



FCC Test Report

EQUIPMENT : CDMA 1x-EVDO Wireless data terminal
BRAND NAME : ZTE
MODEL NAME : AC8716
FCC ID : Q78-AC8716
STANDARD : 47 CFR Part 2, 22(H)
CLASSIFICATION : PCS Licensed transmitter (PCB)
Tx/Rx FREQUENCY RANGE : CDMA2000 Cellular : 824.70 ~ 848.31 MHz /
869.70 ~ 893.31 MHz
MAX. ERP POWER : CDMA2000 Cellular : 0.15 W for EVDO Rev. 0
EMISSION DESIGNATOR : 1M28F9W
APPLICANT : ZTE CORPORATION
ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan
District, Shenzhen, Guangdong, P.R.China

The product sample received on Jan. 15, 2009 and completely tested on Feb. 03, 2009. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Roy Wu / Manager



SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.



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SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result
3.1	§2.1046	N/A	Conducted Output Power	N/A	PASS
3.2	§22.913(a)(2)	RSS-132(4.4) SRSP-503(5.1.3)	Effective Radiated Power	< 7 Watts for FCC (<6.3 Watts for IC)	PASS
3.3	§2.1049 §22.917(a)	N/A	Occupied Bandwidth	N/A	PASS
3.3	§2.1051 §22.917(a)	RSS-132 (4.5.1)	Band Edge Measurement	< 43+10log ₁₀ (P[Watts])	PASS
3.4	§2.1051 §22.917(a)	RSS-132 (4.5.1)	Conducted Emission	< 43+10log ₁₀ (P[Watts])	PASS
3.5	§2.1053 §22.917(a)	RSS-132 (4.5.1)	Field Strength of Spurious Radiation	< 43+10log ₁₀ (P[Watts])	PASS
3.6	§2.1055 §22.355	RSS-132(4.3))	Frequency Stability for Temperature & Voltage	< 2.5 ppm	PASS



1 General Description

1.1 Applicant

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong,
P.R.China

1.2 Manufacturer

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong,
P.R.China

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	CDMA 1x-EVDO Wireless data terminal
Brand Name	ZTE
Model Name	AC8716
Tx Frequency	824 MHz ~ 849 MHz
Rx Frequency	869 MHz ~ 894 MHz
Maximum Output Power to Antenna	CDMA2000 Cellular (1xRTT) : 20.29 dBm CDMA2000 Cellular (1xEV-DO Rev. 0) : 20.45 dBm CDMA2000 Cellular (1xEV-DO Rev. A) : 20.29 dBm
Maximum ERP	CDMA2000 Cellular: 0.15 W (21.84 dBm) for 1xEV-DO Rev. 0
Antenna Type	Fixed Internal Antenna
HW Version	AC2716MD_C22
SW Version	V3.6.0
Type of Modulation	QPSK
Type of Emission	1M28F9W
EUT Stage	Production Unit

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.	
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: 86-0512-5790-0958	
Test Site No.	Sporton Site No.	
	TH01-KS	03CH01-KS

1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ Preliminary Guidance for Receiving Applications for Certification of 3G Device. May 9, 2006.
- ♦ 47 CFR Part 2, 22(H)
- ♦ ANSI C63.4-2003
- ♦ ANSI / TIA / EIA-603-C-2004
- ♦ IC RSS-132

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B (DoC), recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2	PC	DELL	MT320	FCC DoC	N/A	Unshielded, 1.8 m
3	Monitor	Hangs-G	Hangs-G	FCC DoC	Shielded, 1.2 m	Unshielded, 1.8 m
4	(USB) Mouse	Dell	MO56UC	FCC DoC	Shielded, 1.8 m	N/A
5	(USB) Keyboard	Dell	L100	FCC DoC	Shielded, 1.8 m with Core	N/A

2 Test Configuration of Equipment Under Test

2.1 Test Mode

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

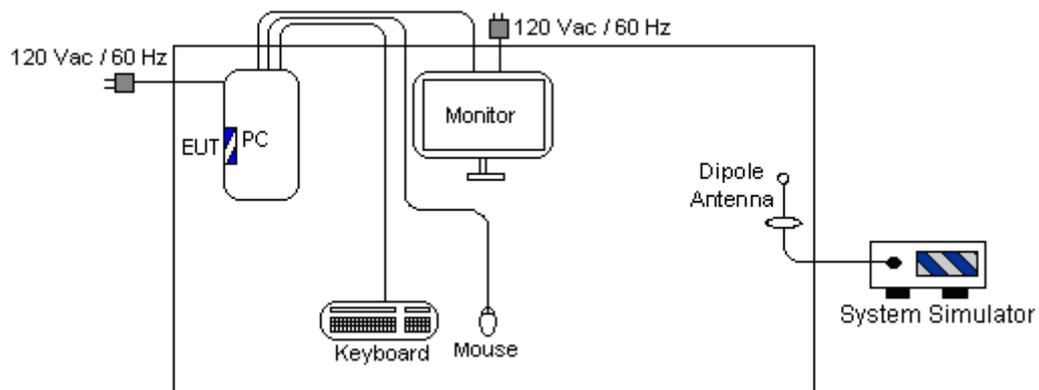
Frequency range investigated for radiated emission is as follows:

- 30 MHz to 9000 MHz for CDMA2000 Cellular

Test Modes		
Band	Radiated TCs	Conducted TCs
CDMA2000 Cellular	<ul style="list-style-type: none"> ■ 1xEV-DO Rev. 0 Link Mode 	<ul style="list-style-type: none"> ■ 1xRTT Link Mode ■ 1xEV-DO Rev. 0 Link Mode ■ 1xEV-DO Rev. A Link Mode

Note: The RF output power of 1xEV-DO Rev. 0 is larger than 1xRTT and 1xEV-DO Rev. A. Therefore, the 1xEV-DO Rev. 0 mode was used for ERP and RSE testing.

