RF Exposure Report

Report No.:	SA160706E06
FCC ID:	ZMYDSL2401HNAT1CC
Test Model:	DSL-2401HNA-T1CC
Received Date:	Jule 06, 2016
Test Date:	July 28 to 29, 2016
Issued Date:	Sep. 20, 2016
Applicant:	MitraStar Technology Corporation
Address:	No. 6, Innovation Rd II, Hsinchu Science Park, Hsinchu 30076, Taiwan
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.

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
SA160706E06	Original release.	Sep. 20, 2016

1 Certificate of Conformity

Product:	VDSL IAD
Brand:	MitraStar
Test Model:	DSL-2401HNA-T1CC
Sample Status:	ENGINEERING SAMPLE
Applicant:	MitraStar Technology Corporation
Test Date:	July 28 to 29, 2016
Standards:	FCC Part 2 (Section 2.1091) KDB 447498 D01 General RF Exposure Guidance v06

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 : _____ , **Date:** Sep. 20, 2016

Wendy Wu / Specialist

Approved by : _____ , **Date:** Sep. 20, 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 22cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

2.4GHz band								
Antenna Set.	Chain No.	Brand	Model	Antenna Gain(dBi)	Frequency range (GHz ~ GHz)	Antenna Type	Connecter Type	Cable Length (mm)
1	Chain 0	Whayu	65-031-240136B	2.7	2.4~2.4835	PCB	NA	202
	Chain 1		65-031-240141B	3	2.4~2.4835		NA	75
5GHz band								
Antenna No.	Chain No.	Brand	Model	Antenna Gain(dBi)	Frequency range (GHz ~ GHz)	Antenna Type	Connecter Type	Cable Length (mm)
1	Chain 0	Whayu	65-031-240137B	3.4	5.15~5.85	PCB	i-pex(MHF)	90
	Chain 1		65-031-240138B	3.3	5.15~5.85		i-pex(MHF)	115
	Chain 2		65-031-240139B	3.4	5.15~5.85		i-pex(MHF)	181
	Chain 3		65-031-240140B	3.4	5.15~5.85		i-pex(MHF)	200

2.5 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2412-2462	532.235	5.86	22	0.33732	1
5180-5240	348.899	9.4	22	0.49962	1
5745-5825	413.705	9.4	22	0.59243	1

NOTE:
2.4GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 5.86$dBi
5GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 9.4$dBi

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 + WLAN 5GHz = 0.33732 / 1 + 0.59243 / 1 = 0.92975

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

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