

	Date(s) of Evaluation February 25 & 28, 2011	Test Report Serial No. 022311TFT-T1083-S15W	Test Report Revision No. Rev. 1.1 (2nd Release)	
	Test Report Issue Date September 28, 2011	Description of Test(s) Specific Absorption Rate	RF Exposure Category Gen. Pop. / Uncontrolled	

Test Lab Certificate No. 2470.01

DECLARATION OF COMPLIANCE - SAR RF EXPOSURE EVALUATION (FCC) - 533AN_MMW WLAN

Test Lab Information	Name	CELLTECH LABS INC.			Address	21-364 Loughheed Road, Kelowna, B.C. V1X 7R8 Canada			
Test Lab Accreditation	A2LA	ISO/IEC 17025:2005 (A2LA Test Lab Certificate No. 2470.01)							
Company Information	Name	MAXID CORPORATION			Address	1775 Wiehle Avenue, Suite 104, Reston, VA 20190 USA			
Standard(s) Applied	FCC	47 CFR §2.1093			IC	Health Canada Safety Code 6			
Procedure(s) Applied	IC	RSS-102 Issue 4			IEC	62209-1:2005		62209-2:2010	
	FCC	OET Bulletin 65, Supp. C (01-01)			IEEE	1528-2003			
	FCC	KDB Inquiry #907535		KDB 447498 D01v04		KDB 248227 D01v01r02		KDB 865664 Rev	
Application Type(s)	FCC	New Certification							
Device-Under-Test Sample	Rcpt Date	February 23, 2011			Test Date(s)	February 25 & 28, 2011			
Device Under Test (DUT)	FCC ID:	TFT-IDL750			Description	Rugged Handheld RFID Reader			
	Model	iDL750			Serial No.	BHC00036			
	Tx Freq.	13.56 MHz			Rated Power	n/a (Low Power Comm. Device Transmitter)			
Co-located Transmitter 1	FCC ID:	TFT533ANM			Description	WLAN Mini-PCI Express Card			
	Manuf.	Intel Corporation			Model	533AN_MMW (MAC: 00216A184B5C)			
	Mode(s)	802.11a/b/g/n			Co-Transmit	Co-transmits with WWAN			
	Tx Freq.	2412-2462/5180-5320/5500-5700/5745-5825 MHz			Rated Power	130 mW (2.4 GHz), 110 mW (5 GHz) - Conducted			
Co-located Transmitter 2	FCC ID:	TFT-MC8795			Description	WWAN Mini-PCI Express Card			
	Manuf.	Sierra Wireless Inc.			Model	MC8795V (IMEI 355310030121218)			
	Mode(s)	GPRS/EDGE/WCDMA/HSPA (Rel 6)			Co-Transmit	Co-transmits with WLAN, Bluetooth, RFID			
	Tx Freq.	824.2 - 848.8 MHz (GPRS/EDGE 850 Band)			Rated Power	32 dBm (GPRS 850)		32 dBm (GPRS 850)	
		1850.2 - 1909.8 MHz (GPRS/EDGE 1900 Band)				29 dBm (GPRS 1900)		29 dBm (GPRS 1900)	
		826.4 - 846.6 MHz (WCDMA/HSPA 850 Band)				23 dBm (WCDMA 850 - Band V)			
		1852.4 - 1907.5 MHz (WCDMA/HSPA 1900 Band)				23 dBm (WCDMA 1900 - Band II)			
Co-located Transmitter 3	FCC ID:	TFTWT12			Description	Class 2 Bluetooth v2.0 + EDR			
	Mode(s)	GFSK (1Mbps), 1/4 DQPSK (2Mbps, 8DQPSK (3Mbps)			Model	WT12A			
	Manuf.	BlueGiga Technologies Inc.			Co-Transmit	Co-transmits with WWAN			
	Tx Freq.	2402 - 2480 MHz			Rated Power	2 mW - Conducted			
Antenna-to-Antenna Distance	WLAN	WLAN-to-WWAN = 146 mm		WLAN-to-Bluetooth = 143 mm		WLAN-to-RFID = 74 mm			
Antenna-to-Edge Distance(s)	WLAN	Antenna to Keypad Side = 10 mm		Antenna to Bottom Side = 25 mm		Antenna to L/R Edges = 10 mm			
Device Position(s) Tested	iDL750	Front Keypad Side with 10 mm air-gap spacing to planar phantom (per FCC KDB Inquiry Tracking No. 907535)							
Antenna Type(s) Tested	WLAN	Embedded BHC Diversity Antenna (Omni-directional)			Manufacturer: Y-LAB		Model No.: YLM2455-2BHC		
Power Source(s) Tested	iDL750	Lithium-ion Battery		7.4V		10000mAh		Model: 909T2021F	
Max. SAR Levels Measured	BODY	802.11a	0.242 W/kg	1g average		5500 MHz	FCC/IC Spatial Peak SAR Limit	1.6 W/kg	1g average
		802.11b	0.035 W/kg	1g average		2462 MHz		General Population / Uncontrolled Exposure	
		802.11n	0.269 W/kg	1g average		5500 MHz			

Celltech Labs Inc. declares under its sole responsibility that this wireless portable device is compliant with the Specific Absorption Rate (SAR) RF exposure requirements specified in FCC 47 CFR §2.1093 and Health Canada's Safety Code 6 for the General Population / Uncontrolled Exposure environment. The device was tested in accordance with the measurement standards and procedures specified in FCC OET Bulletin 65, Supplement C (Edition 01-01), Industry Canada RSS-102 Issue 4, IEEE 1528-2003, International Standard IEC 62209-1 (2005) and International Standard IEC 62209-2 (Edition 1.0 2010-03). All measurements were performed in accordance with the SAR system manufacturer recommendations.

I attest to the accuracy of data. All measurements were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

The results and statements contained in this report pertain only to the device(s) evaluated.

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Test Report Approved By		Sean Johnston	Lab Manager	Celltech Labs Inc.
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Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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REVISION HISTORY			
REVISION NO.	DESCRIPTION	IMPLEMENTED BY	RELEASE DATE
1.0	Initial Release	Jon Hughes	June 07, 2011
1.1	a) Revised DUT Description b) Revised DUT FCC ID c) Revised Co-Tx FCC ID's d) Revised Grantee Address	Jon Hughes	September 28, 2011

TEST REPORT SIGN-OFF			
DEVICE TESTED BY	REPORT PREPARED BY	QA REVIEW BY	REPORT APPROVED BY
Sean Johnston	Sean Johnston	Jon Hughes	Sean Johnston

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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1.0 INTRODUCTION

This measurement report demonstrates compliance of the MaxID Corporation Model: iDL750 Rugged Handheld RFID Reader FCC ID: TFT-IDL750, incorporating the 533AN_MMW 802.11a/b/g/n WLAN Mini-PCI Express Card FCC ID: TFT533ANM with Y-LAB YLM2455-2BHC Embedded BHC Antenna, complies with the SAR (Specific Absorption Rate) RF exposure requirements of FCC 47 CFR §2.1093 (see reference [1]) and Health Canada's Safety Code 6 (see reference [2]) for the General Population / Uncontrolled Exposure environment. The test procedures described in FCC OET Bulletin 65, Supplement C, Edition 01-01 (see reference [3]), Industry Canada RSS-102 Issue 4 (see reference [4]), IEEE Standard 1528-2003 (see reference [5]), IEC International Standard 62209-1:2005 (see reference [6]) and IEC International Standard 62209-2:2010 (see reference [7]) were employed. A description of the product, operating configuration, detailed summary of the test results, methodology and procedures used in the evaluation, equipment used, and the various provisions of the rules are included within this test report.

2.0 SAR MEASUREMENT SYSTEM

Celltech Labs Inc. SAR measurement facility utilizes the Dosimetric Assessment System (DASY™) manufactured by Schmid & Partner Engineering AG (SPEAG™) of Zurich, Switzerland. The DASY4 measurement system is comprised of the measurement server, robot controller, computer, near-field probe, probe alignment sensor, specific anthropomorphic mannequin (SAM) phantom, and various planar phantoms for head and/or body SAR evaluations. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF). A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The Staubli robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the DASY4 measurement server. The DAE4 utilizes a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16-bit AD-converter and a command decoder and control logic unit. Transmission to the DASY4 measurement server is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe-mounting device includes two different sensor systems for frontal and sidewise probe contacts. The sensor systems are also used for mechanical surface detection and probe collision detection. The robot utilizes a controller with built in VME-bus computer.

3.0 SAR PROBE CALIBRATION & MEASUREMENT FREQ. (150MHz - 3GHz)

The following procedures are recommended for measurements at 150 MHz - 3 GHz to minimize probe calibration and tissue dielectric parameter discrepancies. In general, SAR measurements below 300 MHz should be within ± 50 MHz of the probe calibration frequency. At 300 MHz to 3 GHz, measurements should be within ± 100 MHz of the probe calibration frequency. Measurements exceeding 50% of these intervals, ± 25 MHz < 300 MHz and ± 50 MHz ≥ 300 MHz, require additional steps (per FCC KDB 450824 D01 v01r01, SAR Probe Calibration and System Verification Considerations for Measurements at 150 MHz - 3 GHz - see reference [10]).