2.2 Connection Diagram of Test System



3 Test Result

3.1 Conducted Output Power Measurement

3.1.1 Description of the Conducted Output Power Measurement

A base station simulator was used to establish communication with the EUT. Its parameters were set to transmit the maximum power on the EUT. The measured power in the radio frequency on the transmitter output terminals shall be reported.

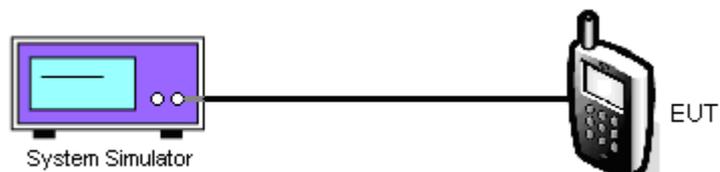
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The transmitter output port was connected to base station.
2. Set EUT at maximum power through base station.
3. Select lowest, middle, and highest channels for different modulation.

3.1.4 Test Setup





3.1.5 Test Result of Conducted Output Power

CDMA2000 Cellular					
Test Mode	Test Status	Channel	Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watts)
CDMA 2000 1xRTT	FCH_RC1	1013 (Low)	824.70	19.33	0.09
		384 (Mid)	836.52	20.03	0.10
		777 (High)	848.31	19.17	0.08
	FCH_RC3	1013 (Low)	824.70	19.34	0.09
		384 (Mid)	836.52	20.29	0.11
		777 (High)	848.31	19.14	0.08
	FCH+SCH_RC3	1013 (Low)	824.70	19.47	0.09
		384 (Mid)	836.52	20.15	0.10
		777 (High)	848.31	19.30	0.09
CDMA 2000 1xEV-DO (Rev. 0)	RTAP_9.6Kbps	1013 (Low)	824.70	19.60	0.09
		384 (Mid)	836.52	20.12	0.10
		777 (High)	848.31	19.40	0.09
	RTAP_38.4 Kbps	1013 (Low)	824.70	19.54	0.09
		384 (Mid)	836.52	20.37	0.11
		777 (High)	848.31	19.29	0.08
	RTAP_153.6 Kbps	1013 (Low)	824.70	19.45	0.09
		384 (Mid)	836.52	20.45	0.11
		777 (High)	848.31	19.24	0.08
CDMA 2000 1xEV-DO (Rev. A)	RETAP_128 Kbps	1013 (Low)	824.70	19.42	0.09
		384 (Mid)	836.52	19.95	0.10
		777 (High)	848.31	19.31	0.09
	RETAP_2048 Kbps	1013 (Low)	824.70	19.67	0.09
		384 (Mid)	836.52	20.29	0.11
		777 (High)	848.31	19.46	0.09
	RETAP_12288 Kbps	1013 (Low)	824.70	19.78	0.10
		384 (Mid)	836.52	20.20	0.10
		777 (High)	848.31	19.49	0.09



3.2 Effective Radiated Power

3.2.1 Description of the ERP Measurement

ERP is measured by substitution method according to ANSI / TIA / EIA-603-C-2004. The ERP of mobile transmitters must not exceed 7 Watts.

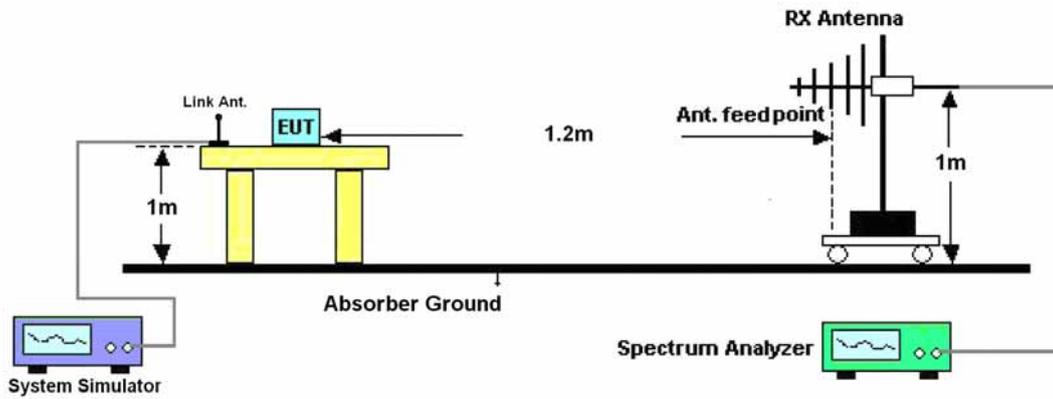
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

