RF Exposure Evaluation

Test report
On Behalf of
ChangSha Kiloview Electronics CO.,LTD.
For
Wireless Video Encoder

Model No.: N2, N1, P1, P2, E1, E2, G1, G2, M2, N1 Pro, N2 Pro

FCC ID: 2AUYX-NPX

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1 General Description of EUT

Equipment	Wireless Video Encoder
Model Name	N2
Serial No.	N1, P1, P2, E1, E2, G1, G2, M2, N1 Pro, N2 Pro
Model Difference	All model's the function, software and electric circuit are the same, only with a product color and model named different. Test sample model: N2
Trade Mark	N/A
FCC ID	2AUYX-NPX
Hardware Version:	V0.1
Software Version:	V1.3.12
Operation frequency	802.11b/g/n 20: 2412~2462 MHz 802.11n 40: 2422~2452MHz
Number of Channels	802.11b/g/n20: 11CH 802.11n 40: 7CH
Antenna Type	Glue stick Antenna
Antenna Gain	ANT1:2dBi ANT2 :2dBi
Modulation Type	CCK/DSSS/OFDM
Power Source	DC 12V from adapter

2 RF Exposure Compliance Requirement

2.1 Standard Requirement

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f^2)	6
30–300	61.4	0.163	1.0	6
300–1500	.....	.....	f/300	6
1500–100,000	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f^2)	30
30–300	27.5	0.073	0.2	30
300–1500	.....	.....	f/1500	30
1500–100,000	.....	.....	1.0	30

F= Frequency in MHz Friis

Formula

Friis transmission formula: Pd = (Pout*G)/(4* Pi * R 2) Where

Pd = power density in mW/cm2

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

Pd id the limit of MPE . If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

3 EUT RF Exposure

Antenna Gain: 2dBi (1.58 numeric)
Antenna Gain: The maximum Gain measured in fully anechoic chamber is in linear scale.
Manufacturer declared that the nearest distance between human and the EUT is 20cm

Measurement Data

802.11b mode						
Test channel	Peak Output Power (dBm)			Tune up tolerance (dBm)		
	ANT1	ANT2	SUM	ANT1	ANT2	SUM
Lowest(2412MHz)	15.95	15.57	/	16±1	16±1	/
Middle(2437MHz)	16.42	15.89	/	16±1	16±1	/
Highest(2462MHz)	15.99	15.65	/	16±1	16±1	/

802.11g mode						
Test channel	Peak Output Power (dBm)			Tune up tolerance (dBm)		
	ANT1	ANT2	SUM	ANT1	ANT2	SUM
Lowest(2412MHz)	13.84	13.66	/	14±1	14±1	/
Middle(2437MHz)	14.08	14.02	/	14±1	14±1	/
Highest(2462MHz)	13.44	13.51	/	14±1	14±1	/

802.11n (HT20)mode						
Test channel	Peak Output Power (dBm)			Tune up tolerance (dBm)		
	ANT1	ANT2	SUM	ANT1	ANT2	SUM
Lowest(2412MHz)	13.43	12.49	16.00	13±1	13±1	16±1
Middle(2437MHz)	13.74	13.11	16.45	13±1	13±1	16±1
Highest(2462MHz)	13.23	12.64	15.96	13±1	13±1	16±1

802.11n40 (HT40)mode						
Test channel	Peak Output Power (dBm)			Tune up tolerance (dBm)		
	ANT1	ANT2	SUM	ANT1	ANT2	SUM
Lowest(2422MHz)	11.38	11.68	14.54	11±1	11±1	14±1
Middle(2437MHz)	11.95	11.97	14.97	11±1	11±1	14±1
Highest(2452MHz)	11.77	11.07	14.44	11±1	11±1	14±1

Maximum tune-up Power and Calculated value:

802.11b mode								
Test channel	Maximum tune-up Power (dBm)			Maximum tune-up Power (mW)			Calculated value (mW/cm2)	Limit (mW/cm2)
	ANT1	ANT2	SUM	ANT1	ANT2	SUM		
Lowest (2412MHz)	17	17	/	50.12	50.12	/	0.0158	1.0
Middle (2437MHz)	17	17	/	50.12	50.12	/	0.0158	1.0
Highest (2462MHz)	17	17	/	50.12	50.12	/	0.0158	1.0

802.11g mode								
Test channel	Maximum tune-up Power (dBm)			Maximum tune-up Power (mW)			Calculated value (mW/cm2)	Limit (mW/cm2)
	ANT1	ANT2	SUM	ANT1	ANT2	SUM		
Lowest (2412MHz)	15	15	/	31.62	31.62	/	0.00997	1.0
Middle (2437MHz)	15	15	/	31.62	31.62	/	0.00997	1.0
Highest (2462MHz)	15	15	/	31.62	31.62	/	0.00997	1.0

802.11n (HT20) mode								
Test channel	Maximum tune-up Power (dBm)			Maximum tune-up Power (mW)			Calculated value (mW/cm2) (SUM)	Limit (mW/cm2)
	ANT1	ANT2	SUM	ANT1	ANT2	SUM		
Lowest (2412MHz)	14	14	17	25.12	25.12	50.24	0.0158	1.0
Middle (2437MHz)	14	14	17	25.12	25.12	50.24	0.0158	1.0
Highest (2462MHz)	14	14	17	25.12	25.12	50.24	0.0158	1.0

802.11n40 (HT40) mode								
Test channel	Maximum tune-up Power (dBm)			Maximum tune-up Power (mW)			Calculated value (mW/cm2) (SUM)	Limit (mW/cm2)
	ANT1	ANT2	SUM	ANT1	ANT2	SUM		
Lowest (2422MHz)	12	12	15	15.85	15.85	31.70	0.010	1.0

Middle (2437MHz)	12	12	15	15.85	15.85	31.70	0.010	1.0
Highest (2452MHz)	12	12	15	15.85	15.85	31.70	0.010	1.0

Remark:
1)The Max Conducted Peak Output Power data refer to report Report No.: HK1910152578-E

2) $Pd = (Pout*G)/(4* Pi * R^2)$