Maximum Permissible Exposure Evaluation

FCC ID: 2A3WP-ES-M525

1. Client Information

Applicant	:	Transportation America Inc
Address	:	2766 Nw 62nd ST, Miami Florida 33101 USA
Manufacturer	:	Dongguan Eastyle Video Technology Co., Ltd.
Address	:	901, No. 148th, Hongye North Road, Tangxia Town, Dongguan City, Guangdong Province, China

2. General Description of EUT

EUT Name	:	MDVR	
Models No.	:	ES-M525, E908AW-APC, ES-M505, ES-M555, ES-M515, E504, E604, E704, E804, E808, E904	
Sample ID	:	20210916-12-2#	
Product Description	:	802.11b/g/n: 2412MHz~2462MHz LTE Band 2: TX: 1850MHz-1910MHz, RX: 1930MHz-1990MHz LTE Band 4: TX: 1710MHz-1755MHz, RX: 2110MHz-2155MHz LTE Band 5: TX: 824MHz-849MHz, RX: 869MHz-894MHz LTE Band 12: TX: 699MHz -716MHz, RX: 729MHz-746MHz LTE Band 14: TX: 788MHz-798 MHz, RX: 758MHz-768MHz LTE Band 66: TX: 1710MHz-1780 MHz, RX: 2110MHz-2200MHz	
		Antenna Gain:	2.4G WIFI: 2.0dBi FPC Antenna LTE Band 2: 1.5dBi External Antenna LTE Band 4: 1.3dBi External Antenna LTE Band 5: 1.7dBi External Antenna LTE Band 12: 2.1dBi External Antenna LTE Band 14: 1.1dBi External Antenna LTE Band 66: 1.8dBi External Antenna
Power Rating	:	Input: DC 9-36V	
Software Version	:	mdvr-fh6630-T21110410-V7.22.1.4444bli-CN-zdq-F525	
Hardware Version	:	ES-M525 V24	

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MPE Calculations

1. Antenna Gain:

2.4G WIFI

Mode	Antenna Type	Antenna Gain
802.11b/g/n	FPC	2.0dBi

LTE

Band	Antenna Type	Antenna Gain
LTE Band 2	External	1.5dBi
LTE Band 4	External	1.3dBi
LTE Band 5	External	1.7dBi
LTE Band 12	External	2.1dBi
LTE Band 14	External	1.1dBi
LTE Band 66	External	1.8dBi

2. EUT Operation Condition:

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3. Exposure Evaluation:

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=(PG)/4\pi R^2$$

Where

S: power density

P: power input to the antenna

G: power gain of the antenna in the direction of interest relative to an isotropic radiator.

R: distance to the center of radiation of the antenna

4. Test Result:

Worst Maximum MPE Result							
Mode	N_{TX}	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm^2) [S]
802.11b	1	12.32	12±1	13	2.0	20	0.0063
802.11g	1	14.52	14±1	15	2.0	20	0.0099
802.11n(HT20)	1	14.22	14±1	15	2.0	20	0.0099
802.11n(HT40)	1	14.58	14±1	15	2.0	20	0.0099
LTE Band 2	1	23.13	22±2	24	1.5	20	0.0706
LTE Band 4	1	21.69	21±2	23	1.3	20	0.0536
LTE Band 5	1	23.50	22±2	24	1.7	20	0.0740
LTE Band 12	1	23.86	22±2	24	2.1	20	0.0811
LTE Band 14	1	24.04	22.5±2	24.5	1.1	20	0.0723
LTE Band 66	1	22.43	21±2	23	1.8	20	0.0601

Note:

(1) N_{TX}= Number of Transmit Antennas

RF Output power specifies that Maximum Conducted Peak Output Power.

5. Conclusion:

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

Limits for General Population/ Uncontrolled Exposure

Frequency Range (MHz)	Power density (mW/cm^2)
300-1,500	F/1500
1,500-100,000	1.0

300-1500MHz:

The worst MPE is calculated as ***0.0740 mW / cm^2 < limit 699/1500=0.466 mW/cm^2***. So, RF exposure limit warning or SAR test are not required.

1500-100000MHz:

The worst MPE is calculated as ***0.0811 mW / cm^2 < limit 1mW/cm^2***. So, RF exposure limit warning or SAR test are not required.

WIFI and LTE support Synchronization transmit the

$$\sum MPE_{ratios}=0.0099+0.0811=0.091<1$$

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR2.1091 (b).

The RF Exposure Information page from the manual is included here for reference.

Note

For a more detailed features description, please refer to the RF Test Report.

-----END OF THE REPORT-----