4. The EUT was placed on a turntable with 1.0 meter height in a fully anechoic chamber.
5. The EUT was set at 1.2 meters from the receiving antenna, which was mounted on the antenna tower.
6. The table was rotated 360 degrees to determine the position of the highest radiated power.
7. The height of the receiving antenna is adjusted to look for the maximum ERP.
8. Taking the record of maximum ERP.
9. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
10. The conducted power at the terminal of the dipole antenna is measured.
11. Repeat step 3 to step 5 to get the maximum ERP of the substitution antenna.
12. $ERP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$
 P_s (dBm) : Input power to substitution antenna.
 G_s (dBi or dBd) : Substitution antenna Gain.
 $E_t = R_t + AF$
 $E_s = R_s + AF$
 AF (dB/m) : Receive antenna factor
 R_t : The highest received signal in spectrum analyzer for EUT.
 R_s : The highest received signal in spectrum analyzer for substitution antenna.

3.2.4 Test Setup





3.2.5 Test Result of ERP

CDMA2000 Cellular 850 1xEV-DO Rev. 0_153.6Kbps Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.70	-28.22	-48.12	0.00	-1.08	18.82	0.08
836.52	-33.81	-48.28	0.00	-0.93	13.54	0.02
848.31	-31.72	-48.35	0.00	-0.76	15.87	0.04
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.70	-25.05	-47.97	0.00	-1.08	21.84	0.15
836.52	-30.03	-48.01	0.00	-0.93	17.05	0.05
848.31	-30.58	-48.05	0.00	-0.76	16.71	0.05

3.3 Occupied Bandwidth and Band Edge Measurement

3.3.1 Description of Occupied Bandwidth and Band Edge Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43+10\log_{10}(P[\text{Watts}])$ dB.

The emission bandwidth is defined as the width of the signal between two points, located at the 2 sides of the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

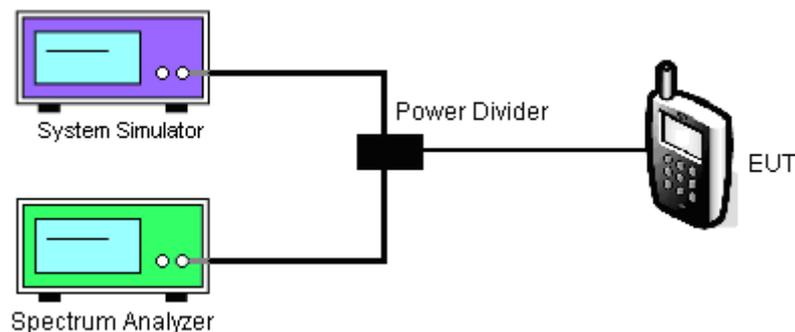
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The 99% and 26 dB occupied bandwidth (BW) of the low, middle and high channels for the highest RF powers were measured and only test data of middle channel was reported.
3. The band edges of low and high channels for the highest RF powers were measured. Setting RBW as roughly BW/100.
4. The RBW was replaced by 10 kHz, due to the spectrum analyzer IF-Filter including an excess of the limit. A worst case correction factor of $10 \log (1\% \text{ BW}/\text{measurement RBW})$ was implemented.

