Maximum Permissible Exposure Evaluation

FCC ID: 2A7MX-FSTV-3222P

1. Client Information

Applicant	:	Galaxy Communications, LLC
Address	:	1512-D Resource Drive Burlington, KY 41005 USA
Manufacturer	:	Kontech Electronic Co., LTD.
Address	:	2nd Floor, No.2 Building, Detai Technology Industrial Park, Huarong Road, Longhua District, Shenzhen, China

2. General Description of EUT

EUT Name	:	LED TV	
Models No.	:	FSTV-3222P, FSTV-2222P, FSTV-2822P	
Model Different	:	All these models are identical in the layout and electrical circuit, The only difference is constant current plate.	
Product Description	:	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz Bluetooth 5.0(BER+EDR): 2402MHz~2480MHz Bluetooth 5.0(BLE): 2402MHz~2480MHz
Power Rating	:	For adapter: Input: AC 100-240V, 1.5A Output: DC 12V/6A	
Software Version	:	----	
Hardware Version	:	9216	
Remark	:	The adapter and antenna gain provided by the applicant, the verified for the RF conduction test provided by TOBY test lab.	

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Method Of Measurement for FCC

1. Max. Antenna Gain:

Band	Antenna Type	Antenna Gain		
		Antenna 0	Antenna 1	Antenna 2
Bluetooth	PCB	1	/	/
2.4G WiFi		/	2	2

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

Simultaneous transmission MPE Considerations

According to KDB447498: All transmitters and antennas in the host must be either evaluated for MPE compliance, by measurement or computational modeling, or qualify for the standalone MPE test exclusion in section 7.1.Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is ≤ 1.0.
This means that:

∑ of MPE ratios ≤ 1.0

4. Test Result:

Bluetooth MPE Result								
Mode	N_{TX}	Freq. (MHz)	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]
GFSK	1	2402	-2.269	-2±1	-1	1	20	0.0002
		2441	-1.82	-2±1	-1	1	20	0.0002
		2480	-1.812	-2±1	-1	1	20	0.0002
π /4-DQPSK	1	2402	0.281	0±1	1	1	20	0.0003
		2441	0.679	1±1	2	1	20	0.0004
		2480	0.63	1±1	2	1	20	0.0004
8-DPSK	1	2402	0.44	0±1	1	1	20	0.0003
		2441	0.98	1±1	2	1	20	0.0004
		2480	0.806	1±1	2	1	20	0.0004

Note:
N_{TX}= Number of Transmit Antennas
RF Output power specifies that Maximum Conducted Peak Output Power.

BLE MPE Result								
Mode	N_{TX}	Freq. (MHz)	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]
GFSK (1Mbps)	1	2402	-3.216	-3±1	-2	1	20	0.0002
		2440	-2.878	-3±1	-2	1	20	0.0002
		2480	-2.696	-3±1	-2	1	20	0.0002

Note:
N_{TX}= Number of Transmit Antennas
RF Output power specifies that Maximum Conducted Peak Output Power.

2.4G WiFi MPE Result								
Test Mode	Antenna	Channel	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]
11B	Ant1	2412	13.53	14±1	15	2	20	0.0100
	Ant2	2412	12.78	13±1	14	2	20	0.0079
	total	2412	16.18	/	/	/	/	/
	Ant1	2437	13.70	14±1	15	2	20	0.0100
	Ant2	2437	12.92	13±1	14	2	20	0.0079
	total	2437	16.34	/	/	/	/	/
	Ant1	2462	14.09	14±1	15	2	20	0.0100
	Ant2	2462	13.71	14±1	15	2	20	0.0100
	total	2462	16.91	/	/	/	/	/
11G	Ant1	2412	13.46	13±1	14	2	20	0.0079
	Ant2	2412	12.42	12±1	13	2	20	0.0063
	total	2412	15.98	/	/	/	/	/
	Ant1	2437	13.97	14±1	15	2	20	0.0100
	Ant2	2437	13.21	13±1	14	2	20	0.0079
	total	2437	16.62	/	/	/	/	/
	Ant1	2462	13.58	14±1	15	2	20	0.0100
	Ant2	2462	13.33	13±1	14	2	20	0.0079
	total	2462	16.47	/	/	/	/	/
11N20	Ant1	2412	13.52	14±1	15	2	20	0.0100
	Ant2	2412	13.05	13±1	14	2	20	0.0079
	total	2412	16.30	/	/	/	/	/
	Ant1	2437	13.33	13±1	14	2	20	0.0079
	Ant2	2437	12.72	13±1	14	2	20	0.0079
	total	2437	16.05	/	/	/	/	/
	Ant1	2462	13.39	13±1	14	2	20	0.0079
	Ant2	2462	13.37	13±1	14	2	20	0.0079
	total	2462	16.39	/	/	/	/	/
11N40	Ant1	2422	13.28	13±1	14	2	20	0.0079
	Ant2	2422	12.36	12±1	13	2	20	0.0063
	total	2422	15.85	/	/	/	/	/
	Ant1	2437	12.72	13±1	14	2	20	0.0079
	Ant2	2437	12.88	13±1	14	2	20	0.0079
	total	2437	15.81	/	/	/	/	/
	Ant1	2452	12.89	13±1	14	2	20	0.0079
	Ant2	2452	13.08	13±1	14	2	20	0.0079
	total	2452	16.00	/	/	/	/	/
Note: 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

For:2402~2480MHz&2412~2462MHz
MPE limit S: 1mW/ cm^2

6. Summary simultaneous transmission results

WiFi and Bluetooth support simultaneous transmit the

WIFI ANT1 MPE (Ratio)	WIFI ANT2 MPE (Ratio)	BLE MPE (Ratio)	simultaneous MPE (Ratio)	MPE Limits (Ratio)
0.0100	0.0100	0.0002	0.0202	1.0000

So, RF exposure limit warning or SAR test are not required.

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.

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