Probe Calibration Freq.	Device Measurement Freq.	Frequency Interval	± 50 MHz ≥ 300 MHz
2450 MHz	2462 MHz	12 MHz	< 50 MHz
1. The probe calibration and measurement frequency interval is < 50 MHz; therefore the additional steps were not required.			

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4.0 RF CONDUCTED OUTPUT POWER MEASUREMENTS

2.4 GHz Band			
802.11b		1Mbps	
Duty Cycle		100%	
Channel	Frequency	Average Power	
		MAIN (dBm)	AUX (dBm)
1	2412	16.7	17.6
6	2437	16.6	17.5
11	2462	17.7	17.7
802.11g		6Mbps	
Duty Cycle		99%	
Channel	Frequency	Average Power	
		MAIN (dBm)	AUX (dBm)
1	2412	16.6	16.6
6	2437	16.7	16.7
11	2462	14.6	14.6
802.11n		HT0	
Duty Cycle		99%	
Channel	Frequency	Average Power	
		MAIN (dBm)	AUX (dBm)
1	2412	13.4	13.4
6	2437	16.7	16.7
11	2462	12.9	12.8

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RF CONDUCTED OUTPUT POWER MEASUREMENTS (Cont.)

5.2-5.3 GHz Band			
802.11a		6Mbps	
Duty Cycle		99%	
Channel	Frequency	Average Power	
		MAIN (dBm)	AUX (dBm)
36	5180	17.2	17.1
40	5200	16.8	16.9
44	5220	16.6	16.7
48	5240	16.8	16.9
802.11n (20 MHz)		HT0	
Duty Cycle		99%	
Channel	Frequency	Average Power	
		MAIN (dBm)	AUX (dBm)
36	5180	17.0	17.0
40	5200	16.8	16.9
44	5220	16.5	16.6
48	5240	16.8	16.9
802.11a		6Mbps	
Duty Cycle		99%	
Channel	Frequency	Average Power	
		MAIN (dBm)	AUX (dBm)
52	5260	17.2	17.0
56	5280	16.9	16.6
60	5300	16.6	16.8
64	5320	16.9	16.8
802.11n (20 MHz)		HT0	
Duty Cycle		99%	
Channel	Frequency	Average Power	
		MAIN (dBm)	AUX (dBm)
52	5260	17.0	17.1
56	5280	16.9	16.8
60	5300	16.9	16.8
64	5320	16.8	16.8

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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CONDUCTED POWER MEASUREMENT SUMMARY (Cont.)

5.5-5.7 GHz Band			
802.11a		6Mbps	
Duty Cycle		99%	
Channel	Frequency	Average Power	
		MAIN (dBm)	AUX (dBm)
100	5500	16.9	17.0
104	5520	16.8	16.9
108	5540	16.8	16.9
112	5560	16.8	16.9
116	5580	16.8	16.9
120	5600	16.8	16.9
124	5620	16.8	16.9
128	5640	16.8	16.9
132	5660	16.8	16.9
136	5680	16.8	16.9
140	5700	16.8	16.9
802.11n (20 MHz)		HT0	
Duty Cycle		99%	
Channel	Frequency	Average Power	
		MAIN (dBm)	AUX (dBm)
100	5500	16.8	16.9
104	5520	16.8	16.8
108	5540	16.6	16.8
112	5560	16.7	16.8
116	5580	16.7	16.9
120	5600	16.8	16.8
124	5620	16.8	16.9
128	5640	16.8	16.8
132	5660	16.8	16.7
136	5680	16.8	16.8
140	5700	16.8	16.9
802.11n MIMO 20M		HT16	
Duty Cycle		98%	
Channel	Frequency	Average Power	
		MAIN (dBm)	AUX (dBm)
100	5500	16.6	16.8
104	5520	16.6	16.8
108	5540	16.7	16.7
112	5560	16.8	16.9
116	5580	16.8	16.9
120	5600	16.8	16.9
124	5620	16.8	16.9
128	5640	16.8	16.9
132	5660	16.8	16.9
136	5680	16.8	16.9
140	5700	16.8	16.9

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CONDUCTED POWER MEASUREMENT SUMMARY (Cont.)

5.7-5.8 GHz Band			
802.11a		6Mbps	
Duty Cycle		99%	
Channel	Frequency	Average Power	
		MAIN (dBm)	AUX (dBm)
149	5745	16.8	16.8
153	5765	16.8	16.7
157	5785	16.9	16.9
161	5805	16.8	16.8
165	5825	16.8	16.8
802.11n (20 MHz)		HT0	
Duty Cycle		99%	
Channel	Frequency	Average Power	
		MAIN (dBm)	AUX (dBm)
149	5745	16.7	16.8
153	5765	16.8	16.7
157	5785	16.9	16.9
161	5805	16.7	16.8
165	5825	16.8	16.8

Notes

1. The RF conducted output power levels (average power) of the DUT were measured by Celltech prior to the SAR evaluations using a Gigatronics 8652A Universal Power Meter at the internal antenna connector in accordance with FCC 47 CFR §2.1046 (see reference [14]) and IC RSS-Gen (see reference [15]).
2. The RF conducted output power levels measured in 802.11g mode were not more than 0.25 dB > 802.11b mode; therefore SAR evaluations were not required for 802.11g mode (per FCC KDB 248227 D01v01r02 - see reference [9]).
3. The RF conducted output power levels were measured for the higher data rates and were not more than 0.25 dB > conducted output power levels listed above for the lowest data rate in each band; therefore SAR evaluations were not required for the higher data rates (per FCC KDB 248227 D01v01r02 - see reference [9]).

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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5.0 FLUID DIELECTRIC PARAMETERS

FLUID DIELECTRIC PARAMETERS						
Date: 02/25/2011		Freq. Band: 2450 MHz			Tissue: Body	
Freq (GHz)	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
2.350	50.39	1.9	52.7	1.95	-4.38%	-2.56%
2.360	50.38	1.9	52.7	1.95	-4.40%	-2.56%
2.370	50.35	1.93	52.7	1.95	-4.46%	-1.03%
2.380	50.33	1.94	52.7	1.95	-4.50%	-0.51%
2.390	50.19	1.95	52.7	1.95	-4.76%	0.00%
2.400	50.23	1.95	52.7	1.95	-4.69%	0.00%
2.410	50.16	1.98	52.7	1.95	-4.82%	1.54%
2.420	50.09	1.97	52.7	1.95	-4.95%	1.03%
2.430	50.36	1.98	52.7	1.95	-4.44%	1.54%
2.437*	50.11	1.98	52.7	1.95	-4.91%	1.54%
2.440	50.12	1.99	52.7	1.95	-4.90%	2.05%
2.450	50.14	2	52.7	1.95	-4.86%	2.56%
2.460	50.15	2.03	52.7	1.95	-4.84%	4.10%
2.462*	50.2	2.03	52.7	1.95	-4.74%	4.10%
2.470	49.96	2.04	52.7	1.95	-5.20%	4.62%
2.480	49.9	2.05	52.7	1.95	-5.31%	5.13%
2.490	49.96	2.06	52.7	1.95	-5.20%	5.64%
2.500	49.91	2.1	52.7	1.95	-5.29%	7.69%
2.510	49.97	2.09	52.7	1.95	-5.18%	7.18%
2.520	49.8	2.08	52.7	1.95	-5.50%	6.67%
2.530	49.67	2.14	52.7	1.95	-5.75%	9.74%
2.540	49.68	2.13	52.7	1.95	-5.73%	9.23%
2.550	49.84	2.14	52.7	1.95	-5.43%	9.74%

*Interpolated using DASY4 software

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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FLUID DIELECTRIC PARAMETERS (Cont.)

