Maximum Permissible Exposure

Equipment	:	**802.11ac Wireless Router**
Brand Name	:	**Synology**
Model No.	:	**RT2600ac**
FCC ID	:	**YOR-RT2600AC**
Standard	:	**IEEE C95.1**
Applicant / Manufacturer	:	**Synology Incorporated** 3F-3, No.106, Chang An W. Rd., Taipei 103, Taiwan

The product sample received on Jun. 28, 2016 and completely tested on Aug. 09, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in IEEE C95.1 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

Kevin Liang / Assistant Manager

Testing Laboratory
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Revision History

Report No.	Version	Description	Issued Date
FA662420-01	Rev. 01	Initial issue of report	Sep. 02, 2016

1 Human Exposure Assessment

1.1 Maximum Permissible Exposure

1.1.1 Limit of Maximum Permissible Exposure

Limits for Occupational / Controlled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/ cm²)**	**Averaging Time |E|²,|H|² or S (minutes)**
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
Limits for General Population / Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/ cm²)**	**Averaging Time |E|²,|H|² or S (minutes)**
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
Note 1: f = frequency in MHz ; *Plane-wave equivalent power density Note 2: For the applicable limit, see FCC 1.1310				

1.1.2 MPE Calculation Method

$$S = \frac{PG}{4\pi R^2}$$

S = power density (in appropriate units, e.g. mW/cm^2)
P = power input to the antenna (in appropriate units, e.g., mW)
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 (appropriate units, e.g., cm)

1.1.3 Result of Maximum Permissible Exposure (2.4G)

RF General Information					
Frequency Range (MHz)	**IEEE Std. 802.11 Protocol**	**Ch. Frequency (MHz)**	**Channel Number**	**Number of Transmit Chains (N_{TX})**	**RF Output Power (dBm)**
2400-2483.5	b	2412-2462	1-11 [11]	4	26.13
2400-2483.5	g	2412-2462	1-11 [11]	4	26.75
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	4	26.57
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	4	21.66
Note 1: RF output power specifies that Maximum Conducted (Average) Output Power.					

Worst Maximum RF Output Power Result									
Exposure Environment		General Population / Uncontrolled Exposure							
Separation Distance (cm)		20							
Condition		**RF Output Power (dBm)**							
Modulation Mode	**N_{TX}**	**Chain-Port 1**	**Chain-Port 2**	**Chain-Port 3**	**Chain-Port 4**	**Sum Chain**	**DG (dBi)**	**EIRP Power**	**PD (S) (mW/cm²)**
g	4	20.83	20.81	20.64	20.62	26.75	4.50	31.25	0.26529
Maximum Permissible Exposure Limit (mW/cm²)									1
Note 1: N_{TX} = Number of Transmit Chains									

1.1.4 Result of Maximum Permissible Exposure (5.3G)

RF General Information for Non-Beamforming					
Frequency Range (MHz)	**IEEE Std. 802.11 Protocol**	**Ch. Frequency (MHz)**	**Channel Number**	**Number of Transmit Chains (N_{TX})**	**RF Output Power (dBm)**
5250-5350	a	5260-5320	52-64 [4]	4	20.73
5250-5350	n (HT20)	5260-5320	52-64 [4]	4	20.73
5250-5350	n (HT40)	5270-5310	54-62 [2]	4	23.60
5250-5350	ac (VHT20)	5260-5320	52-64 [4]	4	20.76
5250-5350	ac (VHT40)	5270-5310	54-62 [2]	4	23.62
5250-5350	ac (VHT80)	5290	58 [1]	4	15.66
Note 1: RF output power specifies that Maximum Conducted (Average) Output Power..					

Worst Maximum RF Output Power Result for Non-Beamforming									
Exposure Environment		General Population / Uncontrolled Exposure							
Separation Distance (cm)		20							
Condition		**RF Output Power (dBm)**							
Modulation Mode	**N_{TX}**	**Chain-Port 1**	**Chain-Port 2**	**Chain-Port 3**	**Chain-Port 4**	**Sum Chain**	**DG (dBi)**	**EIRP Power**	**PD (S) (mW/cm²)**
ac (VHT40)	4	17.56	17.57	17.79	17.47	23.62	2.90	26.52	0.08928
Maximum Permissible Exposure Limit (mW/cm²)									1
Note 1: N_{TX} = Number of Transmit Chains									

RF General Information for Beamforming					
Frequency Range (MHz)	**IEEE Std. 802.11 Protocol**	**Ch. Frequency (MHz)**	**Channel Number**	**Number of Transmit Chains (N_{TX})**	**RF Output Power (dBm)**
5250-5350	ac (VHT20) (Beamforming)	5260-5320	52-64 [4]	4	20.80
5250-5350	ac (VHT40) (Beamforming)	5270-5310	54-62 [2]	4	20.83
5250-5350	ac (VHT80) (Beamforming)	5290	58 [1]	4	15.17
Note 1: RF output power specifies that Maximum Conducted (Average) Output Power..					

