Simultaneous Transmission SAR Evaluation for ZTE3200 and iPod Touch 2/3

Because the iPod Touch can't set it up into engineer mode for continuous transmission, we follow two steps as below to transmit a large file to evaluate the worst SAR of iPod Touch.

Step 1: The iPod Touch should NOT be mounted in the ZTE3200. Instead is should be tested by itself. It should be set to communicate with a WiFi access point at some distance away so that the iPod Touch will be operating at the maximum power level. The SAR readings should then be measured at 0 cm from the iPod Touch on the worst case frequency and in the worst case position as documented in Apple's SAR report.

Step 2: The iPod Touch should be mounted in the ZTE3200. However, the Peel should be turned off. Again the iPod Touch should be set to communicate with a WiFi access point at some distance away so that the iPod Touch will be operating at the maximum power level. The SAR readings should then be taken at 10 mm from the ZTE3200/iPod Touch on the same frequency as the Step 1. It should take these measurements using the same position as the Step 1.

The setup steps for large-file-transfer from iPod Touch to Laptop PC are as below.
1. Install FTP application software into both iPod Touch and laptop PC.
2. Set the Access Point to use 802.11b mode channel 6 only.
3. Make both iPod Touch and laptop PC linking with Access Point.
4. Execute FTP software of iPod Touch to transfer one large file (file name: test, file size: 1GB) to laptop PC through Access Point.
5. Use a Spectrum Analyzer to monitor and make sure the WLAN continuous transmission during SAR testing.

Spectrum Analyzer Transmission Monitoring Plot

<Scaling Up Factor>
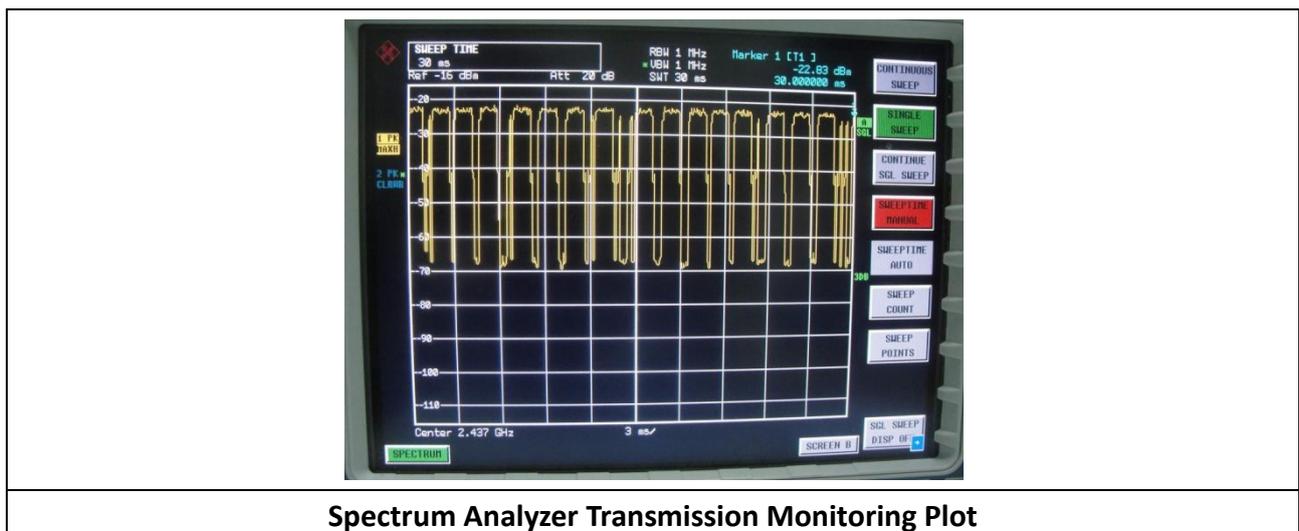
iPod Touch Version	Apple Report (0 mm Gap)	iPod Big-File-Transfer (0 mm Gap)	Scaling Up Factor
iPod Touch 3 SAR_{1g}	1.20	0.658	**1.82**
iPod Touch 2 SAR_{1g}	1.30	0.627	**2.07**

Note:

1. The test condition for iPod Touch WLAN SAR testing is Front Face of iPod Touch, and channel 6 of 802.11b mode.
2. Scaling Up Factor = SAR of Apple Report / SAR of iPod Big-File-Transfer

<Worst SAR Calculating for iPod Touch>

iPod Touch Version	iPod Big-File-Transfer (10 mm Gap)	Scaling Up Factor	Calculated Worst SAR
iPod Touch 3 SAR_{1g}	0.063	1.82	**0.115**
iPod Touch 2 SAR_{1g}	0.049	2.07	**0.101**

Note:

1. Calculated Worst SAR = SAR of iPod Big-File-Transfer *Scaling Up Factor

Simultaneous Transmission SAR Evaluation for 10 mm Gap

<ZTE3200 + iPod Touch 3>

Position	ZTE3200 CDMA2000 BC0	ZTE3200 802.11b/g	iPod Touch 3 802.11b/g	Max. SAR Summation
Front Face	0.298			0.413
Rear Face	1.33			1.445
Right Side	0.551	0	0.115	0.666
Left Side	0.366			0.481
Top Side	0.075			0.19
Bottom Side	0.012			0.127
Position	ZTE3200 CDMA2000 BC1	ZTE3200 802.11b/g	iPod Touch 3 802.11b/g	Max. SAR Summation
Front Face	0.608			0.723
Rear Face	1.32			1.435
Right Side	1.38	0	0.115	1.495
Left Side	0.122			0.237
Top Side	0.244			0.359
Bottom Side	0.066			0.181

Note: According to KDB 648474, the WLAN SAR for ZTE3200 is not required because its average power is less than 60/f.

<ZTE3200 + iPod Touch 2>

Position	ZTE3200 CDMA2000 BC0	ZTE3200 802.11b/g	iPod Touch 2 802.11b/g	Max. SAR Summation
Front Face	0.284			0.385
Rear Face	1.22			1.321
Right Side	0.591	0	0.101	0.692
Left Side	0.415			0.516
Top Side	0.077			0.178
Bottom Side	0.015			0.116
Position	ZTE3200 CDMA2000 BC1	ZTE3200 802.11b/g	iPod Touch 2 802.11b/g	Max. SAR Summation
Front Face	0.449			0.55
Rear Face	1.26			1.361
Right Side	1.19	0	0.101	1.291
Left Side	0.189			0.29
Top Side	0.23			0.331
Bottom Side	0.048			0.149

Note: According to KDB 648474, the WLAN SAR for ZTE3200 is not required because its average power is less than 60/f.

<Conclusion>

According KDB 648474, the simultaneous transmission SAR for ZTE3200 WWAN, ZTE3200 WLAN and iPod Touch WLAN was not required, because all SAR summations are less than 1.6 W/kg.

<SAR Plots for iPod Touch Big-File-Transfer>

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab   Date: 10/16/2010

#26 802.11b Ch06_iPod Touch 3 alone_Front Face_0 mm Gap_iPod Big-File-Transfer

DUT: 0O0802-01

Communication System: Wifi; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: MSL_2450_101014 Medium parameters used: f = 2437 MHz; σ = 1.91 mho/m; ε_r = 54; ρ =

1000 kg/m^3
Ambient Temperature : 23.3 °C; Liquid Temperature : 21.2 °C

DASY5 Configuration:
- Probe: EX3DV4 - SN3697; ConvF(6.84, 6.84, 6.84); Calibrated: 11/23/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2009/11/16
- Phantom: SAM1; Type: SAM; Serial: TP-1477
- Measurement SW : DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 57