FLUID DIELECTRIC PARAMETERS						
Date: 02/28/2011		Freq. Band: 5200-5300 MHz			Tissue: Body	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
5.100	48.78	5	49	5.3	-0.45%	-5.66%
5.110	48.97	5.1	49	5.3	-0.06%	-3.77%
5.120	48.68	5.18	49	5.3	-0.65%	-2.26%
5.130	49.16	5.05	49	5.3	0.33%	-4.72%
5.140	49.01	5.08	49	5.3	0.02%	-4.15%
5.150	48.72	5.09	49	5.3	-0.57%	-3.96%
5.160	49.13	5.17	49	5.3	0.27%	-2.45%
5.170	48.83	5.09	49	5.3	-0.35%	-3.96%
5.180	48.79	5.21	49	5.3	-0.43%	-1.70%
5.190	48.86	5.31	49	5.3	-0.29%	0.19%
5.200	48.52	5.17	49	5.3	-0.98%	-2.45%
5.210	49.11	5.25	49	5.3	0.22%	-0.94%
5.220	48.92	5.33	49	5.3	-0.16%	0.57%
5.230	48.67	5.3	49	5.3	-0.67%	0.00%
5.240	48.52	5.28	49	5.3	-0.98%	-0.38%
5.250	48.6	5.29	49	5.3	-0.82%	-0.19%
5.260	48.67	5.31	49	5.3	-0.67%	0.19%
5.270	48.38	5.32	49	5.3	-1.27%	0.38%
5.280	48.78	5.43	49	5.3	-0.45%	2.45%
5.290	48.76	5.44	49	5.3	-0.49%	2.64%
5.300	48.35	5.37	49	5.3	-1.33%	1.32%
5.310	48.58	5.24	49	5.3	-0.86%	-1.13%
5.320	48.4	5.42	49	5.3	-1.22%	2.26%
5.330	48.08	5.45	49	5.3	-1.88%	2.83%
5.340	48.17	5.45	49	5.3	-1.69%	2.83%

*Interpolated using DASY4 software

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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FLUID DIELECTRIC PARAMETERS (Cont.)

FLUID DIELECTRIC PARAMETERS						
Date: 02/28/2011		Freq. Band: 5500-5700 MHz			Tissue: Body	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
5.350	48.45	5.43	48.6	5.65	-0.31%	-3.89%
5.360	48.54	5.43	48.6	5.65	-0.12%	-3.89%
5.370	48.34	5.45	48.6	5.65	-0.53%	-3.54%
5.380	47.9	5.44	48.6	5.65	-1.44%	-3.72%
5.390	48.26	5.4	48.6	5.65	-0.70%	-4.42%
5.400	48.21	5.46	48.6	5.65	-0.80%	-3.36%
5.410	48.27	5.52	48.6	5.65	-0.68%	-2.30%
5.420	48.1	5.48	48.6	5.65	-1.03%	-3.01%
5.430	47.83	5.6	48.6	5.65	-1.58%	-0.88%
5.440	48.2	5.67	48.6	5.65	-0.82%	0.35%
5.450	48.15	5.54	48.6	5.65	-0.93%	-1.95%
5.460	48.22	5.51	48.6	5.65	-0.78%	-2.48%
5.470	47.96	5.61	48.6	5.65	-1.32%	-0.71%
5.480	48.1	5.7	48.6	5.65	-1.03%	0.88%
5.490	48.21	5.54	48.6	5.65	-0.80%	-1.95%
5.500	48.28	5.67	48.6	5.65	-0.66%	0.35%
5.510	47.89	5.57	48.6	5.65	-1.46%	-1.42%
5.520	47.77	5.73	48.6	5.65	-1.71%	1.42%
5.530	47.86	5.77	48.6	5.65	-1.52%	2.12%
5.540	48.02	5.79	48.6	5.65	-1.19%	2.48%
5.550	47.81	5.69	48.6	5.65	-1.63%	0.71%
5.560	47.56	5.72	48.6	5.65	-2.14%	1.24%
5.570	47.89	5.74	48.6	5.65	-1.46%	1.59%
5.580	47.85	5.77	48.6	5.65	-1.54%	2.12%
5.590	47.88	5.71	48.6	5.65	-1.48%	1.06%
5.600	47.57	5.8	48.6	5.65	-2.12%	2.65%
5.610	47.88	5.76	48.6	5.65	-1.48%	1.95%
5.620	47.48	5.86	48.6	5.65	-2.30%	3.72%
5.630	47.4	5.8	48.6	5.65	-2.47%	2.65%
5.640	47.25	5.85	48.6	5.65	-2.78%	3.54%

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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Test Lab Certificate No. 2470.01

FLUID DIELECTRIC PARAMETERS (Cont.)

FLUID DIELECTRIC PARAMETERS						
Date: 02/28/2011		Freq. Band: 5700-5800 MHz			Tissue: Body	
Freq	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
5.650	47.66	5.92	48.2	6	-1.12%	-1.33%
5.660	47.83	5.85	48.2	6	-0.77%	-2.50%
5.670	47.62	5.9	48.2	6	-1.20%	-1.67%
5.680	47.64	5.92	48.2	6	-1.16%	-1.33%
5.690	47.38	5.81	48.2	6	-1.70%	-3.17%
5.700	47.44	5.9	48.2	6	-1.58%	-1.67%
5.710	47.28	5.9	48.2	6	-1.91%	-1.67%
5.720	47.52	5.93	48.2	6	-1.41%	-1.17%
5.730	47.61	5.8	48.2	6	-1.22%	-3.33%
5.740	47.17	6	48.2	6	-2.14%	0.00%
5.750	47.42	6.05	48.2	6	-1.62%	0.83%
5.760	47.54	6.04	48.2	6	-1.37%	0.67%
5.770	47.34	6.15	48.2	6	-1.78%	2.50%
5.780	47.4	6.08	48.2	6	-1.66%	1.33%
5.785*	47.5	6.08	48.2	6	-1.45%	1.33%
5.790	47.48	6.09	48.2	6	-1.49%	1.50%
5.800	47.37	6.01	48.2	6	-1.72%	0.17%
5.810	47.19	6.06	48.2	6	-2.10%	1.00%
5.820	47.29	6.06	48.2	6	-1.89%	1.00%
5.830	47.06	6.02	48.2	6	-2.37%	0.33%
5.840	47.19	6.06	48.2	6	-2.10%	1.00%
5.850	47.47	6.14	48.2	6	-1.51%	2.33%
5.860	47.27	6.11	48.2	6	-1.93%	1.83%
5.870	47.07	6.22	48.2	6	-2.34%	3.67%
5.880	47.26	6.24	48.2	6	-1.95%	4.00%
5.890	47.28	6.24	48.2	6	-1.91%	4.00%
5.900	47.03	6.2	48.2	6	-2.43%	3.33%

*Interpolated using DASY4 software

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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6.0 SAR MEASUREMENT SUMMARY

BODY SAR MEASUREMENT RESULTS (IDL750 with 533AN_MMW WLAN)													
Test Date	Freq. Band (GHz)	Mode	Mod.	Freq.	Ch.	Data Rate	DUT Position to Planar Phantom	DUT Distance to Planar Phantom	WLAN Transmit Diversity Antenna	Cond. Power Before Test	SAR Drift During Test	Measured SAR Levels	
				MHz		Mbps				dBm	dB	W/kg	1g/Pk
Feb 25	2.4	802.11b	DSSS	2462	11	1	Keypad Side	10 mm	MAIN	17.7	0.124	0.034	1g
		802.11b	DSSS	2462	11	1	Keypad Side	10 mm	AUX	17.7	0.184	0.035	1g
		802.11n	OFDM	2437	6	HT0	Keypad Side	10 mm	MAIN	16.7	-0.121	0.030	1g
		802.11n	OFDM	2437	6	HT0	Keypad Side	10 mm	AUX	16.7	-0.140	0.064	1g
Feb 28	5.2	802.11a	OFDM	5180	36	6	Keypad Side	10 mm	MAIN	17.2	-0.201	0.169	1g
		802.11a	OFDM	5180	36	6	Keypad Side	10 mm	AUX	17.1	0.165	0.142	1g
		802.11n	OFDM	5180	36	HT0	Keypad Side	10 mm	MAIN	17.0	-0.104	0.261	1g
		802.11n	OFDM	5180	36	HT0	Keypad Side	10 mm	AUX	17.0	0.088	0.192	1g
Feb 28	5.3	802.11a	OFDM	5260	52	6	Keypad Side	10 mm	MAIN	17.2	0.161	0.141	1g
		802.11a	OFDM	5260	52	6	Keypad Side	10 mm	AUX	17.0	-0.129	0.213	1g
		802.11n	OFDM	5260	52	HT0	Keypad Side	10 mm	MAIN	17.0	0.189	0.149	1g
		802.11n	OFDM	5260	52	HT0	Keypad Side	10 mm	AUX	17.1	-0.098	0.201	1g
Feb 28	5.5	802.11a	OFDM	5500	100	6	Keypad Side	10 mm	MAIN	16.9	0.139	0.214	1g
		802.11a	OFDM	5500	100	6	Keypad Side	10 mm	AUX	17.0	-0.145	0.242	1g
		802.11n	OFDM	5500	100	HT0	Keypad Side	10 mm	MAIN	16.8	-0.153	0.269	1g
		802.11n	OFDM	5500	100	HT0	Keypad Side	10 mm	AUX	16.9	-0.090	0.250	1g
Feb 28	5.8	802.11a	OFDM	5785	157	6	Keypad Side	10 mm	MAIN	16.9	-0.196	0.156	1g
		802.11a	OFDM	5785	157	6	Keypad Side	10 mm	AUX	16.9	-0.138	0.203	1g
		802.11n	OFDM	5785	157	HT0	Keypad Side	10 mm	MAIN	16.9	-0.210	0.178	1g
		802.11n	OFDM	5785	157	HT0	Keypad Side	10 mm	AUX	16.9	0.030	0.237	1g
SAR LIMIT(S)						BODY		SPATIAL PEAK		RF EXPOSURE CATEGORY			
FCC 47 CFR 2.1093		Health Canada Safety Code 6				1.6 W/kg		averaged over 1 gram		General Population / Uncontrolled			

