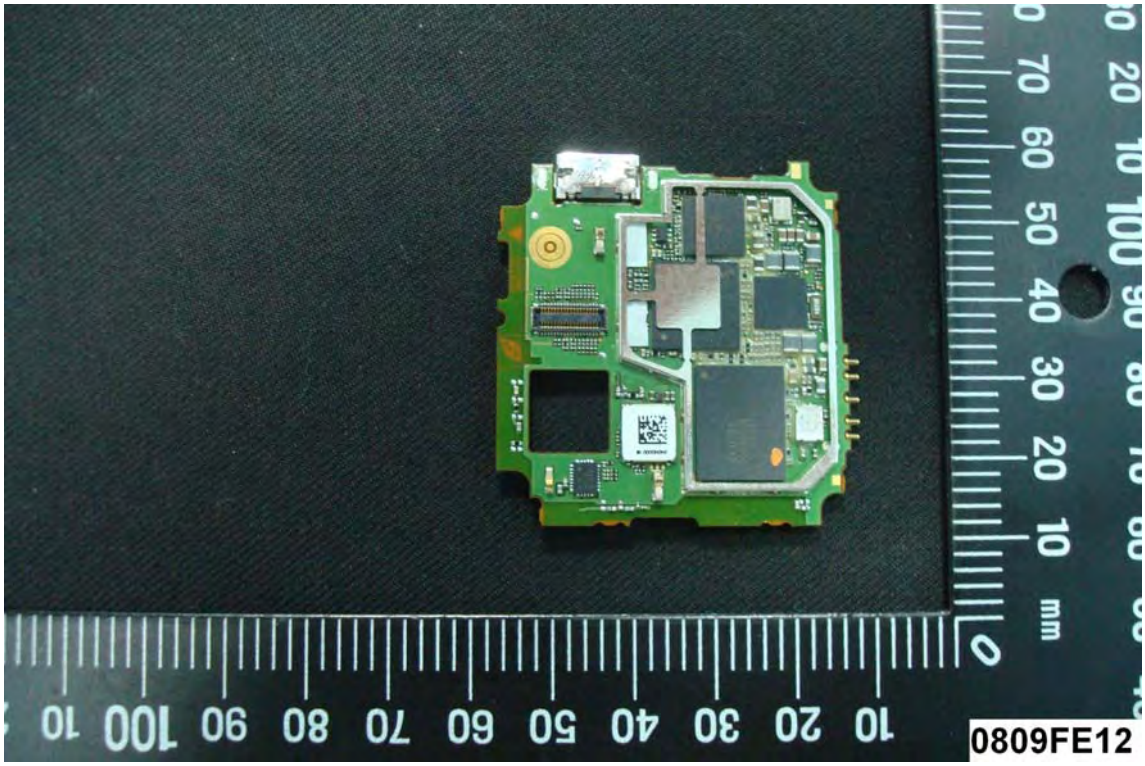
EUT Photo _ 11 of 36



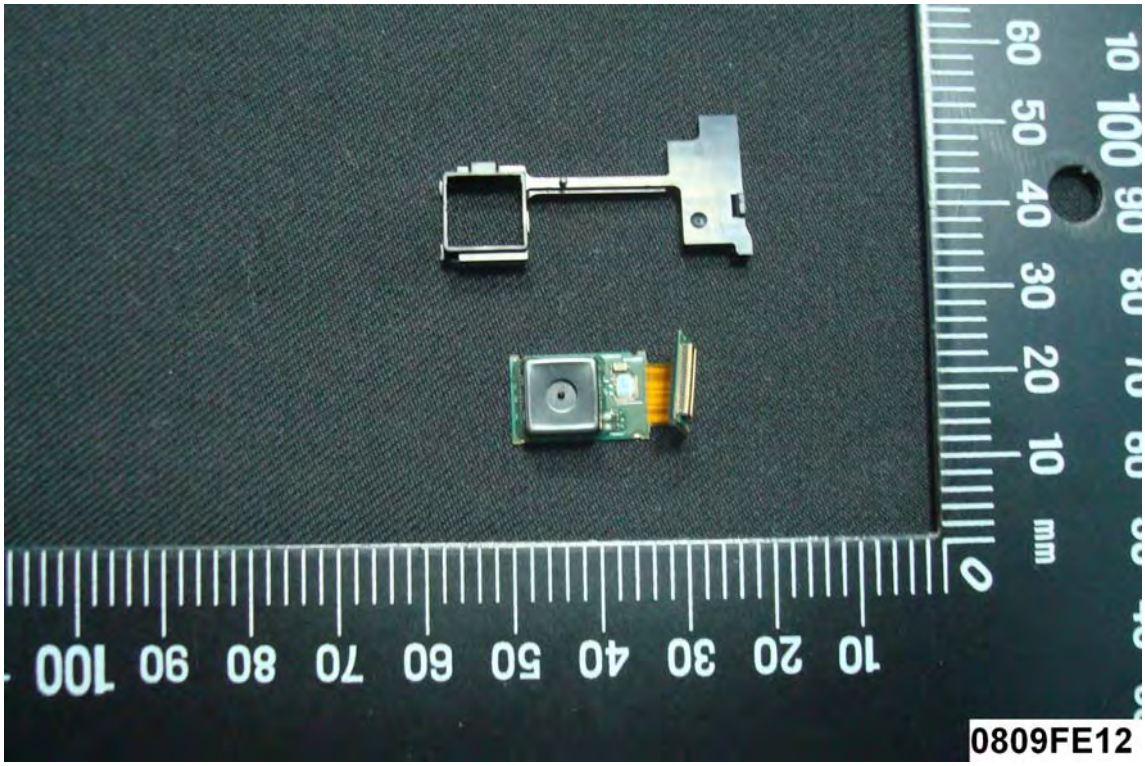
EUT Photo _ 12 of 36



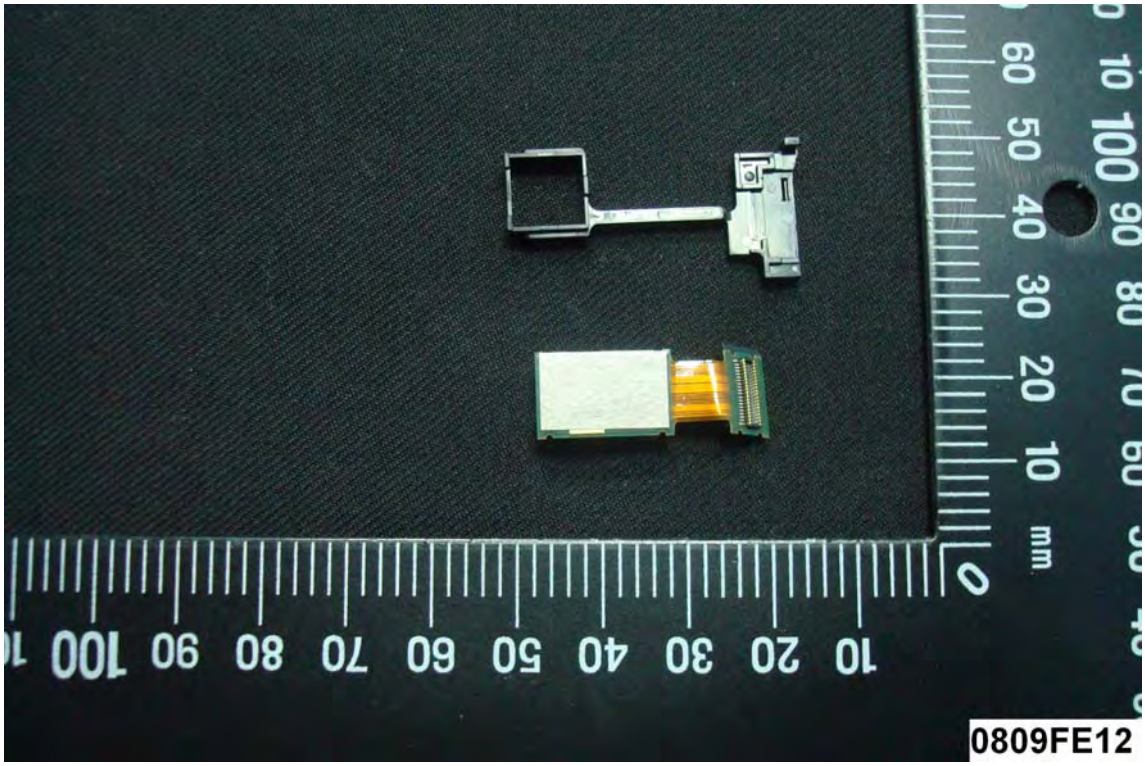
