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.
Address:	350 East Plumeria Drive San Jose, CA 95134
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.

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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 : , **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^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 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	2.4~2.4835	Metal	NA	NA	NA
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 -1 2 1 0.8 2	699.7 ~ 850 850 ~ 960 1710 ~ 1800 1800 ~ 2000 2500 ~ 2700 2500 ~ 2700	PIFA	NA	NA	110+/-5
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^2)	Limit (mW/cm^2)
2412-2462	358.096	2	24	0.07841	1

For LTE:

Frequency Band (MHz)	Max Power (mW)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
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 x ERP(W)

EIRP= 1.64 x 1.906 W =3.12584 W =3125.84mW

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……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.

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Appendix

WWAN(LTE) module

MPE Evaluation for FCC ID: MCLT77W595 Radio Module:

FCC Rule Parts	Emission Designator	Frequency Range (MHz)		Output Watts	Antenna Gain (dBi)	Power Density (mW/cm^2)		Ratio
		Start	Stop	(W)		Vaule	Limit	
22H	242KGXW	824.2	848.8	1.906	0	0.26332	0.54946	**0.47923**
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	Antenna Gain (dBi)	Power Density (mW/cm^2)		Ratio
		Start	Stop	(W)		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.