3.3.4 Test Setup

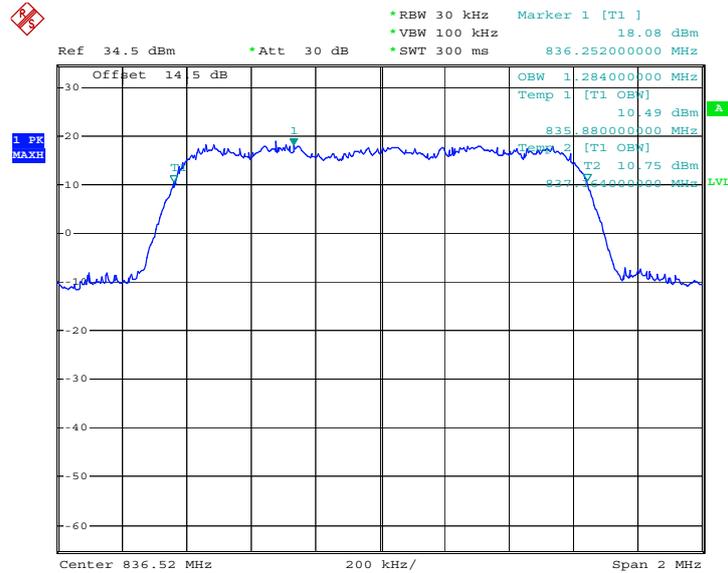




3.3.5 Test Result (Plots) of Occupied Bandwidth

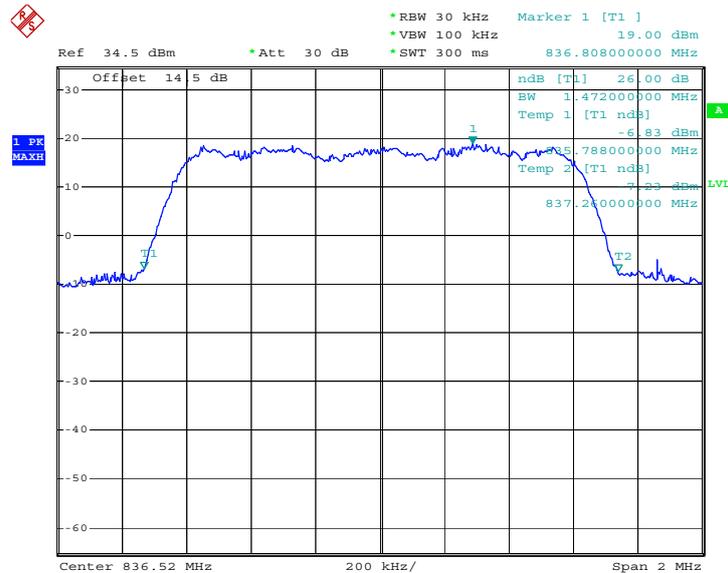
Band :	CDMA2000 Cellular	Power Stage :	High
Test Mode :	1xEV-DO Rev. 0_153.6Kbps		

99% Occupied Bandwidth Plot on Channel 384



Date: 17.JAN.2009 01:25:41

26dB Bandwidth Plot on Channel 384



Date: 17.JAN.2009 01:16:46

3.4 Conducted Emission Measurement

3.4.1 Description of Conducted Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

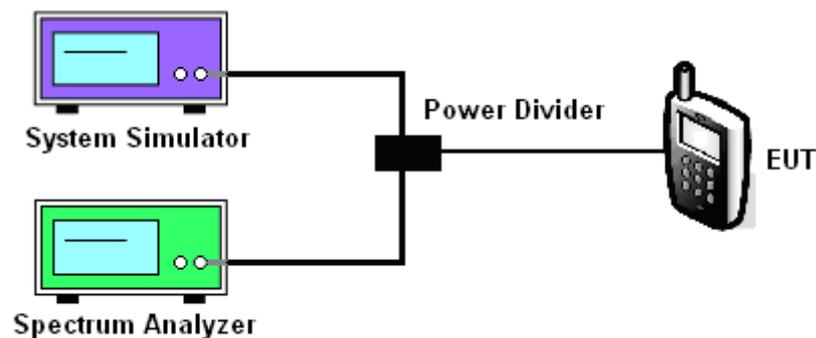
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

1. The EUT was connected to spectrum analyzer and base station via power divider.
2. The middle channel for the highest RF power within the transmitting frequency was measured.
3. The conducted spurious emission for the whole frequency range was taken.

3.4.4 Test Setup

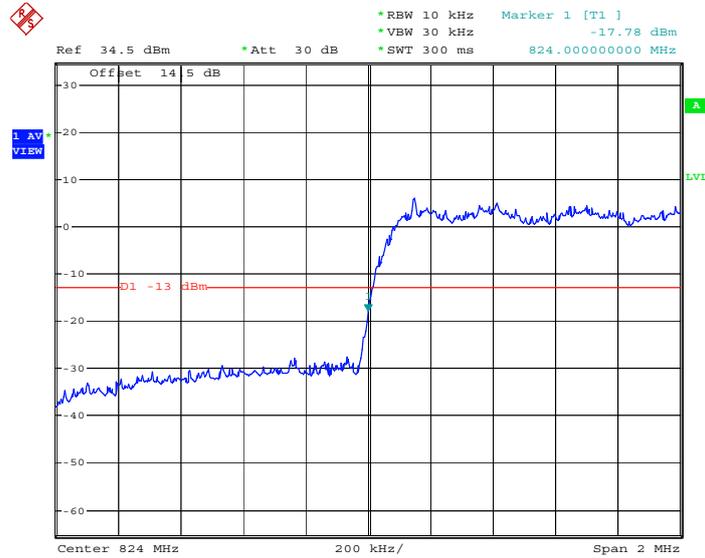




3.4.5 Test Result (Plots) of Conducted Band Edges

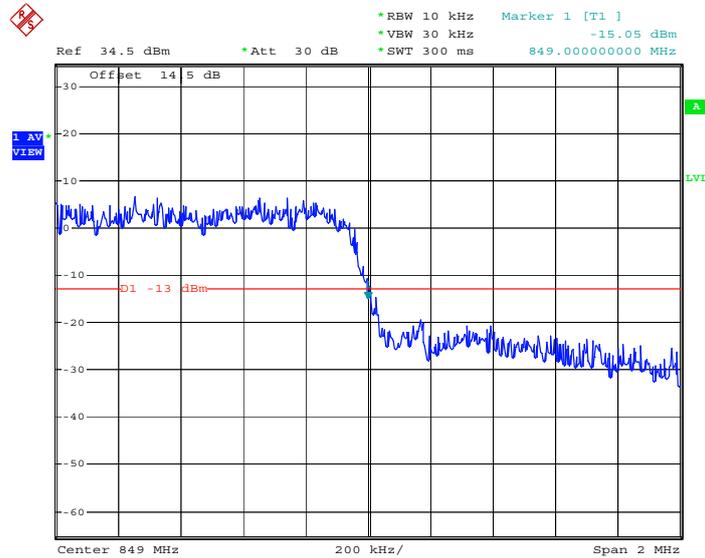
Band :	CDMA2000 Cellular	Power Stage :	High
Test Mode :	1xEV-DO Rev. 0_153.6Kbps		