Date	Fluid Type	ρ (Kg/m ³)	Ambient Temp.	Fluid Temp.	Fluid Depth	Relative Humidity	Atmospheric Pressure
Feb. 25, 2011	2450 Body	1000	23.1°C	22.8°C	≥ 15 cm	33%	101.1 kPa
Feb. 28, 2011	5000 Body	1000	22.0°C	22.8°C	≥ 15 cm	35%	101.1 kPa

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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7.0 DETAILS OF SAR EVALUATION

- Detailed measurement data and plots showing the maximum SAR location of the DUT are reported in Appendix A. The test setup photographs are shown in Appendix D.
- The DUT can be body-worn by the user utilizing a shoulder-strap accessory (does not contain metallic components). The front keypad side or the rear battery side of the DUT can be positioned facing the user's body. The DUT was tested for body SAR with the front keypad side of the Handheld RFID Reader parallel to the outer surface of the planar phantom with a 10 mm separation distance between the front keypad side of the DUT and the outer surface of the planar phantom (in accordance with the testing guidance specified in FCC KDB Inquiry Tracking No. 907535. SAR evaluation of the rear battery side of the DUT was optional and therefore not evaluated (based on the substantially larger user separation distance to antenna).
- The MAIN and AUX transmit diversity antennas were evaluated for SAR individually (one at a time with the other disabled).
- The test channel selected for the SAR evaluations per frequency band was the maximum average output power channel at the lowest data rate in accordance with the procedures specified in FCC KDB 248227 (see reference [9]).
- The criteria for evaluating multiple channels were applied in accordance with the procedures specified in FCC KDB 447498 (see reference [8]).
- The WLAN was tested using proprietary test software enabling continuous transmission and selection of frequency band, mode, channel/frequency, transmit antenna, output power and duty cycle.
- The SAR drift of the DUT during the SAR evaluations was measured by the DASY4 system.
- The DUT battery was fully charged prior to the SAR evaluations.
- The fluid temperature was measured prior to and after the SAR evaluations. The fluid temperature remained within $\pm 2^{\circ}\text{C}$.
- The dielectric parameters of the simulated tissue mixtures were measured prior to the SAR evaluations using a Dielectric Probe Kit and a Network Analyzer (see Appendix C).

8.0 SAR EVALUATION PROCEDURES

- The evaluation was performed in the applicable area of the phantom depending on the type of device being tested. For devices held to the ear during normal operation, both the left and right ear positions were evaluated using the SAM phantom.
 - For body-worn and face-held devices a planar phantom was used.
- The SAR was determined by a pre-defined procedure within the DASY4 software. Upon completion of a reference and optical surface check, the exposed region of the phantom was scanned near the inner surface with a grid spacing of 15mm x 15mm.
An area scan was determined as follows:
- Based on the defined area scan grid, a more detailed grid is created to increase the points by a factor of 10. The interpolation function then evaluates all field values between corresponding measurement points.
- A linear search is applied to find all the candidate maxima. Subsequently, all maxima are removed that are >2 dB from the global maximum. The remaining maxima are then used to position the cube scans.
A 1g and 10g spatial peak SAR was determined as follows:
- Extrapolation is used to determine the values between the dipole center of the probe and the surface of the phantom. This data cannot be measured because the center of the dipole sensors is 1.0 mm away from the probe tip and the distance between the probe and the boundary must be larger than 25% of the probe diameter. The probe diameter is 2.4 mm. In the DASY4 software, the distance between the sensor center and phantom surface is set to 2.0 mm. This provides a distance of 1.0 mm between the probe tip and the surface. The extrapolation of the values between the dipole center and the surface of the phantom was based on trivariate quadratics computed from the previously calculated 3D interpolated points nearest the phantom surface.
- Interpolated data is used to calculate the average SAR over 1g and 10g cubes by spatially discretizing the entire measured cube. The volume used to determine the averaged SAR is a 1mm grid (42875 interpolated points).
- For frequencies < 3 GHz a zoom scan volume of 24 mm x 24 mm x 24 mm (7x7x7 points) centered at the peak SAR location determined from the area scan was used and a zoom scan resolution of 5 mm x 5 mm x 5 mm was used.
- For frequencies > 3 GHz a zoom scan volume of 24 mm x 24 mm x 20 mm (7x7x9 points) centered at the peak SAR location determined from the area scan was used and a zoom scan resolution of 4 mm x 4 mm x 2.5 mm was used.

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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9.0 CO-LOCATED TRANSMITTER(S)

The iDL750 Handheld RFID Reader FCC ID: TFT-IDL750, incorporating the 533AN_MMW WLAN Mini-PCI Express Card FCC ID: TFT533ANM, can be co-located and co-transmitting with the following transmitters:

Transmitter Type	Manufacturer	FCC ID	Model	Co-Transmit with WWAN?
WWAN	Sierra Wireless	TFT-MC8795	MC8795V	Yes
Class 2 Bluetooth	Bluegiga Tech.	TFTWT12	WT12	Yes

Closest Antenna-to-Antenna Separation Distance	
WLAN-to-WWAN	146 mm
WLAN-to-Bluetooth	143 mm

10.0 SIMULTANEOUS TRANSMISSION ASSESSMENT

The provisions set forth in FCC KDB 648474 D01v01r05 Section 4 (see reference [16]) were applied (in accordance with the procedures per FCC KDB Inquiry Tracking No. 907535) to address simultaneous transmission SAR evaluation considerations as follows:

Transmitter	Max. SAR Level (1g)	Sum 1g-SAR	SAR to Peak Location Separation Ratio*	Co-Transmit SAR Eval. Required?	
WLAN	0.269 W/kg	0.728 (< 1.6 W/kg)	0.05 (< 0.3)	WLAN-WWAN	No
WWAN	0.459 W/kg				
Bluetooth	n/a (output power < P _{Ref} and antenna is ≥ 2.5 cm from WLAN Tx antenna)			WWAN-BT	No

* Note: SAR to Peak Location Separation Ratio is calculated by dividing the sum of the individual SAR levels by the separation distance between the peak SAR locations. In this case the antenna separation distance was used for conservativeness.

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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12.0 SIMULATED EQUIVALENT TISSUES

The 2450 MHz simulated equivalent tissue recipe in the table below is derived from the SAR system manufacturer's suggested recipe in the DASY4 manual (see reference [12]) in accordance with the procedures and requirements specified in IEEE Standard 1528-2003 (see reference [5]). The ingredient percentage may have been adjusted marginally in order to achieve the appropriate target dielectric parameters within the specified tolerance. The 5 GHz simulated tissue mixture was provided by SPEAG and is listed below. The dielectric parameters of the fluid (permittivity and conductivity) were measured prior to the SAR evaluations. See Appendix D for the system manufacturer's 5GHz fluid data sheet.

SIMULATED TISSUE MIXTURE (2450 MHz)	
INGREDIENT	2450 MHz BODY
Water	69.98 %
Glycol Monobutyl	30.00 %
Salt	0.02 %

SIMULATED TISSUE MIXTURE (5 GHz)	
INGREDIENT	5 GHz BODY
Water	64-78%
Mineral Oil	11-18%
Emulsifiers	9-15%
Additives and Salt	2-3%

13.0 SAR LIMITS

SAR RF EXPOSURE LIMITS			
FCC 47 CFR 2.1093	Health Canada Safety Code 6	(General Population / Uncontrolled Exposure)	(Occupational / Controlled Exposure)
Spatial Average (averaged over the whole body)		0.08 W/kg	0.4 W/kg
Spatial Peak (averaged over any 1 g of tissue)		1.6 W/kg	8.0 W/kg
Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)		4.0 W/kg	20.0 W/kg
The Spatial Average value of the SAR averaged over the whole body.			
The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.			
The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.			
Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.			
Controlled environments are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure.			

