RF Exposure Evaluation Declaration

Applicant	:	Shenzhen JFK Electronic Co., Ltd
Product	:	Video Recorder
Model No.	:	X5 (Adding Model See Annex I)
FCC ID	:	2AAQUCARDVR01
Standards	:	FCC Oet65 Supplement C June 2001
Test Date	:	July 26, 2013 ~ August 08, 2013

Reviewed By : Sunny Sun

(Engineer: Sunny Sun)

Approved By : Marlin Chen

(Manager: Marlin Chen)

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date
1307RSU00206	Rev. 01	Initial report	2013-08-08
1307RSU00206	Rev. 02	Adjust the outputpower	2013-08-20
1307RSU00206	Rev. 03	Increase the statement of exempt SAR test	2013-08-22

1. RF Exposure Evaluation

1.1. Limits

According to FCC 1.1310: 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 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/cm2)	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 Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: Pd = (Pout*G)/(4*pi*r2)

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, 1mW/cm². 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.

1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.
The temperature and related humidity: 18°C and 78% RH.

1.3. Test Result of RF Exposure Evaluation

Product	Video Recorder
Test Item	RF Exposure Evaluation

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1dBi for 2.4GHz in logarithm scale.

Output Power into Antenna:

Test Mode	Frequency Band (MHz)	Maximum output power to antenna (mW)	Limit of Power Density S(mW/cm2)
802.11b/g/n(20MHz)	2412~2462	8.260	10
802.11n(40MHz)	2422~2452	9.036	10

Per FCC KDB 447498 D01v05r01, the SAR exclusion threshold for distances<50mm is defined by the following equation:

$$\frac{Max\ Power\ of\ Channel\ (mW)}{Test\ Separation\ Dist\ (mm)} * \sqrt{Frequency(GHz)} \leq 3.0$$

Based on the maximum conducted power of Wi-Fi and the antenna to use separation distance, Wi-Fi SAR was not required;
[(9.036mW/5)* √2.437] = 2.82 < 3.0.

Note: When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Annex I

J Series	J001, J002, J003, J004, J005, J006, J007, J008, J009, J010, J011, J012, J013, J014, J015, J016, J017, J018, J019, J020, J021, J022, J023, J024, J025, J026, J027, J028, J029, J030, J031, J032, J033, J034, J035, J036, J037, J038, J039, J040, J050, J052, J055, J058, J060, J065, J068, J070, J080, J090, J095, J098,
S Series	S001, S002, S003, S004, S005, S006, S007, S008, S009, S010, S011, S012, S013, S014, S015, S016, S018, S020, S022, S024, S028, S030, S036, S040, S050, S058, S060, S070, S080, S090, S198, S1000, S298, S398, S498, S598, S698, S798, S898, S518, S700, S900, S1000, S2000 ,S998,
K Series	K1000, K2000, K3000, K4000, K5000, K6000, K7000, K8000, K9000
T Series	T1, T2, T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22, T23, T24, T25, T26, T27, T28, T29, T30, T40, T50, T60, T70, T80, T90,
X Series	X1, X2, X3, X4, X5, X6, X7, X8, X9, X10, X11, X12, X13, X14, X15, X16, X17, X18, X19, X20, X22, X24, X25, X28, X35, X40, X50, X60, X70, X80, X90,
A Series	A001, A002, A003, A004, A005, A006, A007, A008, A009, A010, A011, A012, A013, A014, A015, A016, A017, A018, A019, A020, A030, A040, A050, A060, A070, A080, A090,
D Series	D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D010, D012, D013, D014, D015, D016, D017, D018, D019, D020, D030, D040, D050, D060, D070, D080, D090,
F Series	F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12, F13, F14, F16, F18, F20, F30, F40, F50, F60, F70, F80, F90,

Note: They are only different for marketing requirement.

The End