EUT Photo _ 13 of 36



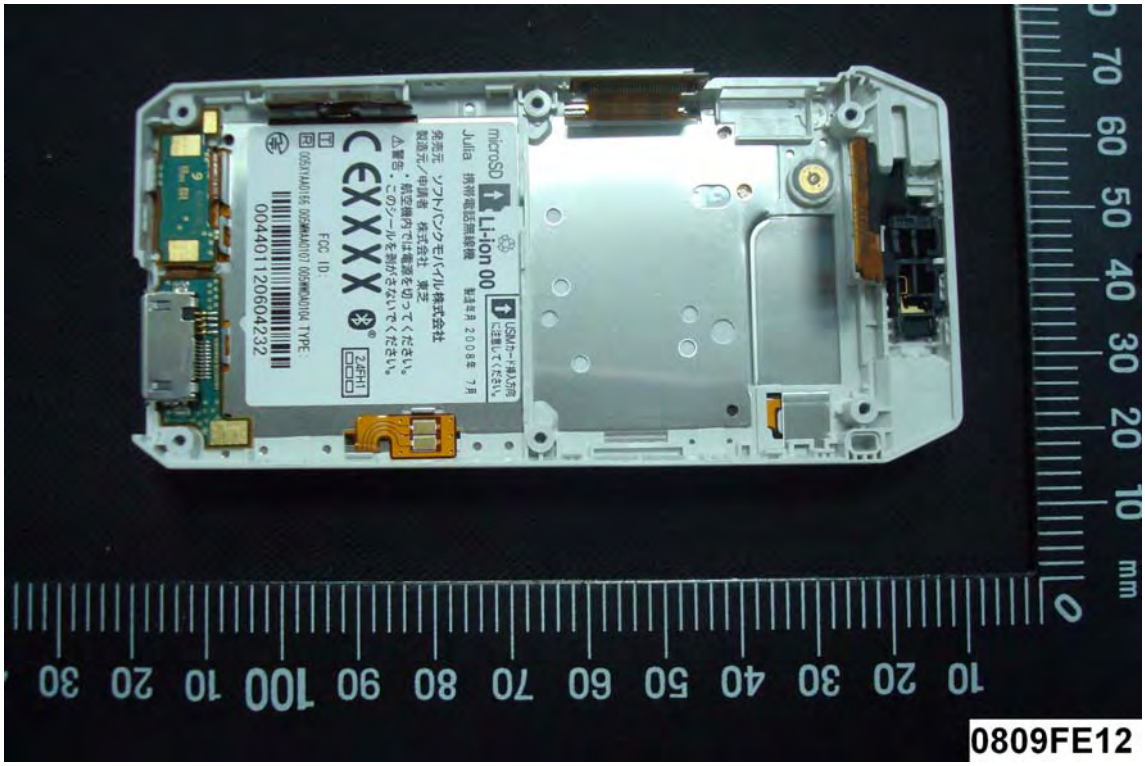
EUT Photo _ 14 of 36



EUT Photo _ 15 of 36



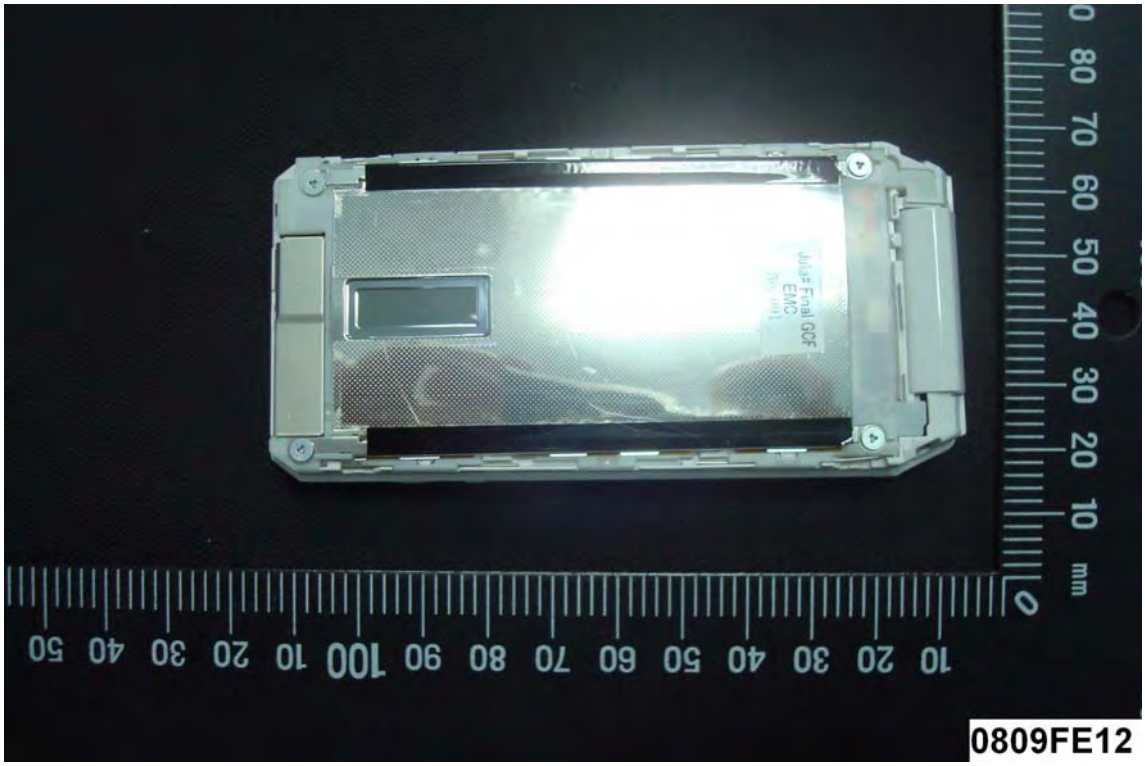