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14.0 ROBOT SYSTEM SPECIFICATIONS

<u>Specifications</u>	
Positioner	Stäubli Unimation Corp. Robot Model: RX60L
Repeatability	0.02 mm
No. of axis	6
<u>Data Acquisition Electronic (DAE) System</u>	
<u>Cell Controller</u>	
Processor	AMD Athlon XP 2400+
Clock Speed	2.0 GHz
Operating System	Windows XP Professional
<u>Data Converter</u>	
Features	Signal Amplifier, multiplexer, A/D converter, and control logic
Software	Measurement Software: DASY4, V4.7 Build 44
	Postprocessing Software: SEMCAD, V1.8 Build 171
Connecting Lines	Optical downlink for data and status info.; Optical uplink for commands and clock
<u>DASY4 Measurement Server</u>	
Function	Real-time data evaluation for field measurements and surface detection
Hardware	PC/104 166MHz Pentium CPU; 32 MB chipdisk; 64 MB RAM
Connections	COM1, COM2, DAE, Robot, Ethernet, Service Interface
<u>E-Field Probe</u>	
Model	EX3DV4
Serial No.	3600
Construction	Symmetrical design with triangular core
Frequency	10 MHz to 6 GHz
Linearity	±0.2 dB (30 MHz to 3 GHz)
<u>Phantom(s)</u>	
Type	Barski Planar Phantom
Shell Material	Fiberglass
Thickness	2.0 ±0.1 mm
Volume	Approx. 70 liters

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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15.0 PROBE SPECIFICATION (EX3DV4)

Construction: Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g. DGBE) Calibration: Basic Broadband Calibration in air: 10-3000 MHz Conversion Factors (CF) for HSL 900 and HSL 1750 Frequency: 10 MHz to >6 GHz; Linearity: ± 0.2 dB (30 MHz to 3 GHz) Directivity: ± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis) Dynamic Range: 10 μW/g to >100 mW/g; Linearity: ± 0.2 dB (noise: typically < 1 μW/g) Dimensions: Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1.0 mm Application: High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better than 30%.	 EX3DV4 E-Field Probe
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16.0 BARSKI PLANAR PHANTOM

The Barski planar phantom is a fiberglass shell phantom with a 2.0 mm (+/-0.2mm) thick device measurement area at the center of the phantom for SAR evaluations of devices with a larger surface area than the planar section of the SAM phantom. The planar phantom is integrated in a wooden table. The Barski planar phantom was used for the DUT SAR evaluations and the system performance check evaluations. See Appendix I for dimensions and specifications of the Barski planar phantom.	 Barski Planar Phantom
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17.0 DEVICE HOLDER

The DASY4 device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65°. The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. For evaluations of larger devices a Plexiglas platform is attached to the device holder.	 Device Holder
---	---

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

18.0 TEST EQUIPMENT LIST

TEST EQUIPMENT		ASSET NO.	SERIAL NO.	DATE CALIBRATED	CALIBRATION INTERVAL
USED	DESCRIPTION				
x	Schmid & Partner DASY4 System	-	-	-	-
x	-DASY4 Measurement Server	00158	1078	CNR	CNR
x	-Robot	00046	599396-01	CNR	CNR
x	-DAE4	00019	353	27Apr10	Annual
x	-EX3DV4 E-Field Probe	00213	3600	29Apr10	Annual
x	-D2450V2 Validation Dipole	00219	825	17Apr09	Triennial
x	-D5GHzV2 Validation Dipole	00126	1031	29Apr09	Triennial
x	-Barski Planar Phantom	00155	03-01	CNR	CNR
x	HP 85070C Dielectric Probe Kit	00033	none	CNR	CNR
x	Gigatronics 8652A Power Meter	00007	1835272	04May10	Biennial
x	Gigatronics 80701A Power Sensor	00014	1833699	04May10	Biennial
x	HP 8753ET Network Analyzer	00134	US39170292	04May10	Biennial
x	Rohde & Schwarz SMR20 Signal Generator	00006	100104	CNR	CNR
x	Amplifier Research 5S1G4 Power Amplifier	00106	26235	CNR	CNR
Abbr.	CNR = Calibration Not Required				

19.0 JUSTIFICATION FOR EXTENDED SAR DIPOLE CALIBRATION

SAR dipoles calibrated less than two years ago but more than one year ago were confirmed by maintaining return loss (< -20dB, within 20% of prior calibration) and impedance (within 5Ω from prior calibration) requirements per extended calibrations in FCC KDB 450824 (see reference [10]).

SPEAG VALIDATION DIPOLE							
Freq.	TSL	Dipole	Measurement Date	Return Loss (dB)	Δ %	Impedance (Ω)	Δ Ω
2450 MHz	Body	SPEAG Validation Dipole D2450V2 SN: 825	Apr. 17, 2009	-24.8		49.2	
			Apr. 17, 2010	-23.7	4.4%	54.2	5.0
5200 MHz	Body	SPEAG Validation Dipole D5GHzV2 SN: 1031	Apr. 29, 2009	-27.7		49.7	
			Apr. 29, 2010	-27.6	0.4%	48.5	1.2
5500 MHz			Apr. 29, 2009	-21.4		57.2	
Apr. 29, 2010			-22.7	6.1%	54.9	2.3	
5800 MHz			Apr. 29, 2009	-20.3		55.1	
			Apr. 29, 2010	-21.2	4.4%	55.2	0.1

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

20.0 MEASUREMENT UNCERTAINTIES

UNCERTAINTY BUDGET FOR DEVICE EVALUATION									
Uncertainty Component	IEEE 1528 Section	Uncertainty Value $\pm\%$	Probability Distribution	Divisor	ci 1g	ci 10g	Uncertainty Value $\pm\%$ (1g)	Uncertainty Value $\pm\%$ (10g)	V_i or V_{eff}
Measurement System									
Probe Calibration (2450 MHz)	E.2.1	5.5	Normal	1	1	1	5.5	5.5	∞
Axial Isotropy	E.2.2	4.7	Rectangular	1.732050808	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	E.2.2	9.6	Rectangular	1.732050808	0.7	0.7	3.9	3.9	∞
Boundary Effect	E.2.3	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Linearity	E.2.4	4.7	Rectangular	1.732050808	1	1	2.7	2.7	∞
System Detection Limits	E.2.5	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Readout Electronics	E.2.6	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	E.2.7	0.8	Rectangular	1.732050808	1	1	0.5	0.5	∞
Integration Time	E.2.8	2.6	Rectangular	1.732050808	1	1	1.5	1.5	∞
RF Ambient Conditions	E.6.1	3	Rectangular	1.732050808	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.4	Rectangular	1.732050808	1	1	0.2	0.2	∞
Probe Positioning wrt Phantom Shell	E.6.3	2.9	Rectangular	1.732050808	1	1	1.7	1.7	∞
Extrapolation, interpolation & integration algorithms for max. SAR evaluation	E.5	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Test Sample Related									
Test Sample Positioning	E.4.2	2.9	Normal	1	1	1	2.9	2.9	12
Device Holder Uncertainty	E.4.1	3.6	Normal	1	1	1	3.6	3.6	8
SAR Drift Measurement	6.6.2	5	Rectangular	1.732050808	1	1	2.9	2.9	∞
Phantom and Tissue Parameters									
Phantom Uncertainty	E.3.1	4	Rectangular	1.732050808	1	1	2.3	2.3	∞
Liquid Conductivity (target)	E.3.2	5	Rectangular	1.732050808	0.64	0.43	1.8	1.2	∞
Liquid Conductivity (measured)	E.3.3	4.1	Normal	1	0.64	0.43	2.6	1.8	∞
Liquid Permittivity (target)	E.3.2	5	Rectangular	1.732050808	0.6	0.49	1.7	1.4	∞
Liquid Permittivity (measured)	E.3.3	4.91	Normal	1	0.6	0.49	2.9	2.4	∞
Combined Standard Uncertainty			RSS				11.08	10.64	
Expanded Uncertainty (95% Confidence Interval)			k=2				22.15	21.28	

Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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MEASUREMENT UNCERTAINTIES (Cont.)

UNCERTAINTY BUDGET FOR DEVICE EVALUATION									
Error Description	IEC 62209 Section	Uncertainty Value $\pm\%$	Probability Distribution	Divisor	ci 1g	ci 10g	Uncertainty Value $\pm\%$ (1g)	Uncertainty Value $\pm\%$ (10g)	V _i or V _{eff}
Measurement System									
Probe Calibration (5 GHz)	7.2.1	6.55	Normal	1	1	1	6.55	6.55	∞
Axial Isotropy	7.2.1.2	4.7	Rectangular	1.732050808	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	7.2.1.2	9.6	Rectangular	1.732050808	0.7	0.7	3.9	3.9	∞
Boundary Effect	7.2.1.5	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Linearity	7.2.1.3	4.7	Rectangular	1.732050808	1	1	2.7	2.7	∞
System Detection Limits	7.2.1.4	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Readout Electronics	7.2.1.6	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	7.2.1.7	0.8	Rectangular	1.732050808	1	1	0.5	0.5	∞
Integration Time	7.2.1.8	2.6	Rectangular	1.732050808	1	1	1.5	1.5	∞
RF Ambient Conditions	7.2.3.6	3	Rectangular	1.732050808	1	1	1.7	1.7	∞
Probe Positioner Mechanical Restrictions	7.2.2.1	0.8	Rectangular	1.732050808	1	1	0.5	0.5	∞
Probe Positioning wrt Phantom Shell	7.2.2.3	5.7	Rectangular	1.732050808	1	1	3.3	3.3	∞
Post-processing	7.2.4	4	Rectangular	1.732050808	1	1	2.3	2.3	∞
Test Sample Related									
Device positioning	7.2.2.4	2.9	Normal	1	1	1	2.9	2.9	12
Device holder uncertainty	7.2.2.4.2	3.6	Normal	1	1	1	3.6	3.6	8
Power drift	7.2.3.5	5	Rectangular	1.732050808	1	1	2.9	2.9	∞
Phantom and Setup									
Phantom uncertainty	7.2.2.2	4	Rectangular	1.732050808	1	1	2.3	2.3	∞
Liquid conductivity (target)	7.2.3.3	5	Rectangular	1.732050808	0.64	0.43	1.8	1.2	∞
Liquid conductivity (measured)	7.2.3.3	1.7	Normal	1	0.64	0.43	1.1	0.7	∞
Liquid permittivity (target)	7.2.3.4	10	Rectangular	1.732050808	0.6	0.49	3.5	2.8	∞
Liquid permittivity (measured)	7.2.3.4	1.45	Normal	1	0.6	0.49	0.9	0.7	∞
Combined Standard Uncertainty			RSS				12.00	11.71	
Expanded Uncertainty (95% Confidence Interval)			k=2				23.99	23.42	
Measurement Uncertainty Table in accordance with IEC International Standard 62209									

