RF EXPOSURE REPORT

REPORT NO.:	SA131220C10F
MODEL NO.:	XR600
FCC ID:	SK6-XR630
RECEIVED:	Aug. 29, 2014
TESTED:	Aug. 29 ~ Sep. 04, 2014
ISSUED:	Sep. 19, 2014

APPLICANT:	Xirrus, INC.
ADDRESS:	2101 Corporate Center Driver Thousand Oaks, California 91320

ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
LAB ADDRESS:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.
TEST LOCATION:	No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

This report should not be used by the client to claim product certification, approval, or endorsement by any government agencies.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA131220C10F	Original release.	Sep. 19, 2014

1. CERTIFICATION

PRODUCT:	802.11ac 3x3 AP
MODEL:	XR600
BRAND:	Xirrus
APPLICANT:	Xirrus, INC.
TESTED:	Aug. 29 ~ Sep. 04, 2014
TEST SAMPLE:	ENGINEERING SAMPLE
STANDARDS:	**FCC Part 2 (Section 2.1091)**
	KDB 447498 D03
	IEEE C95.1

The above equipment (model: XR600) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch,** and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : _____ **, DATE :** Sep. 19, 2014
Maggie Wu / Specialist

APPROVED BY : _____ **, DATE :** Sep. 19, 2014
Ken Liu / Senior Manager

2. RF EXPOSURE

2.1 LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

FREQUENCY RANGE (MHz)	ELECTRIC FIELD STRENGTH (V/m)	MAGNETIC FIELD STRENGTH (A/m)	POWER DENSITY (mW/cm^2)	AVERAGE TIME (minutes)
LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE				
300-1500	…	…	F/1500	30
1500-100,000	…	…	1.0	30

F = Frequency in MHz

2.2 MPE CALCULATION FORMULA

$Pd = (Pout*G) / (4*pi*r^2)$

where

Pd = power density in mW/cm^2

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

2.3 CLASSIFICATION

The antenna of this product, under normal use condition, is at least 24cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

TEST MODE A (Radio 1)

FREQUENCY BAND (MHz)	MODE	MAX POWER (dBm)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm^2)	LIMIT (mW/cm^2)
2412 ~ 2462	802.11b	25.15	8.85	24	0.347	1
	802.11g	26.41	8.85	24	0.464	1
	802.11n (20MHz)	26.37	4.08	24	0.153	1
	802.11n (40MHz)	24.58	4.08	24	0.101	1
5180 ~ 5240	802.11a	11.49	10.74	24	0.023	1
	802.11n (20MHz)	16.55	5.97	24	0.025	1
	802.11n (40MHz)	16.83	5.97	24	0.026	1
	802.11ac (VHT80)	15.50	10.74	24	0.058	1
5260 ~ 5320	802.11a	18.40	10.74	24	0.113	1
	802.11n (20MHz)	20.61	5.97	24	0.063	1
	802.11n (40MHz)	19.91	5.97	24	0.054	1
	802.11ac (VHT80)	17.52	10.74	24	0.093	1
5500 ~ 5720	802.11a	18.43	10.74	24	0.114	1
	802.11n (20MHz)	20.32	5.97	24	0.059	1
	802.11n (40MHz)	20.13	5.97	24	0.056	1
	802.11ac (VHT80)	16.49	10.74	24	0.073	1
5745 ~ 5825	802.11a	24.50	10.74	24	0.462	1
	802.11n (20MHz)	24.47	5.97	24	0.153	1
	802.11n (40MHz)	24.52	5.97	24	0.155	1
	802.11ac (VHT80)	23.49	10.74	24	0.366	1

2.4GHz Band:

1. 802.11b/g: Directional gain = 4.08dBi + 10log(3) = 8.85dBi
2. 802.11n (20MHz), 802.11n (40MHz): IEEE 802.11n, MCS = 16-23, NSS = 3, Directional gain = 4.08dBi + 10log(3/3) = 4.08dBi

5GHz Band:

1. 802.11a, 802.11ac (VHT80): Directional gain = 5.97dBi + 10log(3) = 10.74dBi
2. 802.11n (20MHz), 802.11n (40MHz): IEEE 802.11n, MCS = 16-23, NSS = 3, Directional gain = 5.97dBi + 10log(3/3) = 5.97dBi

TEST MODE B (Radio 2)

FREQUENCY BAND (MHz)	MODE	MAX POWER (dBm)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm^2)	LIMIT (mW/cm^2)
2412 ~ 2462	802.11b	24.98	8.85	24	0.334	1
	802.11g	25.75	8.85	24	0.398	1
	802.11n (20MHz)	25.68	4.08	24	0.131	1
	802.11n (40MHz)	24.93	4.08	24	0.110	1
5180 ~ 5240	802.11a	11.66	10.74	24	0.024	1
	802.11n (20MHz)	16.54	5.97	24	0.025	1
	802.11n (40MHz)	15.96	5.97	24	0.022	1
	802.11ac (VHT80)	15.44	10.74	24	0.057	1
5260 ~ 5320	802.11a	18.93	10.74	24	0.128	1
	802.11n (20MHz)	20.46	5.97	24	0.061	1
	802.11n (40MHz)	20.29	5.97	24	0.058	1
	802.11ac (VHT80)	17.90	10.74	24	0.101	1
5500 ~ 5720	802.11a	18.51	10.74	24	0.116	1
	802.11n (20MHz)	20.63	5.97	24	0.063	1
	802.11n (40MHz)	20.44	5.97	24	0.060	1
	802.11ac (VHT80)	17.30	10.74	24	0.088	1
5745 ~ 5825	802.11a	24.62	10.74	24	0.475	1
	802.11n (20MHz)	24.43	5.97	24	0.151	1
	802.11n (40MHz)	24.48	5.97	24	0.153	1
	802.11ac (VHT80)	23.64	10.74	24	0.379	1

2.4GHz Band:

1. 802.11b/g: Directional gain = 4.08dBi + 10log(3) = 8.85dBi
2. 802.11n (20MHz), 802.11n (40MHz): IEEE 802.11n, MCS = 16-23, NSS = 3, Directional gain = 4.08dBi + 10log(3/3) = 4.08dBi

5GHz Band:

1. 802.11a, 802.11ac (VHT80): Directional gain = 5.97dBi + 10log(3) = 10.74dBi
2. 802.11n (20MHz), 802.11n (40MHz): IEEE 802.11n, MCS = 16-23, NSS = 3, Directional gain = 5.97dBi + 10log(3/3) = 5.97dBi

CONCLUSION:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

The EUT is collocated two dual band RF modules (Radio 1, Radio 2), which cannot co-transmit in the same band.

1. WLAN 2.4GHz (Radio 1) + WLAN 5GHz (Radio 2) = 0.464 + 0.475 = 0.939
2. WLAN 5GHz (Radio 1) + WLAN 2.4GHz (Radio 2) = 0.462 + 0.398 = 0.860

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