EUT Photo _ 16 of 36



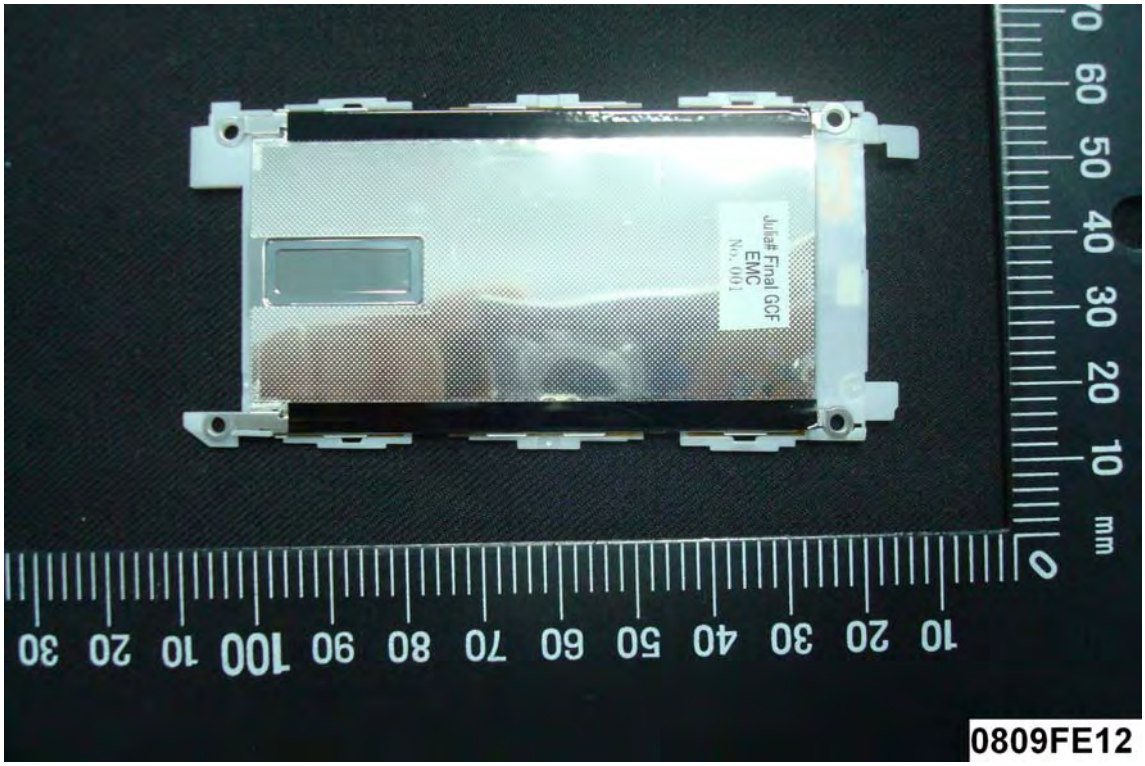
EUT Photo _ 17 of 36

EUT Photo _ 18 of 36

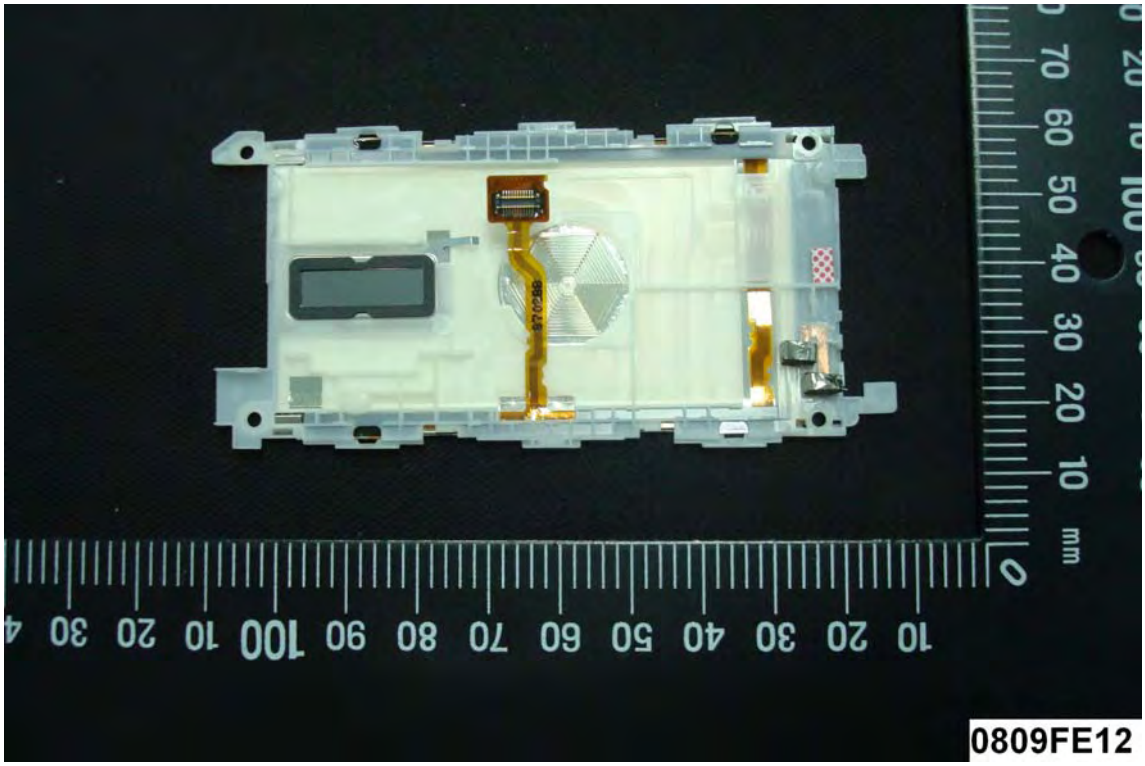
EUT Photo _ 19 of 36