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

21.0 REFERENCES

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- [2] Health Canada - "Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz", Safety Code 6: 1999.
- [3] Federal Communications Commission - "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields", OET Bulletin 65, Supplement C (Edition 01-01), FCC, Washington, D.C.: June 2001.
- [4] Industry Canada - "Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)", Radio Standards Specification RSS-102 Issue 4: March 2010.
- [5] IEEE Standard 1528-2003 - "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques": December 2003.
- [6] International Standard IEC 62209-1:2005 - "Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to determine the specific absorption rate (SAR) for handheld devices used in close proximity to the ear (300 MHz to 3 GHz)".
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- [9] Federal Communications Commission, Office of Engineering and Technology - "SAR Measurement Procedures for 802.11a/b/g Transmitters"; KDB 248227 D01v01r02: May 2007.
- [10] Federal Communications Commission, Office of Engineering and Technology - "Application Note: SAR Probe Calibration and System Verification Considerations for Measurements at 150 MHz - 3 GHz"; KDB 450824 D01v01r01: January 2007.
- [11] Federal Communications Commission, Office of Engineering and Technology - "SAR Measurement Requirements for 3 - 6 GHz"; KDB 865664 Rev. 1.1: April 2007.
- [12] Schmid & Partner Engineering AG - DASY4 Manual V4.6, Chapter 17 Application Note, Body Tissue Recipe: Sept. 2005.
- [13] ISO/IEC 17025 - "General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025:2005)."
- [14] Federal Communications Commission - "Measurements Required: RF Power Output"; Rule Part 47 CFR §2.1046.
- [15] Industry Canada - "General Requirements and Information for the Certification of Radiocommunication Equipment", Radio Standards Specification RSS-Gen Issue 2: June 2007.
- [16] Federal Communications Commission, Office of Engineering and Technology - "SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas"; KDB 648474 D01v01r05: September 2008.

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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APPENDIX A - SAR MEASUREMENT PLOTS

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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Date Tested: 02/25/2011

Body SAR - 802.11b - 1 Mbps - 2462 MHz - MAIN Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 23.1°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 33%

Communication System: DSSS WLAN

Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 2.03 \text{ mho/m}$; $\epsilon_r = 50.2$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(6.24, 6.24, 6.24); Calibrated: 29/04/2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x29x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.038 mW/g

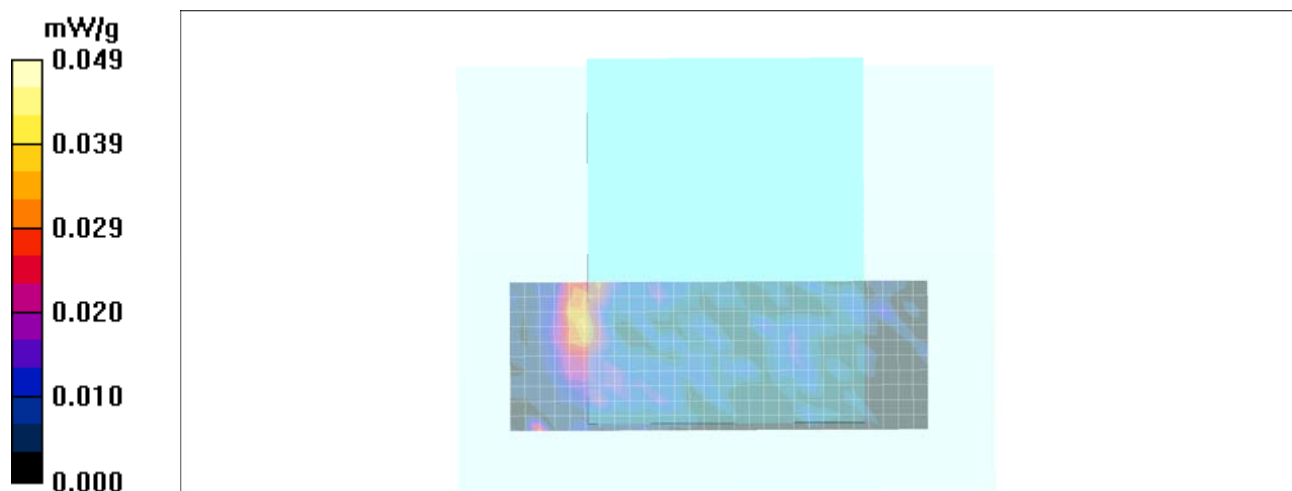
Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=3\text{mm}$

Reference Value = 4.30 V/m; Power Drift = 0.124 dB

Peak SAR (extrapolated) = 0.068 W/kg

SAR(1 g) = 0.034 mW/g; SAR(10 g) = 0.018 mW/g

Maximum value of SAR (measured) = 0.049 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Date Tested: 02/25/2011

Body SAR - 802.11b - 1 Mbps - 2462 MHz - AUX Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 23.1°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 33%

Communication System: DSSS WLAN

Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 2.03 \text{ mho/m}$; $\epsilon_r = 50.2$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(6.24, 6.24, 6.24); Calibrated: 29/04/2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x29x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.043 mW/g

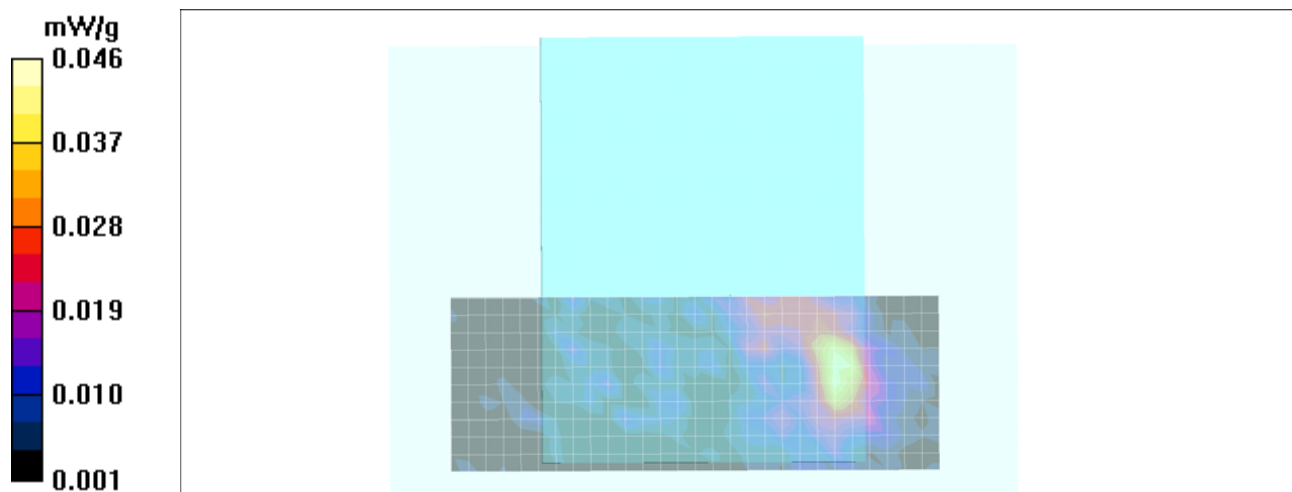
Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=3\text{mm}$

Reference Value = 4.51 V/m; Power Drift = 0.184 dB

Peak SAR (extrapolated) = 0.074 W/kg

SAR(1 g) = 0.035 mW/g; SAR(10 g) = 0.021 mW/g

Maximum value of SAR (measured) = 0.046 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Date Tested: 02/25/2011

Body SAR - 802.11n - HT0 - 2437 MHz - MAIN Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 23.1°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 33%