Lower Band Edge Plot on Channel 1013



Date: 17.JAN.2009 04:29:53

Higher Band Edge Plot on Channel 777

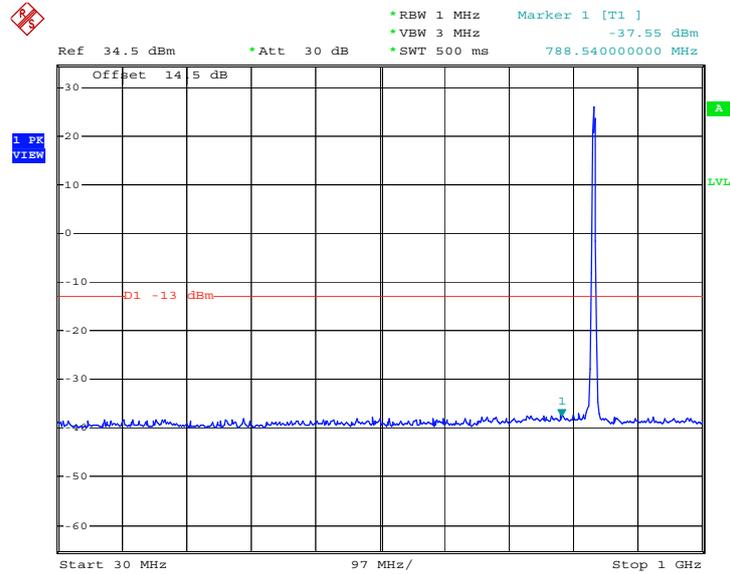


Date: 18.JAN.2009 21:55:54



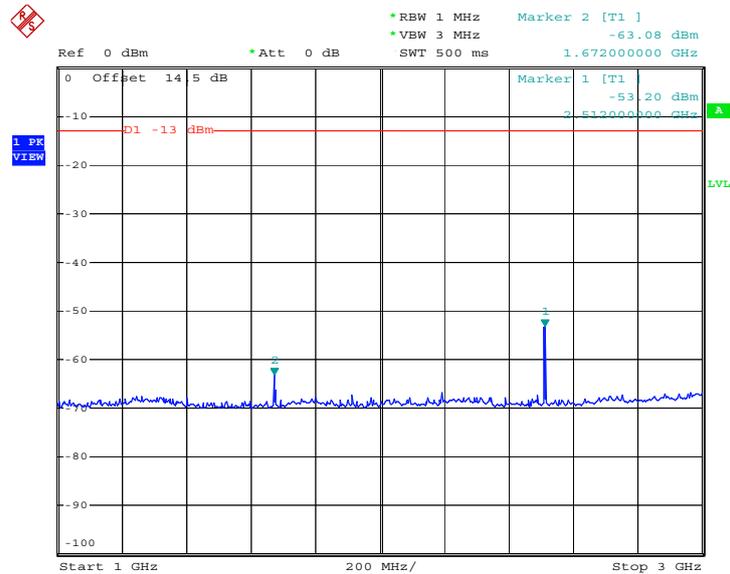
Band :	CDMA2000 Cellular	Channel :	CH384
Test Mode :	1xEV-DO Rev. 0_153.6Kbps		

Conducted Emission Plot between 30M-1G



Date: 17.JAN.2009 01:36:10

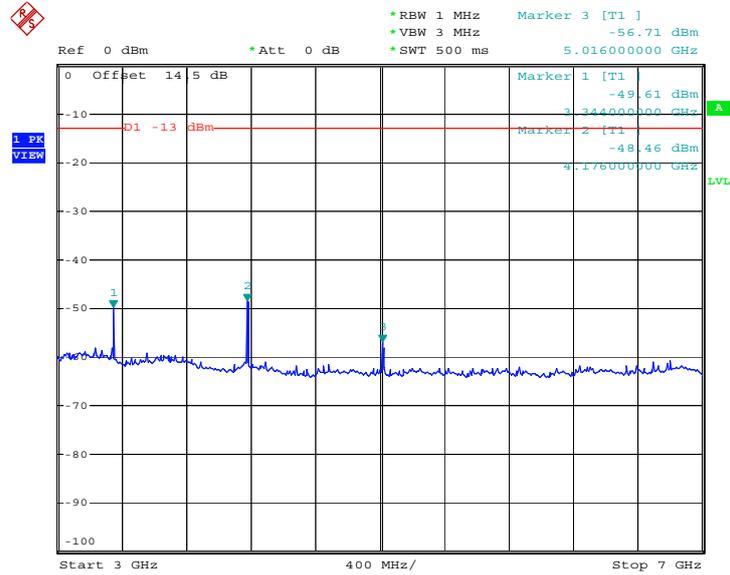
Conducted Emission Plot between 1GHz ~ 3GHz