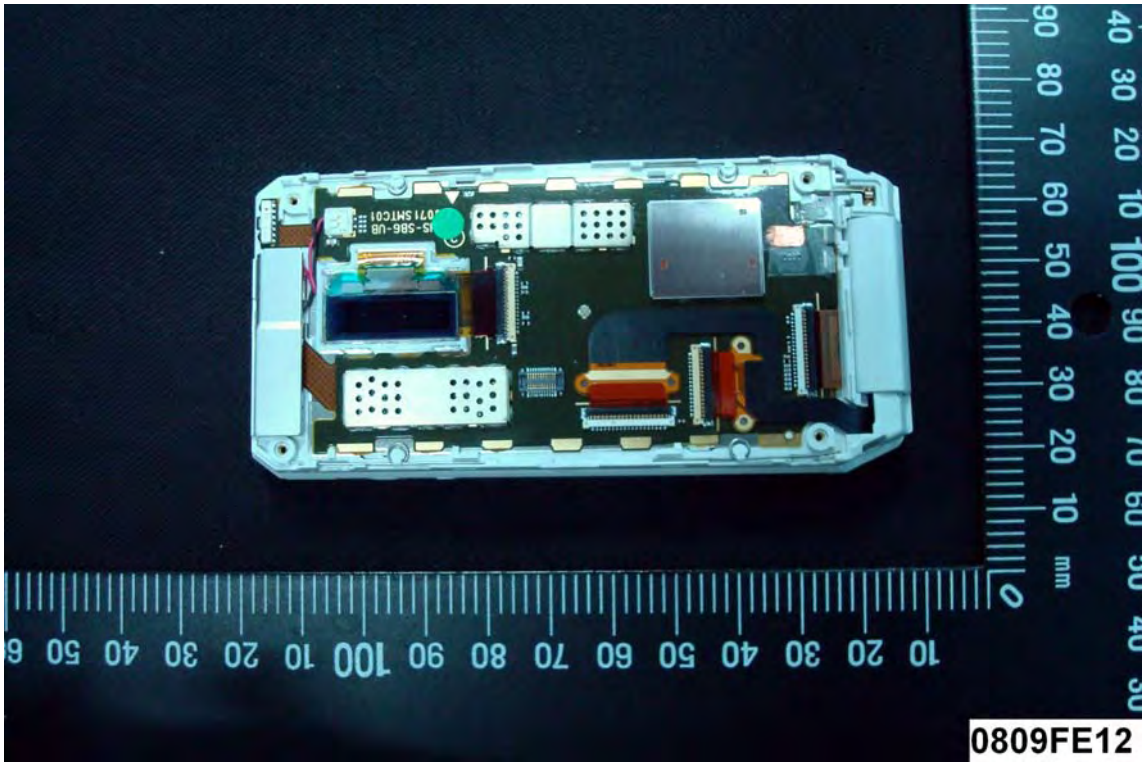
EUT Photo _ 20 of 36



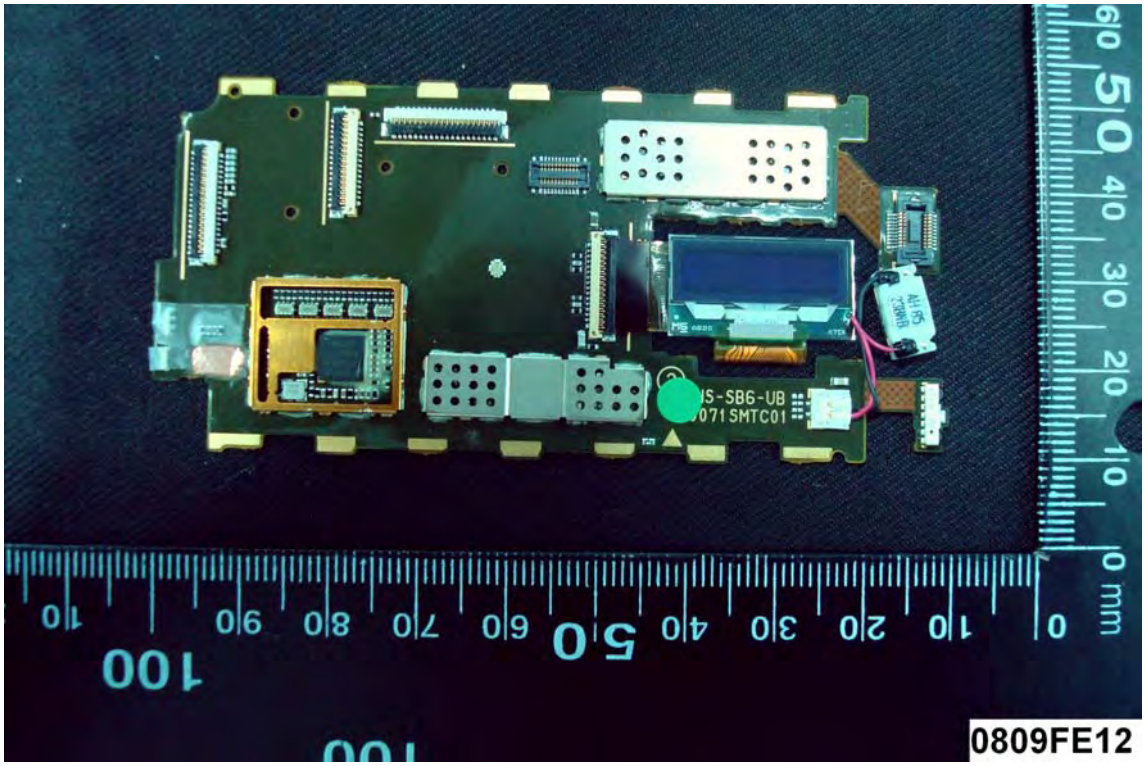
EUT Photo _ 21 of 36



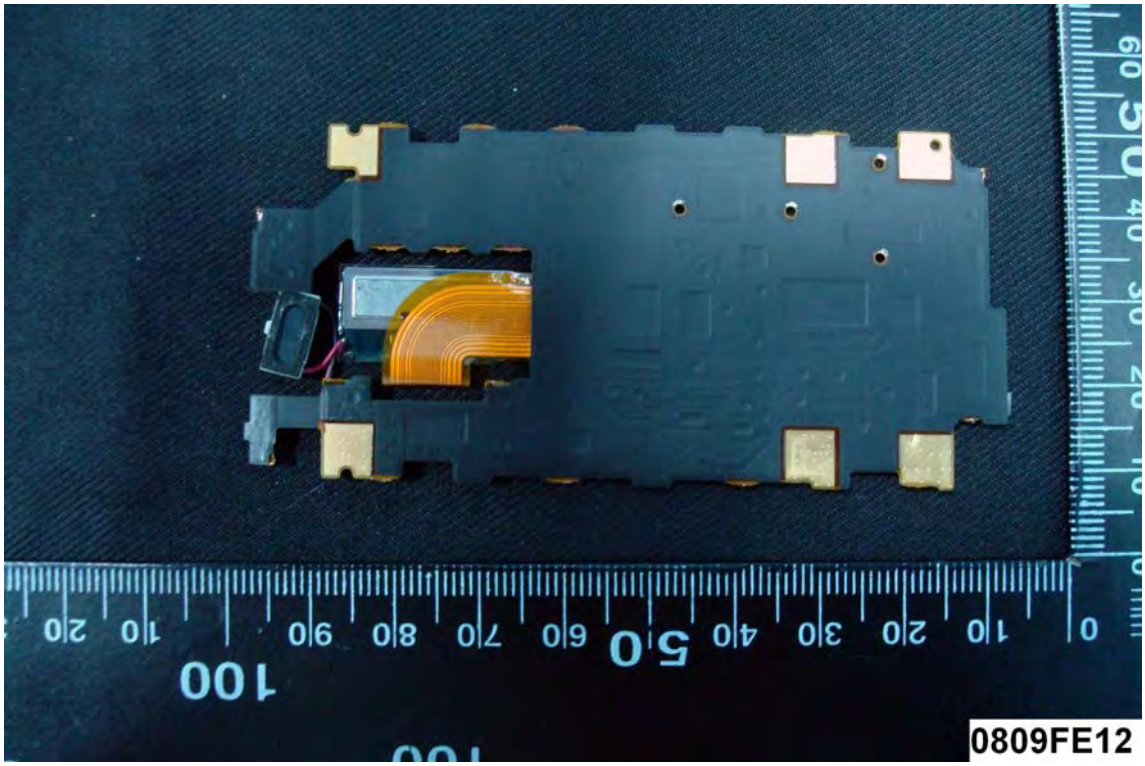