Communication System: OFDM WLAN

Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used (interpolated): $f = 2437 \text{ MHz}$; $\sigma = 2.03 \text{ mho/m}$; $\epsilon_r = 50.2$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(6.24, 6.24, 6.24); Calibrated: 29/04/2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x29x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.035 mW/g

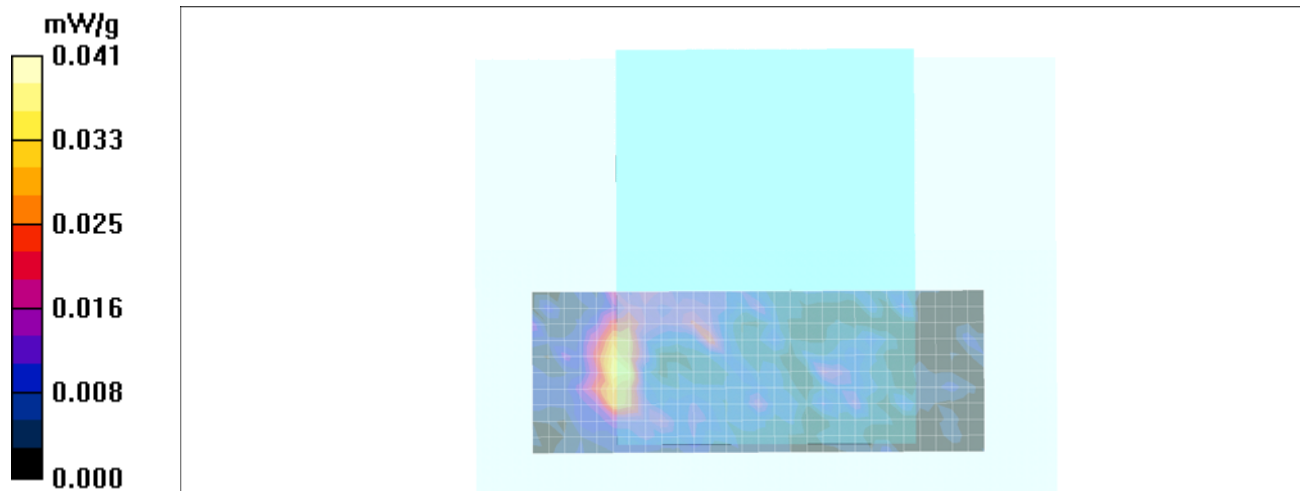
Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=3\text{mm}$

Reference Value = 4.17 V/m; Power Drift = -0.121 dB

Peak SAR (extrapolated) = 0.147 W/kg

SAR(1 g) = 0.030 mW/g; SAR(10 g) = 0.018 mW/g

Maximum value of SAR (measured) = 0.041 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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Date Tested: 02/25/2011

Body SAR - 802.11n - HT0 - 2437 MHz - AUX Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 23.1°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 33%

Communication System: OFDM WLAN

Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used (interpolated): $f = 2437 \text{ MHz}$; $\sigma = 2.03 \text{ mho/m}$; $\epsilon_r = 50.2$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(6.24, 6.24, 6.24); Calibrated: 29/04/2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x29x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.076 mW/g

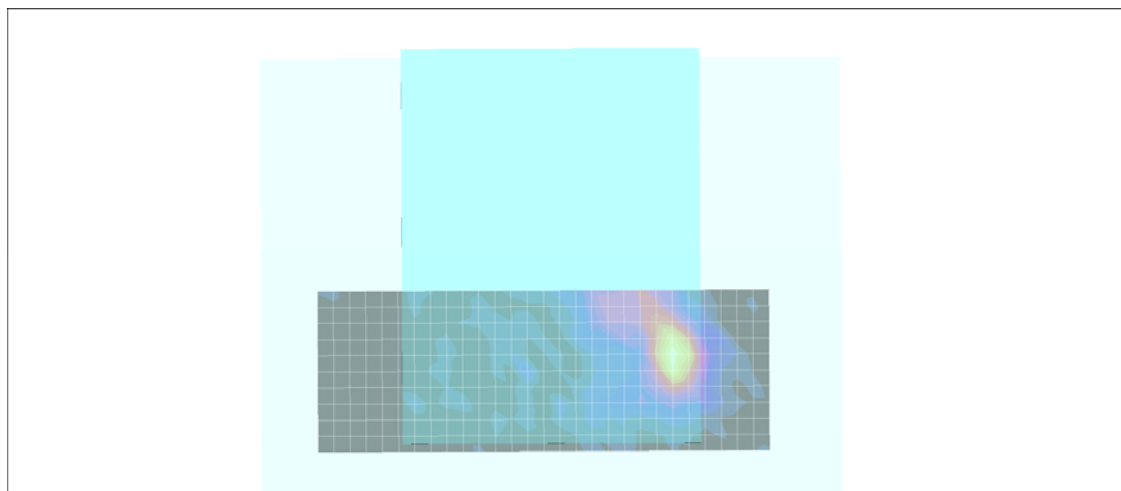
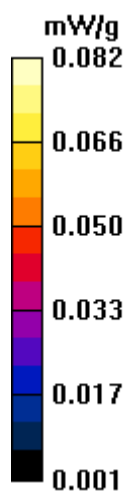
Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=3\text{mm}$

Reference Value = 6.21 V/m; Power Drift = -0.140 dB

Peak SAR (extrapolated) = 0.153 W/kg

SAR(1 g) = 0.064 mW/g; SAR(10 g) = 0.036 mW/g

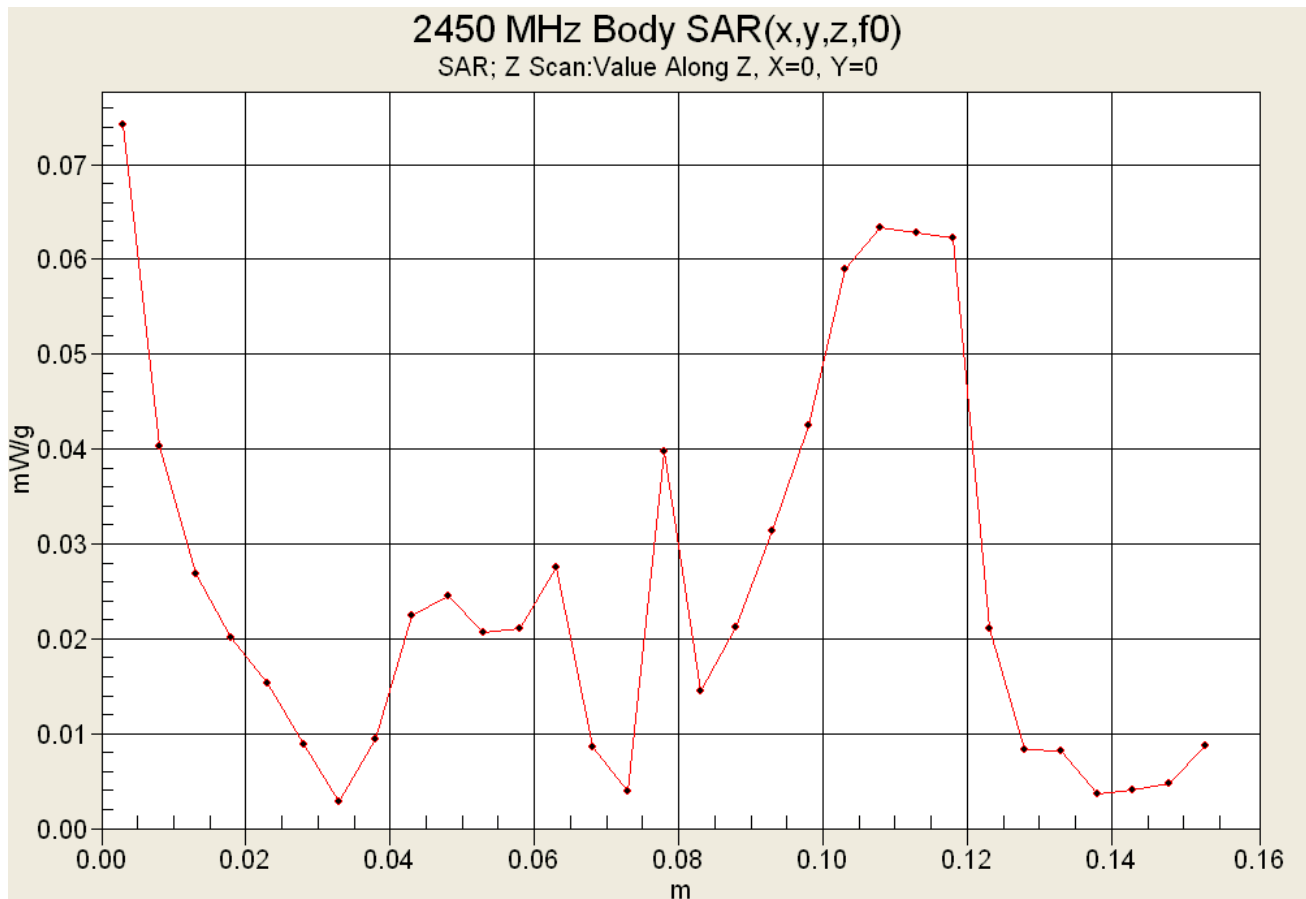
Maximum value of SAR (measured) = 0.082 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Z-Axis Scan