Date: 17.JAN.2009 01:41:56

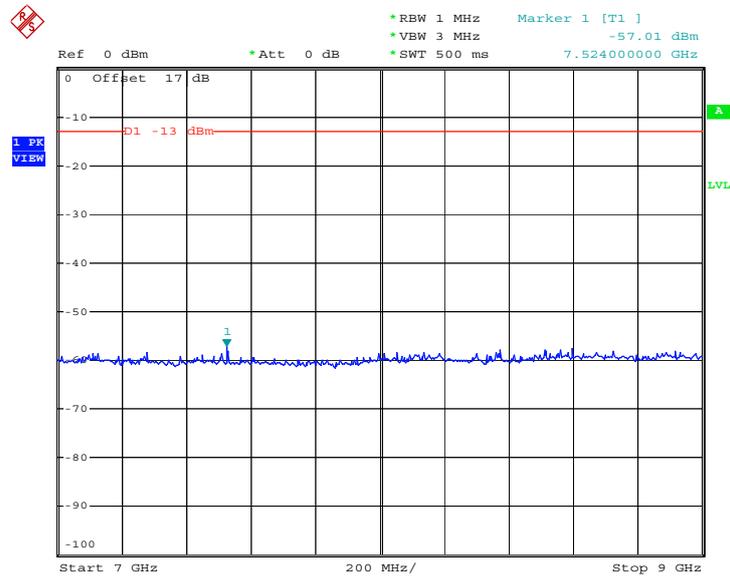


Conducted Emission Plot between 3GHz ~ 7GHz



Date: 17.JAN.2009 01:43:30

Conducted Emission Plot between 7GHz ~ 9GHz



Date: 17.JAN.2009 03:23:17

3.5 Field Strength of Spurious Radiation Measurement

3.5.1 Description of Field Strength of Spurious Radiated Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-C-2004. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43+10\log_{10}(P[\text{Watts}])$ dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

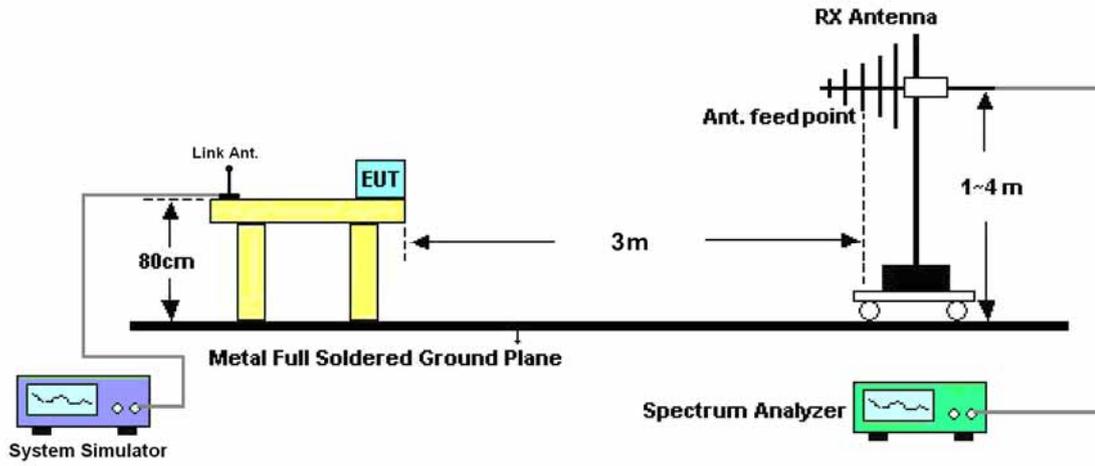
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The EUT was placed on a rotatable wooden table with 0.8 meter about ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. Emission level (dBm) = output power + substitution Gain.

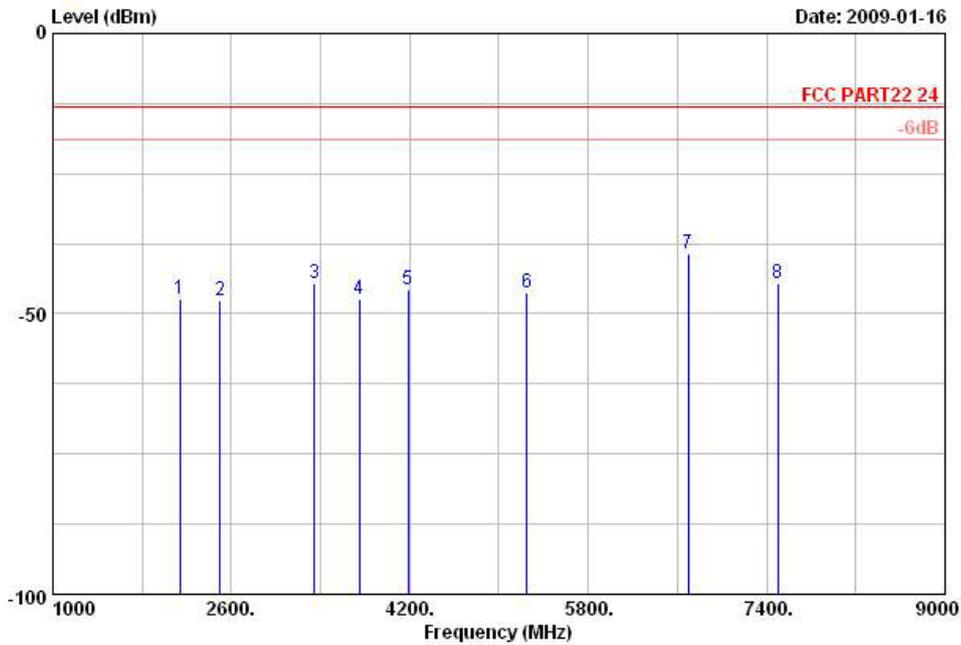
3.5.4 Test Setup





3.5.5 Test Result of Field Strength of Spurious Radiated

Band :	CDMA2000 Cellular	Temperature :	18~19°C
Test Mode :	1xEV-DO Rev. 0 153.6Kbps	Relative Humidity :	35~36%
Test Engineer :	Peter Chou	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