Ch6/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
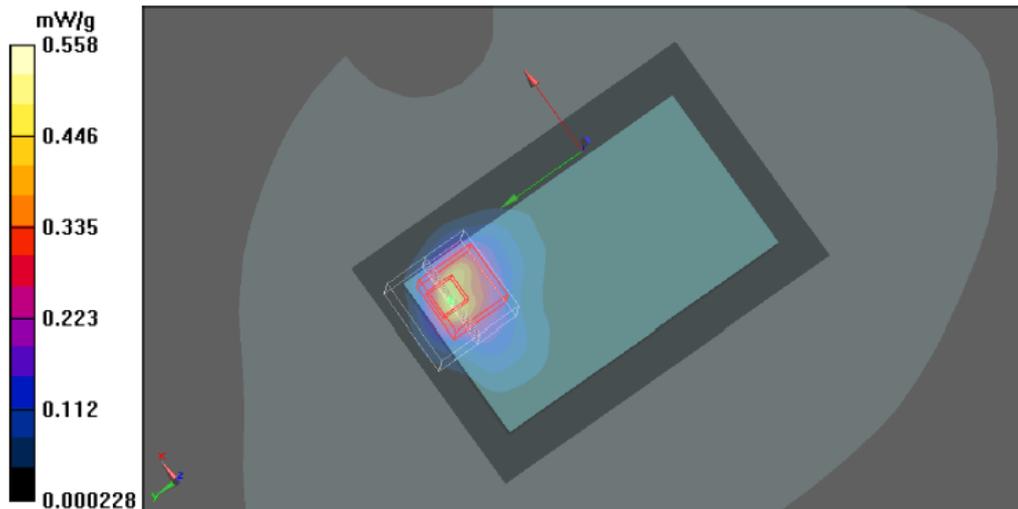Maximum value of SAR (interpolated) = 0.462 mW/g

Ch6/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.54 V/m; Power Drift = -0.084 dB
Peak SAR (extrapolated) = 1.67 W/kg
SAR(1 g) = 0.658 mW/g; SAR(10 g) = 0.224 mW/g
Maximum value of SAR (measured) = 1.1 mW/g

#27 802.11b Ch06_ZTE3200 + iPod Touch 3_Front Face_10 mm Gap_iPod Big-File-Transfer

DUT: 0O0802-01

Communication System: Wifi; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: MSL_2450_101014 Medium parameters used: f = 2437 MHz; σ = 1.91 mho/m; ε_r = 54; ρ =

1000 kg/m^3
Ambient Temperature : 23.3 ˚C; Liquid Temperature : 21.2 ˚C

DASY5 Configuration:
- Probe: EX3DV4 - SN3697; ConvF(6.84, 6.84, 6.84); Calibrated: 11/23/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2009/11/16
- Phantom: SAM1; Type: SAM; Serial: TP-1477
- Measurement SW : DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 57

Ch6/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
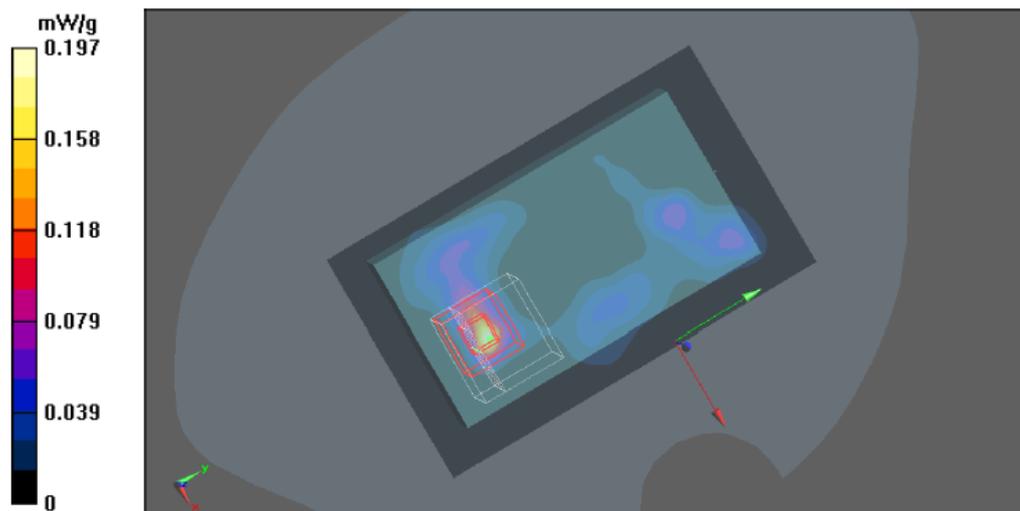Maximum value of SAR (interpolated) = 0.197 mW/g

