



RF EXPOSURE REPORT

REPORT NO.: SA931018L03A

MODEL NO.: WLG-2206

(please refer to Appendix for other models)

ACCORDING: FCC Guidelines for Human Exposure
IEEE C95.1

APPLICANT: CAMEO COMMUNICATIONS, INC.

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ISSUED BY: Advance Data Technology Corporation

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RF Exposure Measurement (Mobile Device)

1. Introduction

In this document, we try to prove the safety of radiation harmfulness to the human body for our product. The limit for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 is followed. The Gain of the antenna used in this product is measured in a Fully Anechoic Chamber (FAC) calibrated for antenna measurement in ADT, and also the maximum total power input to the antenna is measured. Through the Friis transmission formula and the maximum gain of the antenna, we can calculate the distance, away from the product, where the limit of MPE is reached.

Although the Friis transmission formula is a far field assumption, the calculated result of that is an over-prediction for near field power density. We will take that as the worst case to specify the safety range.

2. RF Exposure Limit

According to FCC 1.1310: 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 in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (minutes)
(A)Limits For Occupational / Control Exposures				
300-1500	...	...	F/300	6
1500-100,000	...	...	5	6
(B)Limits For General Population / Uncontrolled Exposure				
300-1500	...	...	F/1500	6
1500-100,000	...	...	1.0	30

F = Frequency in MHz



3. Friis Formula

Friis transmission formula : $P_d = (P_{out} * G) / (4 * \pi * r^2)$

where

P_d = power density in mW/cm^2

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

If we know the maximum Gain of the antenna and the total power input to the antenna, through the calculation, we will know the MPE value at distance 20cm.

Ref. : David K. Cheng, *Field and Wave Electromagnetics*, Second Edition,
Page 640, Eq. (11-133).

4 EUT Operating condition

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

5. Classification

The antenna of the product, under normal use condition, is at least 20cm away from the body of the user. Warning statement for keeping 20cm-separation distance and the prohibition of operating next to a person has been printed on the user's manual. So, this product is classified as the **Mobile Device**.



6 Test Results

6.1 Antenna Gain

The maximum Gain measured in Fully Anechoic Chamber is 2dBi or 1.585(numeric).

6.2 Output Power Into Antenna & RF Exposure value at distance 20cm :

For DSSS:

Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density (mW/cm ²)	Limit of Power Density (mW/cm ²)
1	2412	56.234	0.018	1.0
6	2437	56.494	0.018	1.0
11	2462	56.364	0.018	1.0

For OFDM:

Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density (mW/cm ²)	Limit of Power Density (mW/cm ²)
1	2412	40.738	0.013	1.0
6	2437	39.811	0.013	1.0
11	2462	35.481	0.011	1.0



Appendix

1. The models as below are identical to each other except for their models due to marketing requirement.

Model Name	Brand	Remark
ISINE	IS35744-M1	OEM
WLG-2206	Cameo	OEM
WR 100	Crypto	OEM
BR6004W-G	Dynamode	OEM
LSA-900R	lenovonetworks	OEM
LWG5410R	LG	OEM
WL-G54MAR	LINKPRO	OEM
KWG-401	KTI	OEM
ENHWI-RG	ENCORE	OEM
WLG-R4II	BONA	OEM
TEW-432BRP	TRENDnet	OEM
ALL0266	ALLNET GmbH	OEM
WL RT 2454 NM2	GST	OEM
WLR4G	Amertek	OEM