EUT Photo _ 22 of 36



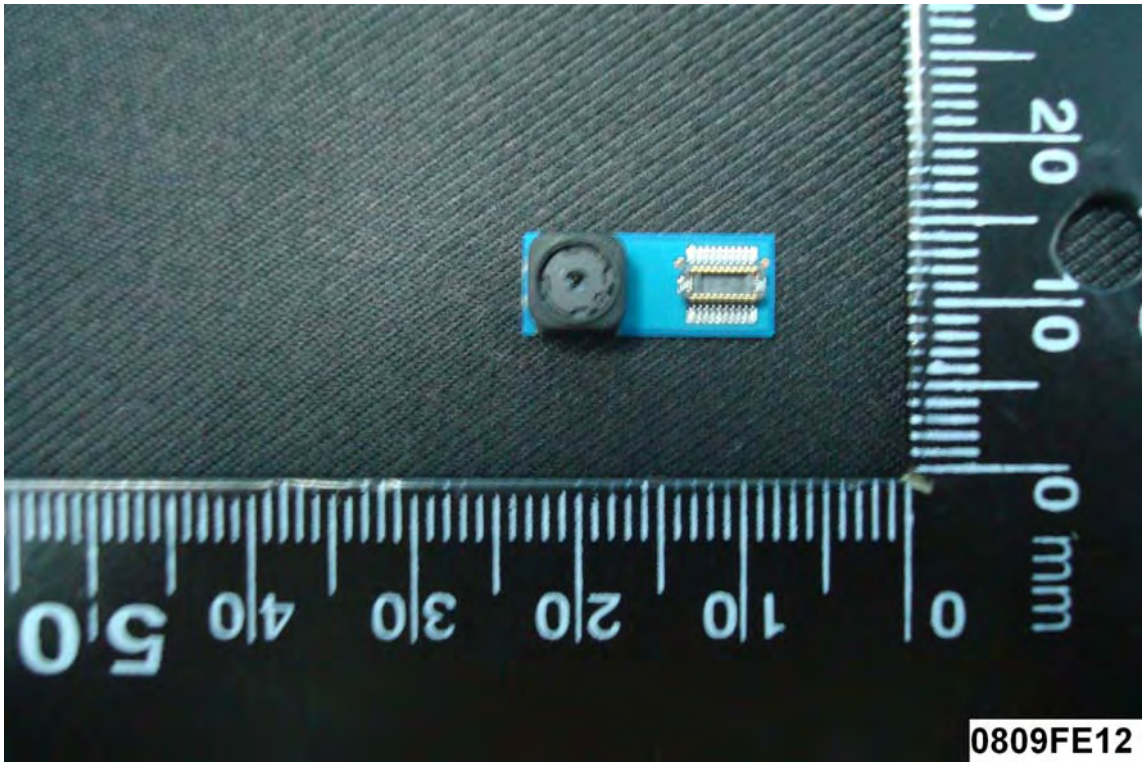
EUT Photo _ 23 of 36



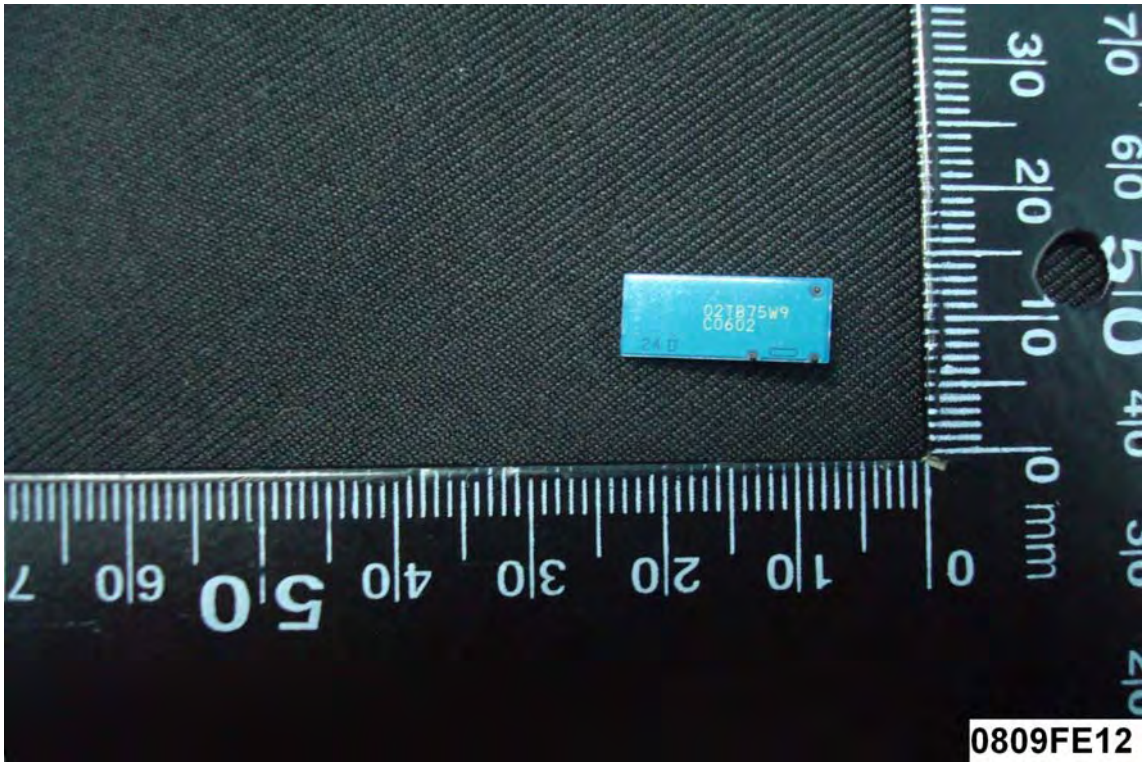
EUT Photo _ 24 of 36



