MPE/RF EXPOSURE REPORT

FCC CFR 47 Part 1.1310

Report No.: MIKO114-U2A Rev A FCC MPE

Company: Mikrotikls SIA

Evaluation of: RBD53iG-5HacD2HnD-US

MPE/RF EXPOSURE REPORT

FROM

Evaluation of: Mikrotikls SIA RBD53iG-5HacD2HnD-US

To: FCC CFR 47 Part 1.1310

Report Serial No.: MIKO114-U2A Rev A FCC MPE

This report supersedes: NONE

Applicant: Mikrotikls SIA
Brivibas gatve 214i
Riga, LV-1039
Latvia

Product Function: 802.11a/b/g/n/ac WLAN router

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This Report is Issued Under the Authority of:

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Calculations for RF Exposure Evaluation for RBD53iG-5HacD2HnD-US

Power Density = Pd (W/m^2) = EIRP/($4*\pi*d^2$)
EIRP = P * G
P = Peak output power (W)
G = Antenna numeric gain (numeric)
d = Separation distance (m)
Numeric Gain = 10 ^ (G (dBi)/10)

Because the EUT belongs to the General Population/Uncontrolled Exposure the limit of power density is 1.0 mW/cm^2

The calculations in the table below use the highest conducted power values together with the antenna gain specified for the EUT. These calculations represent worst case in terms of the exposure levels.

Freq. Band (MHz)	Ant Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Power Density (mW/cm^2) @ 20cm	Power Density Limit (mW/cm^2)	Min Calculated safe distance for Limit (cm)
2400.0 - 2483.5	3.0	2.0	17.92	61.94	0.025	1.00	3.14
5150.0 - 5250.0	5.5	3.55	18.26	66.99	0.047	1.00	4.35
5250.0 – 5350.0	5.5	3.55	18.61	72.61	0.051	1.00	4.53
5470.0 – 5725.0	5.5	3.55	18.86	76.91	0.054	1.00	4.66
5725.0 - 5850.0	5.5	3.55	12.79	19.01	0.013	1.00	2.32

Assessment of worst case exposure conditions with the 2 radios transmitting simultaneously.

Freq. Band (MHz)	Ant Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Power Density (mW/cm^2) @ 20cm	Power Density Limit (mW/cm^2)
2400.0 - 2483.5	3.0	2.0	17.92	61.94	0.025	1.00
5470.0 – 5725.0	5.5	3.55	18.86	76.91	0.054	1.00

Evaluation for compliance of simultaneous transmission is determined by summation of the ratios of Pd Calc/Pd Limit < 1.

Pd – Power Density

$S_1 + S_2 = 0.025 + 0.054 = 0.079$

Minimum Safe Distance = 0.20 m
Note: for mobile or fixed location transmitters the minimum separation distance is 0.20m, even if calculations indicate the MPE distance to be less.

Specification - RF Exposure Evaluation Limits

The Limit is defined in Table 1 of FCC §1.1310.

Specification - Maximum Permissible Exposure Limits

TABLE 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)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
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
300-1,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Population/Uncontrolled Exposure				
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
300-1,500	--	--	f/1500	30
1,500-100,000	--	--	1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

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