March 21, 2016

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Attention: Director of Certification

RE: Analysis of RF Exposure for Portable and Mobile use per KDB 447498 D01 Mobile Portable RF Exposure v05r02 and RSS-102 Issue 5 March 2015.

FCC ID: U6Y-RDAA8110
IC: 216P-RDAA8110

1. Limits

Limits for General Population/Uncontrolled Exposure (Title 47 Subpart J §2.1091 and KDB 447498 D01 referring to limits under §1.1310)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Electric Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time (minutes)
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 - 100,000	-	-	1.0	30

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

Limits for Devices Used by the General Public (Uncontrolled Environment (RSS-102 Issue 5 March 2015)

Frequency Range (MHz)	Electric Field Strength (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m^2)	Reference Period (minutes)
0.003 - 10[21]	83	90	-	6**
0.1 - 10	-	0.73/f	-	6**
1.1 - 10	87/f$^{0.5}$	-	-	6
10 - 20	27.46	0.0728	2	6
20 - 48	-58.07/f$^{0.25}$	0.1540/f$^{0.25}$	8.944/f$^{0.5}$	6
48 - 300	22.06	0.05852	1.291	6
300 - 6000	3.142 f$^{0.3417}$	0.008335 f$^{0.3417}$	0.02619 f$^{0.6834}$	6
6000 - 15000	61.4	0.163	10	6
15000 - 150000	61.4	0.163	10	616000/f$^{1.2}$
150000 - 300000	0.158f$^{0.5}$	4.21 x 10^{-4} f$^{0.5}$	6.67 x 10^{-5} f	616000/f$^{1.2}$

f is frequency in MHz
*Based on nerve stimulation (NS)
** Based on specific absorption rate (SAR)

2. **Mobile MPE Calculation Summary using a 25cm separation distance:**

Mode	Output Power (dBm)*	Power Density (mW/cm^2)	Power Density (W/m^2)	FCC Limit (mW/cm^2)	IC Limit (W/m^2)
GSM 850	32.92	0.111	1.11	0.55	2.576
GSM 1850	29.18	0.047	0.47	1	4.477
LTE Band 5 (worst case power)	27.42	0.125	1.25	0.55	2.577
LTE B2 (worst case power)	29.72	0212	2.12	1	4.477

*Since the IC limit is related to the frequency, so the Output Power of the lowest frequency was selcted as the worst case.

3. **Based on nerve* **Co-Located Transmitters transmission table:**

Transmitter type	Transmitter type that can transmit at the same time
GSM 850	None
GSM 1900	None
WCDMA Cell Band 5	None
WCDMA Cell Band 2	None
LTE Band 2	None
LTE Band 5	None

4. Simultaneous Transmission MPE: (N/A)

Transmitter type	MPE (mw/cm^2)	FCC Limit (mW/cm^2)	IC Limit (W/m^2)	MPE ratio (MPE/Limit)

5. Mobile MPE Calculation using a 20cm separation distance

Using Power Density formula:

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density
P = power input to the antenna
G = power gain of the antenna in the direction of interest relative to isotropic
R = distance to the center of radiation of the antenna

GSM 850:

Maximum peak output power at antenna input terminal:	32.92	(dBm)
Maximum peak output power at antenna input terminal:	1958.84	(mW)
Antenna gain(typical):	2.5	(dBi)
Maximum antenna gain:	1.778	(numeric)
Prediction distance:	25	(cm)
Sourse Based Time Average Duty Cycle:	25	(%)
Prediction frequency:	824.2	(MHz)
FCC MPE limit for uncontrolled exposure at prediction frequency:	0.550	(mW/cm^2)
IC MPE limit for uncontrolled exposure at prediction frequency:	2.576	(W/m^2)
Power density at prediction frequency:	0.111	(mW/cm^2)
Power density at prediction frequency:	1.11	(W/m^2)
FCC Margin of Compliance:	-6.96	(dB)
IC Margin of Compliance:	-3.66	(dB)

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GSM 1850:

Maximum peak output power at antenna input terminal:	**29.18**	(dBm)
Maximum peak output power at antenna input terminal:	**827.94**	(mW)
Antenna gain(typical):	**2.5**	(dBi)
Maximum antenna gain:	**1.778**	(numeric)
Prediction distance:	**25**	(cm)
Sourse Based Time Average Duty Cycle:	**25**	(%)
Prediction frequency:	**1850.2**	(MHz)
FCC MPE limit for uncontrolled exposure at prediction frequency:	**1.0**	(mW/cm^2)
IC MPE limit for uncontrolled exposure at prediction frequency:	**4.477**	(W/m^2)
Power density at prediction frequency:	**0.047**	(mW/cm^2)
Power density at prediction frequency:	**0.47**	(W/m^2)
FCC Margin of Compliance:	**-13.29**	(dB)
IC Margin of Compliance:	**-9.8**	(dB)

LTE B5:

Maximum peak output power at antenna input terminal:	**27.42**	(dBm)
Maximum peak output power at antenna input terminal:	**552.08**	(mW)
Antenna gain(typical):	**2.5**	(dBi)
Maximum antenna gain:	**1.778**	(numeric)
Prediction distance:	**25**	(cm)
Sourse Based Time Average Duty Cycle:	**100**	(%)
Prediction frequency:	**824.7**	(MHz)
FCC MPE limit for uncontrolled exposure at prediction frequency:	**0.55**	(mW/cm^2)
IC MPE limit for uncontrolled exposure at prediction frequency:	**2.577**	(W/m^2)
Power density at prediction frequency:	**0.125**	(mW/cm^2)
Power density at prediction frequency:	**1.25**	(W/m^2)
FCC Margin of Compliance:	**-6.43**	(dB)
IC Margin of Compliance:	**-3.14**	(dB)

LTE B2:

Maximum peak output power at antenna input terminal:	**29.72**	(dBm)
Maximum peak output power at antenna input terminal:	**937.56**	(mW)
Antenna gain(typical):	**2.5**	(dBi)
Maximum antenna gain:	**1.778**	(numeric)
Prediction distance:	**25**	(cm)
Sourse Based Time Average Duty Cycle:	**100**	(%)
Prediction frequency:	**1850.7**	(MHz)
FCC MPE limit for uncontrolled exposure at prediction frequency:	**1.0**	(mW/cm^2)
IC MPE limit for uncontrolled exposure at prediction frequency:	**4.477**	(W/m^2)
Power density at prediction frequency:	**0.212**	(mW/cm^2)
Power density at prediction frequency:	**1.25**	(W/m^2)
FCC Margin of Compliance:	**-6.73**	(dB)
IC Margin of Compliance:	**-3.24**	(dB)

Sincerely,

Xiaoying Zhang
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Authorized Signatory
Title: EMC/Wireless Test Engineer