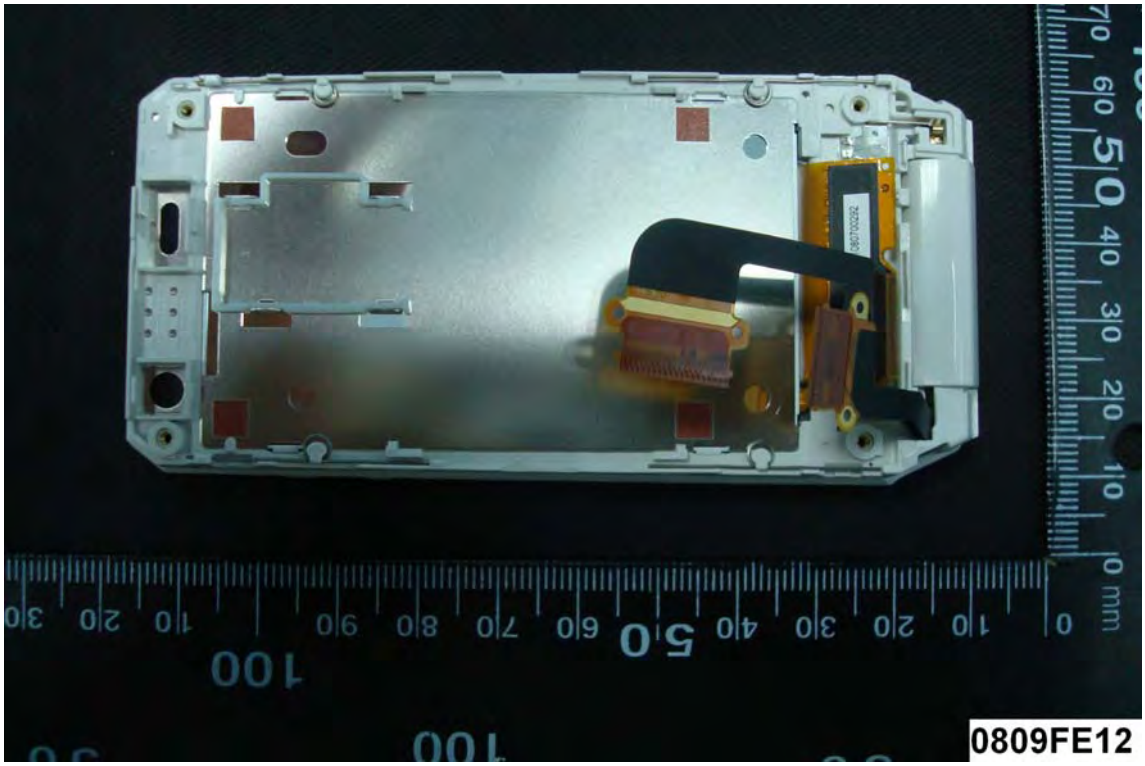
EUT Photo _ 25 of 36



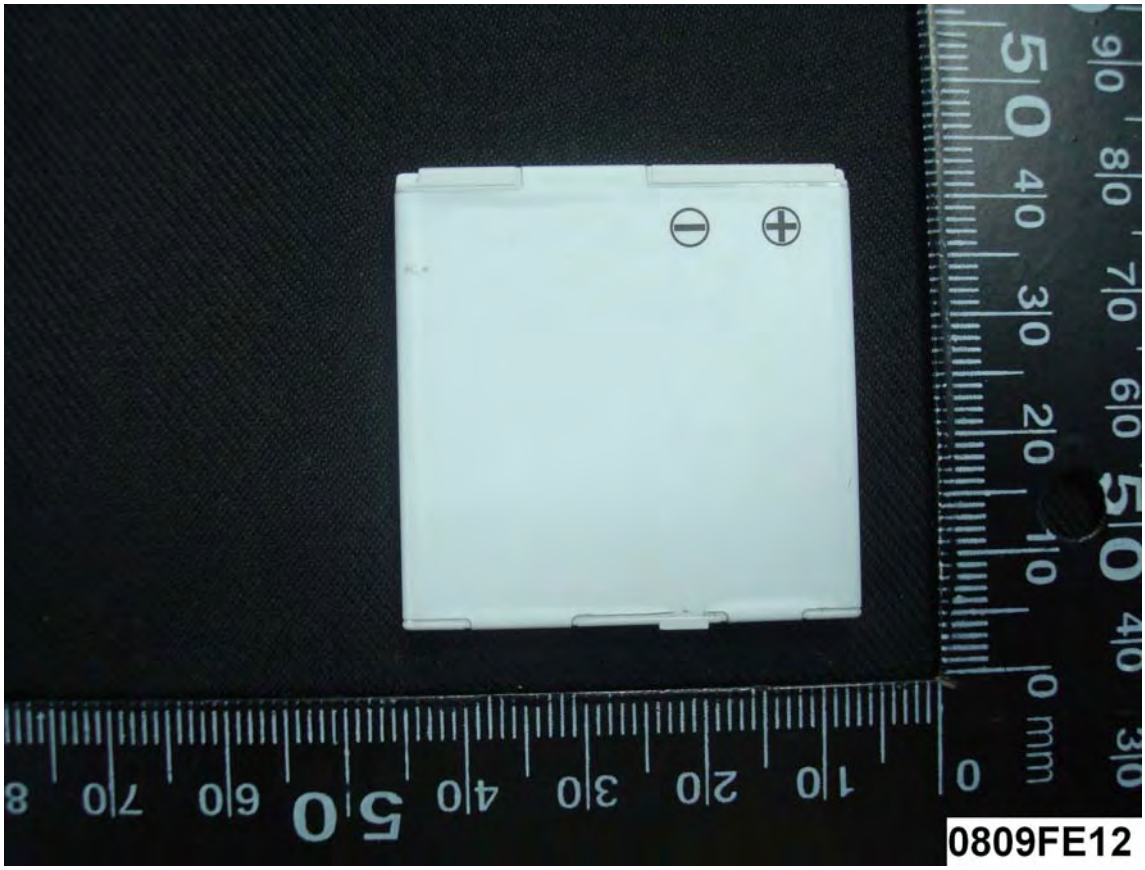
EUT Photo _ 26 of 36



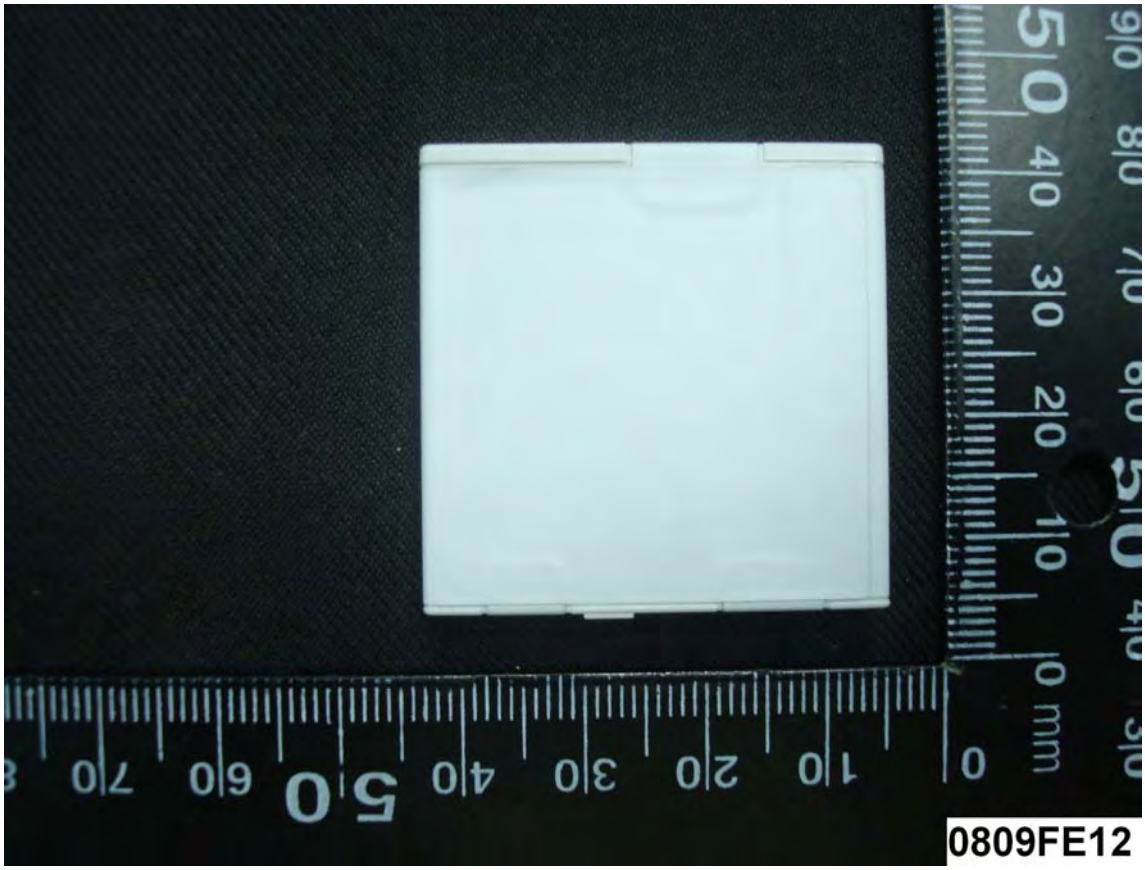
EUT Photo _ 27 of 36