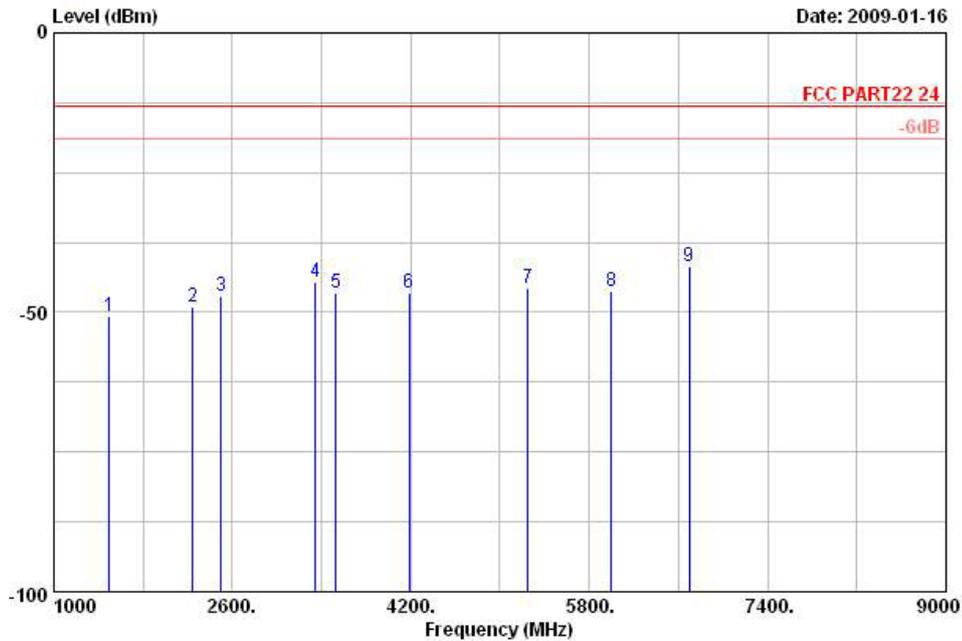


Site : 03CH01-KS
Condition: FCC PART22 24 HF EIRP ANT-070911 HORIZONTAL

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
2136.00	-49.56	-13	-36.56	-55.21	-57.23	-0.21	9.61	H	Pass
2502.00	-49.69	-13	-36.69	-57.99	-60.18	-2.34	10.30	H	Pass
3348.00	-46.72	-13	-33.72	-54.97	-57.44	-2.64	10.23	H	Pass
3748.00	-49.59	-13	-36.59	-59.03	-61.75	-3.84	10.47	H	Pass
4184.00	-47.83	-13	-34.83	-58.61	-61.55	-4.71	11.16	H	Pass
5248.00	-48.28	-13	-35.28	-61.24	-64.54	-7.21	11.20	H	Pass
6696.00	-41.50	-13	-28.50	-57.43	-61.26	-9.72	12.19	H	Pass
7500.00	-46.61	-13	-33.61	-61.85	-65.75	-9.49	11.80	H	Pass



Band :	CDMA2000 Cellular	Temperature :	18~19°C
Test Mode :	1xEV-DO Rev. 0 153.6Kbps	Relative Humidity :	35~36%
Test Engineer :	Peter Chou	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH01-K5
Condition: FCC PART22 24 HF EIRP ANT-070911 VERTICAL

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1500.00	-52.85	-13	-39.85	-53.88	-60.22	-0.82	8.70	V	Pass
2246.00	-51.13	-13	-38.13	-57.55	-59.62	-0.83	9.81	V	Pass
2502.00	-49.15	-13	-36.15	-57.45	-59.64	-2.34	10.30	V	Pass
3348.00	-46.85	-13	-33.85	-55.1	-57.57	-2.64	10.23	V	Pass
3526.00	-48.56	-13	-35.56	-57.26	-59.81	-3.17	10.23	V	Pass
4184.00	-48.74	-13	-35.74	-59.52	-62.46	-4.71	11.16	V	Pass
5248.00	-47.96	-12	-35.96	-60.92	-64.22	-7.21	11.20	V	Pass
5996.00	-48.41	-11	-37.41	-63.46	-66.91	-8.95	11.70	V	Pass
6696.00	-43.82	-10	-33.82	-59.75	-63.58	-9.72	12.19	V	Pass

3.6 Frequency Stability Measurement

3.6.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.