Ch6/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.63 V/m; Power Drift = 0.024 dB
Peak SAR (extrapolated) = 0.107 W/kg
SAR(1 g) = 0.063 mW/g; SAR(10 g) = 0.032 mW/g
Maximum value of SAR (measured) = 0.065 mW/g

#28 802.11b Ch06_iPod Touch 2 alone_Front Face_0 mm Gap_iPod Big-File-Transfer

DUT: 0O0802-01

Communication System: Wifi; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: MSL_2450_101014 Medium parameters used: f = 2437 MHz; σ = 1.91 mho/m; ε_r = 54; ρ =

1000 kg/m^3
Ambient Temperature : 23.3 ℃; Liquid Temperature : 21.2 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3697; ConvF(6.84, 6.84, 6.84); Calibrated: 11/23/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2009/11/16
- Phantom: SAM1; Type: SAM; Serial: TP-1477
- Measurement SW : DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 57

Ch6/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
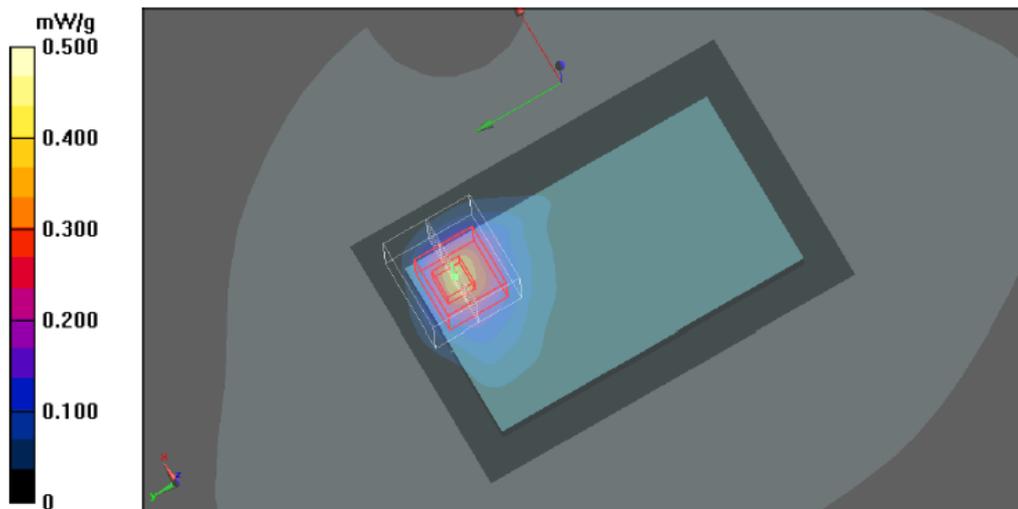Maximum value of SAR (interpolated) = 0.346 mW/g

Ch6/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.02 V/m; Power Drift = 0.013 dB
Peak SAR (extrapolated) = 1.66 W/kg
SAR(1 g) = 0.627 mW/g; SAR(10 g) = 0.208 mW/g
Maximum value of SAR (measured) = 1 mW/g

#29 802.11b Ch06_ZTE3200 + iPod Touch 2_Front Face_10 mm Gap_iPod Big-File-Transfer

DUT: 0O0802-01

Communication System: Wifi; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: MSL_2450_101014 Medium parameters used: f = 2437 MHz; σ = 1.91 mho/m; ε_r = 54; ρ =
1000 kg/m^3
Ambient Temperature : 23.3 ˚C; Liquid Temperature : 21.2 ˚C

DASY5 Configuration:
- Probe: EX3DV4 - SN3697; ConvF(6.84, 6.84, 6.84); Calibrated: 11/23/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2009/11/16
- Phantom: SAM1; Type: SAM; Serial: TP-1477
- Measurement SW : DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 57

Ch6/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.092 mW/g

Ch6/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.15 V/m; Power Drift = -0.008 dB
Peak SAR (extrapolated) = 0.076 W/kg
SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.023 mW/g
Maximum value of SAR (measured) = 0.053 mW/g

Ch6/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.15 V/m; Power Drift = -0.008 dB
Peak SAR (extrapolated) = 0.108 W/kg
SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.021 mW/g
Maximum value of SAR (measured) = 0.045 mW/g