

# **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
- **TEST LOCATION:** No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang 244, Taipei Hsien, Taiwan, R.O.C.
- **TEST LOCATION:** No. 19, Hwa Ya 2nd Rd., Kueishan, Taoyuan, Taiwan, R.O.C.



# **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)

Frequency	Electric Field	Magnetic Field	Power Density	Average Time	
Range	Strength (V/m)	Strength (A/m)	(mW/cm <sup>2</sup> )	(minutes)	
(MHz)					
(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	

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

F = Frequency in MHz



### 3. Friis Formula

Friis transmission formula : Pd = (Pout\*G) /  $(4*pi*r^2)$ 

where Pd = power density in mW/cm<sup>2</sup> Pout = output power to antenna in mW G = gain of antenna in linear scale Pi = 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/cm²)	Limit of Power Density (mW/cm <sup>2</sup> )
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/cm²)	Limit of Power Density (mW/cm <sup>2</sup> )
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 expect for their models due to marketing requirement.

Brand	Remark				
IS35744-M1	OEM				
Cameo	OEM				
Crypto	OEM				
Dynamode	OEM				
lenovonetworks	OEM				
LG	OEM				
LINKPRO	OEM				
KTI	OEM				
ENCORE	OEM				
BONA	OEM				
TRENDnet	OEM				
ALLNET GmbH	OEM				
GST	OEM				
Amertek	OEM				
	Brand IS35744-M1 Cameo Crypto Dynamode lenovonetworks LG LINKPRO KTI ENCORE BONA TRENDnet ALLNET GmbH GST Amertek				