3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

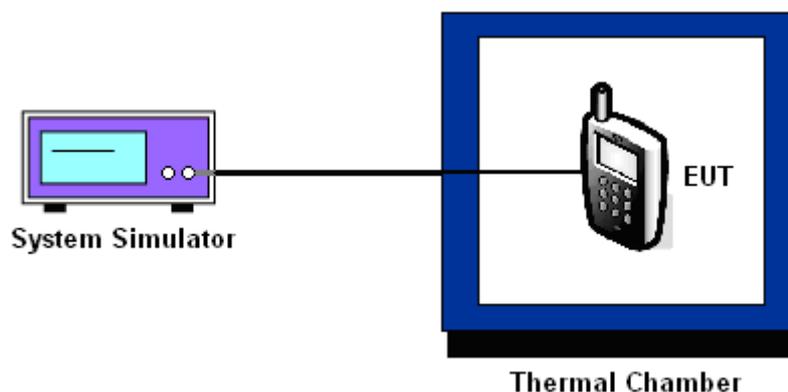
3.6.3 Test Procedures for Temperature Variation

1. The EUT was set up in the thermal chamber and connected with the base station.
2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized for three hours. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C step up to 50°C . The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.
4. If the EUT can not be turned on at -30°C , the testing lowest temperature will be raised in 10°C step until the EUT can be turned on.

3.6.4 Test Procedures for Voltage Variation

1. The EUT was placed in a temperature chamber at $25\pm 5^{\circ}\text{C}$ and connected with the base station.
2. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

3.6.5 Test Setup



3.6.6 Test Result of Temperature Variation

Band :	CDMA2000 Cellular	Channel :	384
Test Mode :	1xEV-DO Rev. 0 153.6Kbps	Limit (ppm) :	2.5

Temperature (°C)	Freq. Dev. (Hz)	Deviation (ppm)	Result
-30	64	0.08	PASS
-20	60	0.07	
-10	-33	-0.04	
0	33	0.04	
10	24	0.03	
20	26	0.03	
30	49	0.06	
40	47	0.06	
50	48	0.06	

3.6.7 Test Result of Voltage Variation

Band & Channel	Mode	Voltage (Volt)	Freq. Dev. (Hz)	Deviation (ppm)	Limit (ppm)	Result
CDMA2000 Cellular CH384	1xEV-DO Rev. 0 153.6Kbps	5.0	20	0.02	2.5	PASS
		BEP	33	0.04		
		5.2	-36	-0.04		

Remark:

1. Normal Voltage = 5.0V.
2. Battery End Point (BEP) = 4.8 V.

4 List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Mar. 13, 2007	Mar. 13, 2009	Conducted (TH01-KS)
Power Meter	Agilent	E4416A	MY45101555	N/A	Jun. 18, 2007	Jun. 17, 2009	Conducted (TH01-KS)
Power Sensor	Agilent	E9327A	MY44421198	N/A	Jun. 12, 2007	Jun. 11, 2009	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-930701	N/A	Jun. 27, 2007	Jun. 26, 2009	Conducted (TH01-KS)
Spectrum Analyzer	R&S	ESCI	100724	9kHz~2.75GHz	Feb. 06, 2008	Feb. 05, 2009	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 08, 2008	Dec. 07, 2009	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 17, 2008	Dec. 16, 2009	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	75959	1GHz~18GHz	Dec. 17, 2008	Dec. 16, 2009	Radiation (03CH01-KS)
Amplifier	Wireless	FPA6592G	600006	30MHz~2GHz	Dec. 17, 2008	Dec. 16, 2009	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 17, 2008	Dec. 16, 2009	Radiation (03CH01-KS)
System Simulator	R&S	CMU200	112352	Full-Band	Mar. 07, 2007	Mar. 06, 2009	Radiation (03CH01-KS)
Singal Generator	R&S	SMR40	100455	10MHz~40GHz	Aug. 29, 2007	Aug. 28, 2009	Radiation (03CH01-KS)

5 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.41	Normal(k=2)	0.21
Antenna factor calibration	0.83	Normal(k=2)	0.42
Cable loss calibration	0.25	Normal(k=2)	0.13
Pre Amplifier Gain calibration	0.27	Normal(k=2)	0.14
RCV/SPA specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site imperfection	1.43	Rectangular	0.83
Mismatch	+0.39/-0.41	U-shaped	0.28
Combined standard uncertainty Uc(y)	1.27		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	2.54		

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Contribution	Uncertainty of x_i		$u(x_i)$	C_i	$C_i * u(x_i)$
	dB	Probability Distribution			
Receiver reading	±0.10	Normal(k=1)	0.10	1	0.10
Antenna factor calibration	±1.70	Normal(k=2)	0.85	1	0.85
Cable loss calibration	±0.50	Normal(k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20 \log(1 - \Gamma_1 * \Gamma_2)$	+0.34/-0.35	U-shaped	0.244	1	0.244
Combined standard uncertainty Uc(y)	2.36				
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	4.72				

6 Certification of TAF Accreditation



Certificate No. : L1190-081212

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,
Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	: ISO/IEC 17025:2005
Accreditation Number	: 1190
Originally Accredited	: December 15, 2003
Effective Period	: January 10, 2007 to January 09, 2010
Accredited Scope	: Testing Field, see described in the Appendix
Specific Accreditation Program	: Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory Accreditation Program for BSMI Mutual Recognition Arrangement with Foreign Authorities


Jay-San Chen
President, Taiwan Accreditation Foundation
Date : December 12, 2008

PI, total 18 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when use without the Appendix



Appendix A. Photographs of EUT

Please refer to Sporton report number EP911615 as below.