

## RF Exposure Report

**Report No.:** SA161121E02

**FCC ID:** PY316200352

**Test Model:** VML4030

**Received Date:** Nov. 21, 2016

**Test Date:** Nov. 26, 2016

**Issued Date:** Dec. 15, 2016

**Applicant:** NETGEAR, Inc.

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
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### Release Control Record

Issue No.	Description	Date Issued
SA161121E02	Original release.	Dec. 15, 2016

## 1 Certificate of Conformity

**Product:** LTE Camera

**Brand:** NETGEAR

**Test Model:** VML4030

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** NETGEAR, Inc.

**Test Date:** Nov. 26, 2016

**Standards:** FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

The above equipment 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 :** Wendy Wu , **Date:** Dec. 15, 2016  
Wendy Wu / Specialist

**Approved by :** May Chen , **Date:** Dec. 15, 2016  
May Chen / 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 <sup>2</sup> )	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

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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 Antenna Gain

For WLAN								
Antenna Set.	Brand	Model	Antenna Gain (dBi)	Frequency range (GHz)	Antenna Type	Connector Type	Cable Loss (dB)	Cable Length (mm)
1	Master Wave	9 8P4ZMIPF000	2	2.4~2.4835	Metal	NA	NA	NA
			2					
For LTE								
Antenna Set.	Brand	Model	Antenna Gain (dBi)	Frequency range (MHz)	Antenna Type	Connector Type	Cable Loss (dB)	Cable Length (mm)
2	NA	NA	0	699.7 ~ 850	PIFA	NA	NA	110+/-5
			-1	850 ~ 960				
			2	1710 ~ 1800				
			1	1800 ~ 2000				
			0.8	2500 ~ 2700				
			2	2500 ~ 2700				
For GPS								
Antenna No.	Brand	Model	Antenna Gain (dBi)	Frequency range (MHz)	Antenna Type	Connector Type	Cable Loss (dB)	Cable Length (mm)
3	NA	NA	2	1510 ~ 1575.42	slot	NA	NA	35+/-5

## 2.5 Calculation Result

### For WLAN:

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	358.096	2	24	0.07841	1

### For LTE:

Frequency Band (MHz)	Max Power (mW)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
824-849	3125.84	24	0.43185	0.5495

\* This product can operate with cellular module which has maximum of 1.906W(ERP) output power.

ERP is then converted to EIRP as follows:

Formula :  $EIRP(W) = 1.64 \times ERP(W)$

$$EIRP = 1.64 \times 1.906 \text{ W} = 3.12584 \text{ W} = 3125.84\text{mW}$$

### Conclusion:

The formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

$WLAN \ 2.4GHz + WWAN(LTE) = 0.07841 / 1 + 0.43185 / 0.5495 = 0.86436$

**Therefore the maximum calculations of above situations are less than the "1" limit.**

--- END ---

## Appendix

WWAN(LTE) module

MPE Evaluation for FCC ID: MCLT77W595 Radio Module:

FCC Rule Parts	Emission Designator	Frequency Range (MHz)		Output Watts (W)	Antenna Gain (dBi)	Power Density (mW/cm <sup>2</sup> )		Ratio
		Start	Stop			Vaule	Limit	
22H	242KGXW	824.2	848.8	1.906	0	0.26332	0.54946	<b>0.47923</b>
22H	246KG7W	824.2	848.8	0.776	0	0.10721	0.54946	0.19512
22H	4M18F9W	826.4	846.6	0.259	0	0.03578	0.55093	0.06494
22H	1M28F9W	824.7	848.31	0.305	0	0.04214	0.5498	0.07665
22H	1M24G7D	824.7	848.3	0.38	0	0.0525	0.5498	0.09549
22H	2M74G7D	825.5	847.5	0.447	0	0.06176	0.55033	0.11222
22H	4M50G7D	826.5	846.5	0.427	0	0.05899	0.551	0.10706
22H	9M03G7D	829	844	0.355	0	0.04905	0.55266	0.08875
22H	1M09G7D	824.7	848.3	0.324	0	0.04476	0.5498	0.08141
22H	2M73G7D	825.5	847.5	0.309	0	0.04269	0.55033	0.07757
22H	4M50G7D	826.5	846.5	0.275	0	0.03799	0.551	0.06895
22H	9M00G7D	829	844	0.302	0	0.04172	0.55266	0.07549
22H	13M4W7D	831.5	841.5	0.288	0	0.03979	0.55433	0.07178
24E	244KGXW	1850.2	1909.8	1.95	1	0.33916	1	0.33916
24E	246KG7W	1850.2	1909.8	1	1	0.17393	1	0.17393
24E	4M18F9W	1852.4	1907.6	0.83	1	0.14436	1	0.14436
24E	1M28F9W	1851.25	1908.75	0.891	1	0.15497	1	0.15497
24E	1M25G7D	1850.7	1909.3	0.535	1	0.09305	1	0.09305
24E	2M74W7D	1851.5	1908.5	0.565	1	0.09827	1	0.09827
24E	4M52W7D	1852.5	1907.5	0.572	1	0.09949	1	0.09949
24E	9M03W7D	1855	1905	0.556	1	0.0967	1	0.0967
24E	13M4W7D	1857.5	1902.5	0.505	1	0.08783	1	0.08783
24E	18M0G7D	1860	1900	0.555	1	0.09653	1	0.09653
24E	1M25G7D	1850.7	1914.3	0.616	1	0.10714	1	0.10714
24E	2M73G7D	1851.5	1913.5	0.589	1	0.10244	1	0.10244
24E	4M50W7D	1852.5	1912.5	0.589	1	0.10244	1	0.10244
24E	9M00W7D	1855	1910	0.514	1	0.0894	1	0.0894
24E	13M4W7D	1857.5	1907.5	0.594	1	0.10331	1	0.10331
24E	18M0G7D	1860	1905	0.475	1	0.08262	1	0.08262
27	4M18F9W	1712.4	1752.6	0.61	2	0.13357	1	0.13357
27	1M09W7D	1710.7	1754.3	0.614	2	0.13444	1	0.13444
27	2M70W7D	1711.5	1753.5	0.636	2	0.13926	1	0.13926
27	4M52G7D	1712.5	1752.5	0.667	2	0.14605	1	0.14605
27	9M00G7D	1715	1750	0.664	2	0.14539	1	0.14539
27	13M6G7D	1717.5	1747.5	0.674	2	0.14758	1	0.14758
27	18M0G7D	1720	1745	0.68	2	0.14889	1	0.14889

FCC Rule Parts	Emission Designator	Frequency Range (MHz)		Output Watts (W)	Antenna Gain (dBi)	Power Density (mW/cm <sup>2</sup> )		Ratio
		Start	Stop			Vaule	Limit	
27	1M10W7D	699.7	715.3	0.535	0	0.07391	0.46646	0.15845
27	2M70W7D	700.5	714.5	0.49	0	0.0677	0.467	0.14497
27	4M52W7D	701.5	713.5	0.482	0	0.06659	0.46766	0.14239
27	9M03W7D	704	711	0.479	0	0.06618	0.46933	0.14101
27	4M53W7D	779.5	784.5	0.554	0	0.07654	0.51966	0.14729
27	8M97W7D	782	782	0.58	0	0.08013	0.52133	0.1537
27	4M52W7D	706.5	713.5	0.35	0	0.04835	0.471	0.10265
27	9M00G7D	709	711	0.4	0	0.05526	0.47266	0.11691
27	4M52W7D	2502.5	2567.5	0.881	2	0.1929	1	0.1929
27	8M97W7D	2505	2565	0.861	2	0.18853	1	0.18853
27	13M6W7D	2507.5	2562.5	0.822	2	0.17999	1	0.17999
27	18M0W7D	2510	2560	0.881	2	0.1929	1	0.1929
90	1M28F9W	817.9	823.1	0.313	0	0.04324	0.54526	0.0793
90	1M09W7D	814.7	823.3	0.367	0	0.0507	0.54313	0.09335
90	2M73W7D	815.5	822.5	0.344	0	0.04753	0.54366	0.08743
90	4M50W7D	816.5	821.5	0.365	0	0.05043	0.54433	0.09265
90	9M03G7D	819	819	0.382	0	0.05278	0.546	0.09667

Note: 1. Distance to Human Body: 24cm

2. The ratios which was indicated in bold type of the max ratio.