EN 50392 REPORT

REPORT NO.: SE950331L08A
MODEL NO.: SDC-MCF10G

ACCORDING: EN 50392: 2004

APPLICANT : Summit Data Communications, Inc.

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ISSUED BY: Advance Data Technology Corporation

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ACCREDITED
TESTING CERT #2177-01

TABLE OF CONTENTS

1. CERTIFICATION

PRODUCT: 802.11g Mini-Compact Flash Module with Dual U.FL Connectors

MODEL: SDC-MCF10G

BRAND: Summit

APPLICANT: Summit Data Communications, Inc.

TESTED: Mar. 27 ~ Apr. 10, 2008

TEST SAMPLE: ENGINEERING SAMPLE

STANDARD: EN 50392:2004

The above equipment (model: SDC-MCF10G) has been tested by **Advance Data Technology Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Wendy Liao , **DATE:** Apr. 14, 2008
Wendy Liao / Senior Specialist

TECHNICAL ACCEPTANCE : James Fan , **DATE:** Apr. 14, 2008
Responsible for RF
James Fan / Engineer

APPROVED BY : Gary Chang , **DATE:** Apr. 14, 2008
Gary Chang / Assistant Manager

2. GENERAL DESCRIPTION OF EUT

PRODUCT	802.11g Mini-Compact Flash Module with Dual U.FL Connectors
MODEL NO.	SDC-MCF10G
SOURCE VOLTAGE	V_{nom}= 230 V_{min}= 207 V_{max}= 253
POWER SUPPLY	3.3Vdc from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps
OPERATING FREQUENCY	2400 ~ 2454.0 MHz for outdoor usage in France 2400 ~ 2483.5 MHz for EU countries (include indoor usage in France)
NUMBER OF CHANNEL	7 for outdoor usage in France, 13 for EU countries (include indoor usage in France)
EIRP POWER (FOR 802.11b)	19.35 dBm (Measured Max. Average)
EIRP POWER (FOR 802.11g)	16.34 dBm (Measured Max. Average)
ANTENNA TYPE	PCB antenna with 0 dBi gain
I/O PORTS	NA
DATA CABLE	NA
ACCESSORY DEVICES	NA

NOTE:

1. The EUT operates in the 2.4GHz frequency range, lets you connect IEEE 802.11g or IEEE 802.11b devices to the network. With its high-speed data transmissions of up to 54Mbps.
2. The EUT with two platforms as below:

Mobile Data Terminals (MDTs)
Vehicle Mounted Devices (VMDs)

3. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3. RF EXPOSURE MEASUREMENT

3.1 INTRODUCTION

This standard is limited to apparatus which is intended for use by the general public as defined in the Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz) (Official Journal L 199 of 30 July 1999).

This generic standard applies to electronic and electrical apparatus for which no dedicated product- or product family standard regarding human exposure to electromagnetic fields applies.

This generic standard does not cover equipment, which fulfils the requirements given in EN 50371 or is medical equipment as defined in the Council Directive 93/42/EEC of 14 June 1993 concerning medical devices.

The frequency range covered is 0 Hz to 300 GHz.

The object of this standard is to demonstrate the compliance of such apparatus with the basic restrictions or reference levels on exposure of the general public related to electric, magnetic, electromagnetic fields and induced and contact current.

3.2 LIMIT

According to EN 50392:2004, the criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified 1999/519/EC.

Reference levels for electric, magnetic and electromagnetic fields
(0 Hz to 300 GHz, unperturbed rms values)

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (μT)	Equivalent plane wave power density S_{eq} (W/m²)
0-1 Hz	—	$3,2 \times 10^4$	4×10^4	—
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	—
8-25 Hz	10 000	4 000/f	5 000/f	—
0,025-0,8 kHz	250/f	4/f	5/f	—
0,8-3 kHz	250/f	5	6,25	—
3-150 kHz	87	5	6,25	—
0,15-1 MHz	87	0,73/f	0,92/f	—
1-10 MHz	$87/f^{1/2}$	0,73/f	0,92/f	—
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375\ f^{1/2}$	$0,0037\ f^{1/2}$	$0,0046\ f^{1/2}$	f/200
2-300 GHz	61	0,16	0,20	10

Notes:

1. f as indicated in the frequency range column.
2. For frequencies between 100 kHz and 10 GHz, S_{eq}, E^2, H^2, and B^2 are to be averaged over any six-minute period.
3. For frequencies exceeding 10 GHz, S_{eq}, E^2, H^2, and B^2 are to be averaged over any $68/f^{1.05}$ -minute period (f in GHz).
4. No E-field value is provided for frequencies < 1 Hz, which are effectively static electric fields. For most people the annoying perception of surface electric charges will not occur at field strengths less than 25 kV/m. Spark discharges causing stress or annoyance should be avoided.

3.3 CLASSIFICATION OF THE ASSESSMENT METHODS

The antenna of the product, under normal use condition is at least 20 cm away from the body of the user. Warning statement to the user for keeping at least 20cm separation distance and the prohibition of operating to a person has been printed on the user's manual. So, this product under normal use is located on electromagnetic far field between the human body.

Far Field Calculation Formula

$$E = \eta_0 H = \frac{\sqrt{30PG(\theta,\phi)}}{r}$$

G = antenna gain relative to an isotropic antenna
θ,ϕ = elevation and azimuth angles to point of investigation
r = distance from observation point to the antenna
η_0 = Characteristic impedance of free space

3.4 EUT OPERATING CONDITION

The software provided by Manufacturer enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3.5 TEST RESULTS

Since the maximum eirp power is used as the peak output power to antenna, so the Gain of the antenna can be assumed as 0dBi.

FOR 802.11b DSSS modulation:

Channel	Channel Frequency (MHz)	Output Power E.I.R.P. (dBm)	Output Power E.I.R.P. (mW)	E-Field Strength (V/m)	E-Field Strength Limit (V/m)	PASS / FAIL
1	2412	19.35	86.099	8.04	61	PASS
4	2427	19.00	79.433	7.72	61	PASS
7	2442	19.25	84.140	7.94	61	PASS
13	2472	19.24	83.946	7.93	61	PASS

FOR 802.11g OFDM MODULATION:

Channel	Channel Frequency (MHz)	Output Power E.I.R.P. (dBm)	Output Power E.I.R.P. (mW)	E-Field Strength (V/m)	E-Field Strength Limit (V/m)	PASS / FAIL
1	2412	16.34	43.053	5.68	61	PASS
4	2427	16.31	42.756	5.66	61	PASS
7	2442	16.05	40.272	5.50	61	PASS
13	2472	16.21	41.783	5.60	61	PASS