Worst Maximum RF Output Power Result for Beamforming									
Exposure Environment		General Population / Uncontrolled Exposure							
Separation Distance (cm)		20							
Condition		**RF Output Power (dBm)**							
Modulation Mode	**N_{TX}**	**Chain-Port 1**	**Chain-Port 2**	**Chain-Port 3**	**Chain-Port 4**	**Sum Chain**	**DG (dBi)**	**EIRP Power**	**PD (S) (mW/cm²)**
ac (VHT40) (Beamforming)	4	14.37	14.51	15.35	14.96	20.83	8.92	29.76	0.18825
Maximum Permissible Exposure Limit (mW/cm²)									1
Note 1: N_{TX} = Number of Transmit Chains									

1.1.5 Result of Maximum Permissible Exposure (5.6G)

RF General Information for Non-Beamforming					
Frequency Range (MHz)	**IEEE Std. 802.11 Protocol**	**Ch. Frequency (MHz)**	**Channel Number**	**Number of Transmit Chains (N_{TX})**	**RF Output Power (dBm)**
5470-5725	a	5500-5700	100-140 [8]	4	20.22
5470-5725	n (HT20)	5500-5700	100-140 [8]	4	20.01
5470-5725	n (HT40)	5510-5670	102-134 [3]	4	23.41
5470-5725	ac (VHT20)	5500-5700	100-140 [8]	4	20.09
5470-5725	ac (VHT40)	5510-5670	102-134 [3]	4	23.48
5470-5725	ac (VHT80)	5530	106 [1]	4	17.08
Note 1: RF output power specifies that Maximum Conducted (Average) Output Power..					

Worst Maximum RF Output Power Result for Non-Beamforming									
Exposure Environment		General Population / Uncontrolled Exposure							
Separation Distance (cm)		20							
Condition		**RF Output Power (dBm)**							
Modulation Mode	**N_{TX}**	**Chain-Port 1**	**Chain-Port 2**	**Chain-Port 3**	**Chain-Port 4**	**Sum Chain**	**DG (dBi)**	**EIRP Power**	**PD (S) (mW/cm²)**
ac (VHT40)	4	17.82	17.44	17.11	17.43	23.48	3.60	27.08	0.10156
Maximum Permissible Exposure Limit (mW/cm²)									1
Note 1: N_{TX} = Number of Transmit Chains									

RF General Information for Beamforming					
Frequency Range (MHz)	**IEEE Std. 802.11 Protocol**	**Ch. Frequency (MHz)**	**Channel Number**	**Number of Transmit Chains (N_{TX})**	**RF Output Power (dBm)**
5470-5725	ac (VHT20) (Beamforming)	5500-5700	100-140 [8]	4	20.33
5470-5725	ac (VHT40) (Beamforming)	5510-5670	102-134 [3]	4	20.16
5470-5725	ac (VHT80) (Beamforming)	5530	106 [1]	4	15.94
Note 1: RF output power specifies that Maximum Conducted (Average) Output Power..					

Worst Maximum RF Output Power Result for Beamforming									
Exposure Environment		General Population / Uncontrolled Exposure							
Separation Distance (cm)		20							
Condition		**RF Output Power (dBm)**							
Modulation Mode	**N_{TX}**	**Chain-Port 1**	**Chain-Port 2**	**Chain-Port 3**	**Chain-Port 4**	**Sum Chain**	**DG (dBi)**	**EIRP Power**	**PD (S) (mW/cm²)**
ac (VHT20) (Beamforming)	4	14.29	13.98	14.58	14.37	20.33	9.62	29.95	0.19667
Maximum Permissible Exposure Limit (mW/cm²)									1
Note 1: N_{TX} = Number of Transmit Chains									

1.1.6 Result of Maximum Permissible Exposure (Co-location)

Worst Maximum RF Output Power Result							
Exposure Environment		General Population / Uncontrolled Exposure					
Separation Distance (cm)		20					
Condition		**RF Output Power (dBm)**					
Modulation Mode	**N_{TX}**	**Sum Chain RF Output Power (dBm)**	**DG (dBi)**	**EIRP Power**	**PD (S) (mW/cm²)**	**Limit (mW/cm²)**	**Ratio**
2.4G - g	4	26.75	4.50	31.25	0.26529	1	0.26529
5.6G - ac (VHT40)	4	23.48	3.60	27.08	0.10156	1	0.10156
Co-location Total							0.36685
Maximum Permissible Exposure Limit							1

Note 1: NTX = Number of Transmit Chains.

Note.2: Both of the WLAN 2.4GHz Band and WLAN 5GHz Band can transmit simultaneously, the formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

Note 3: Refer to KDB 865664 D02 RF Exposure Reporting v01r02 for MPE Calculation Colocation.