EUT Photo _ 28 of 36

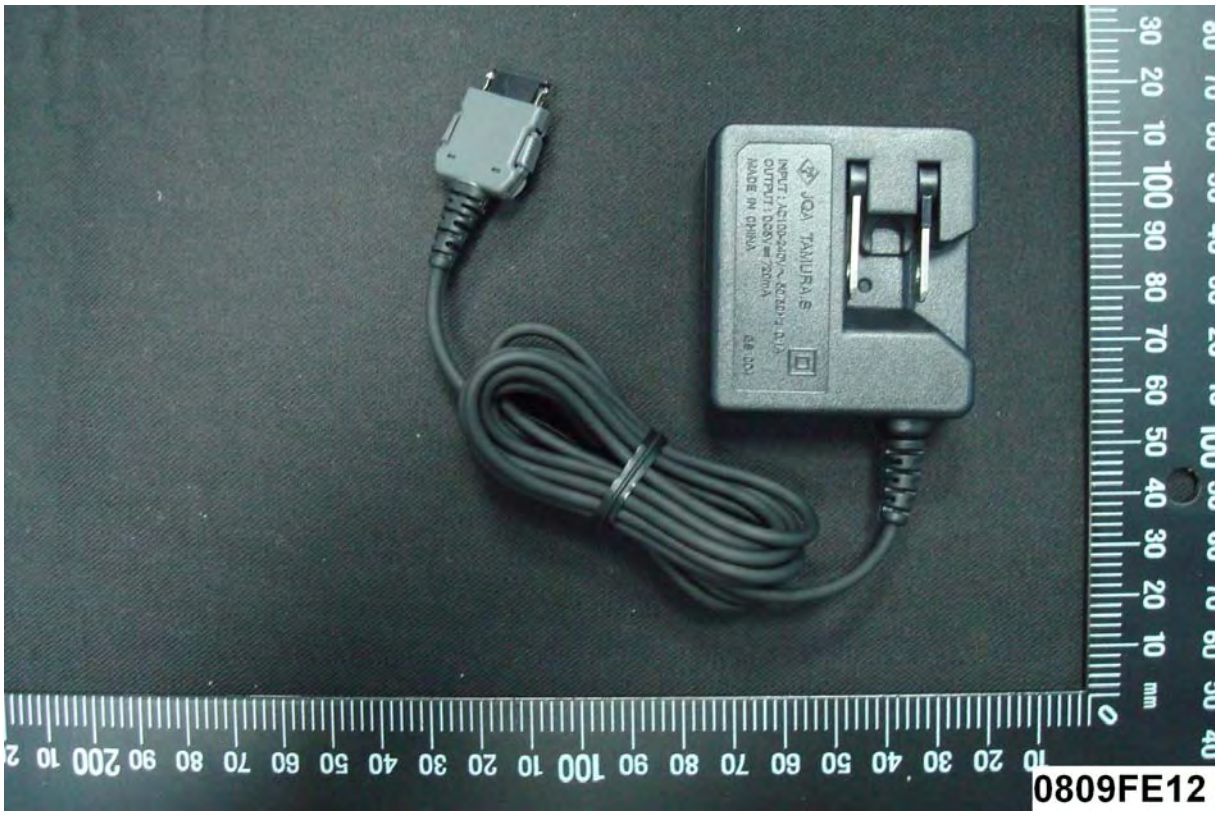


EUT Photo _ 29 of 36



EUT Photo _ 30 of 36

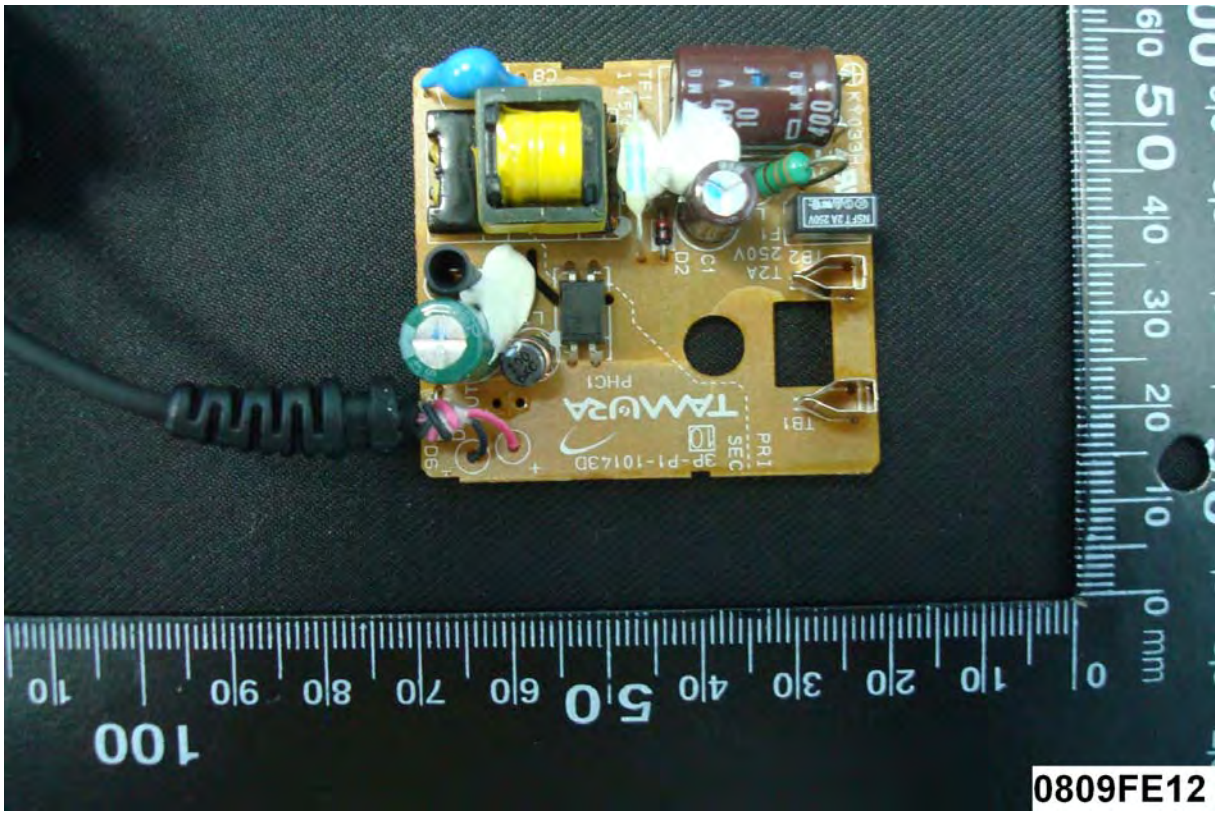
