Technical Assessment Letter

Dear Sirs,

As WLAN transmitter/antenna that intends to be continuous compliant via Class II Permissive Change is located 2.2cm away from WWAN transmitter/antenna in a notebook, the simultaneous transmission evaluation shall be always considered. This letter intends to illustrate the logical reasoning why Simultaneous SAR transmission can be exempted on the basis of KDB 616217 publishes by FCC.

According to 616217 d03, provision 4) a), while the Σ[(Highest Measured 1g SAR for each portable transmitter) / 1.6W/Kg)] + Σ[(Highest MPE for each mobile transmitter) / (the corresponding MPE Limit)] < 1

The WLAN transmitter, Athelos, is defined as Portable Transmitter, since the Antenna-to-User distance is 14.3cm < 20cm
The WWAN transmitter, Novatel, is defined as Mobile Transmitter, since the Antenna-to-User distance is 22.2cm > 20cm

The following table records the value of calculation:

SAR as measured with regards to Class II PC application			
Mode	**SAR (W/kg)**	**SAR Limits (W/kg)**	**SAR / SAR Limits**
802.11a	0.165	1.6	0.103125
802.11b	0.049	1.6	0.030625
802.11g	0.032	1.6	0.02
802.11n_20M	0.032	1.6	0.02
802.11n_40M	0.034	1.6	0.02125
802.11n_20M (5G)	0.161	1.6	0.100625
802.11n_40M (5G)	0.177	1.6	0.110625
MPE as referenced by report no. EH/2010/B0003 issued by SGS Taiwan Ltd.			
Mode	**Power Density @ 20cm (mW/cm^2)**	**MPE Limit (mW/cm^2)**	**Power Density / Corresponding MPE Limit**
GPRS 850	0.026	0.549	0.047359

* Worst Case by comparison of radiated power as measured in EH/2010/B0003
Power Density = ERP * Duty Cycle / (4πR^2)
= 1158.77 * 0.25 / (4*π * 20^2) = 0.026mW/cm^2
MPE Limit = f / 1500 = 824.2 / 1500 = 0.549

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minute)
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
300-1500	/	/	F/1500	30
1500-15000	/	/	1	30

Σ [(Highest Measured 1g SAR for each portable transmitter) / 1.6W/Kg)] + Σ [(Highest MPE for each mobile transmitter) / (the corresponding MPE Limit)]
= 0.110625 + 0.047359 = 0.158 < 1.0

Therefore, Collocated SAR can be exempted!

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