EUT Photo _ 31 of 36



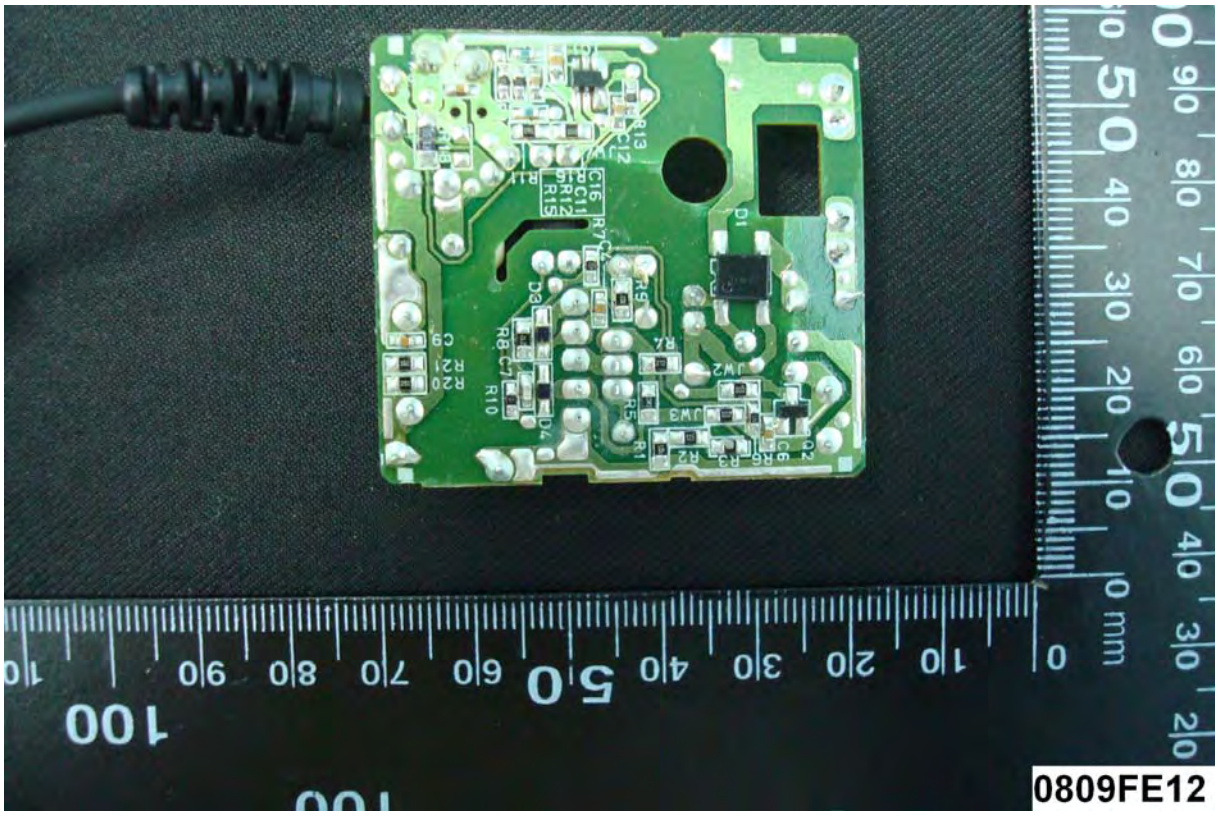
EUT Photo _ 32 of 36

EUT Photo _ 33 of 36

EUT Photo _ 34 of 36



EUT Photo _ 35 of 36



EUT Photo _ 36 of 36