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Date Tested: 02/28/2011

Body SAR - 802.11a - 6 Mbps - 5180 MHz - MAIN Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: OFDM WLAN

Frequency: 5180 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used: $f = 5180 \text{ MHz}$; $\sigma = 5.21 \text{ mho/m}$; $\epsilon_r = 48.8$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(3.73, 3.73, 3.73); Calibrated: 29/04/2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x29x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.211 mW/g

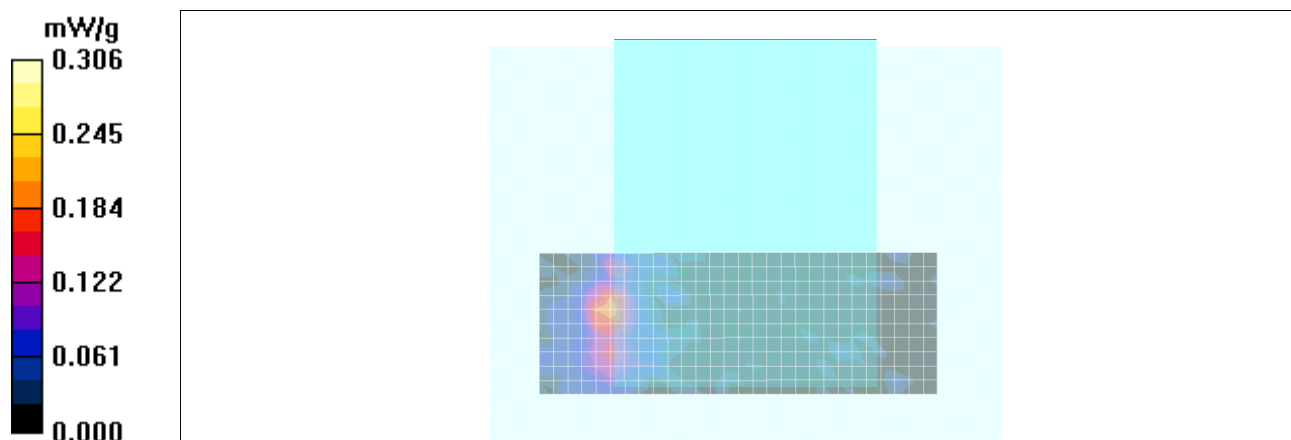
Zoom Scan (7x7x9)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2.5\text{mm}$

Reference Value = 7.24 V/m; Power Drift = -0.201 dB

Peak SAR (extrapolated) = 0.740 W/kg

SAR(1 g) = 0.169 mW/g; SAR(10 g) = 0.071 mW/g

Maximum value of SAR (measured) = 0.306 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Date Tested: 02/28/2011

Body SAR - 802.11a – 6 Mbps - 5180 MHz - AUX Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: OFDM WLAN

Frequency: 5180 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used: $f = 5180 \text{ MHz}$; $\sigma = 5.21 \text{ mho/m}$; $\epsilon_r = 48.8$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(3.73, 3.73, 3.73); Calibrated: 29/04/2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x29x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.242 mW/g

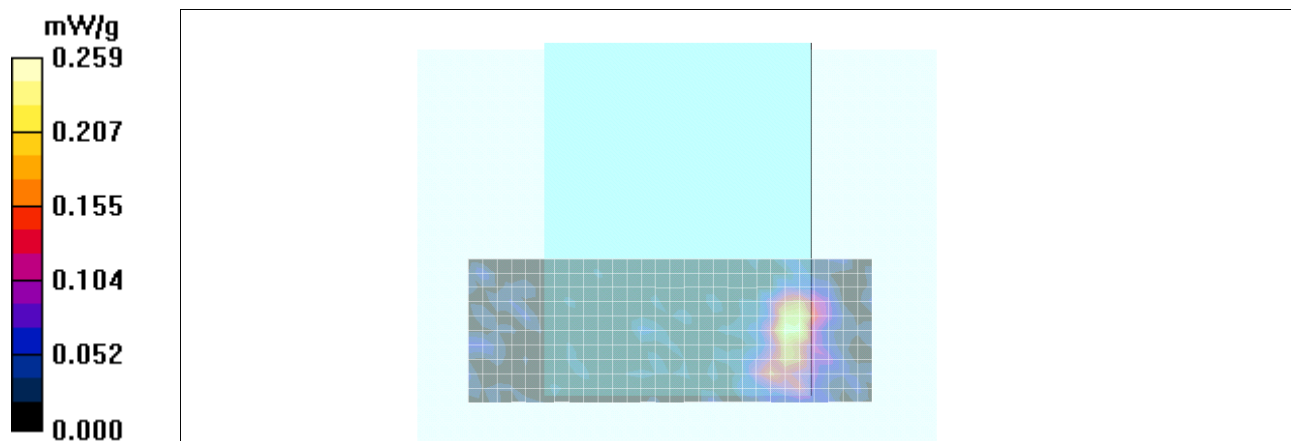
Scan (7x7x9)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2.5\text{mm}$

Reference Value = 1.42 V/m; Power Drift = 0.165 dB

Peak SAR (extrapolated) = 0.585 W/kg

SAR(1 g) = 0.142 mW/g; SAR(10 g) = 0.066 mW/g

Maximum value of SAR (measured) = 0.259 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Date Tested: 02/28/2011

Body SAR - 802.11n - HT0 - 5180 MHz - MAIN Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: OFDM WLAN

Frequency: 5180 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used: $f = 5180 \text{ MHz}$; $\sigma = 5.21 \text{ mho/m}$; $\epsilon_r = 48.8$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(3.73, 3.73, 3.73); Calibrated: 29/04/2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x15x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.385 mW/g

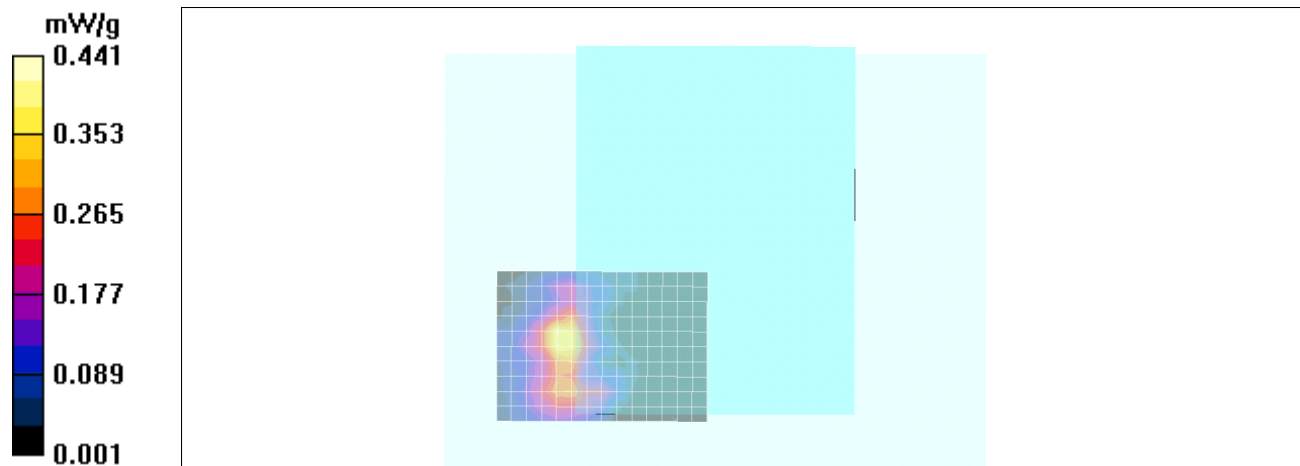
Zoom Scan (7x7x9)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2.5\text{mm}$

Reference Value = 9.59 V/m; Power Drift = -0.104 dB

Peak SAR (extrapolated) = 0.743 W/kg

SAR(1 g) = 0.261 mW/g; SAR(10 g) = 0.120 mW/g

Maximum value of SAR (measured) = 0.441 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Date(s) of Evaluation</u> February 25 & 28, 2011	<u>Test Report Serial No.</u> 022311TFT-T1083-S15W	<u>Test Report Revision No.</u> Rev. 1.1 (2nd Release)	
	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Date Tested: 02/28/2011

Body SAR - 802.11n - HT0 - 5180 MHz - AUX Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: OFDM WLAN

Frequency: 5180 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used: $f = 5180 \text{ MHz}$; $\sigma = 5.21 \text{ mho/m}$; $\epsilon_r = 48.8$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(3.73, 3.73, 3.73); Calibrated: 29/04/2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x15x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.309 mW/g

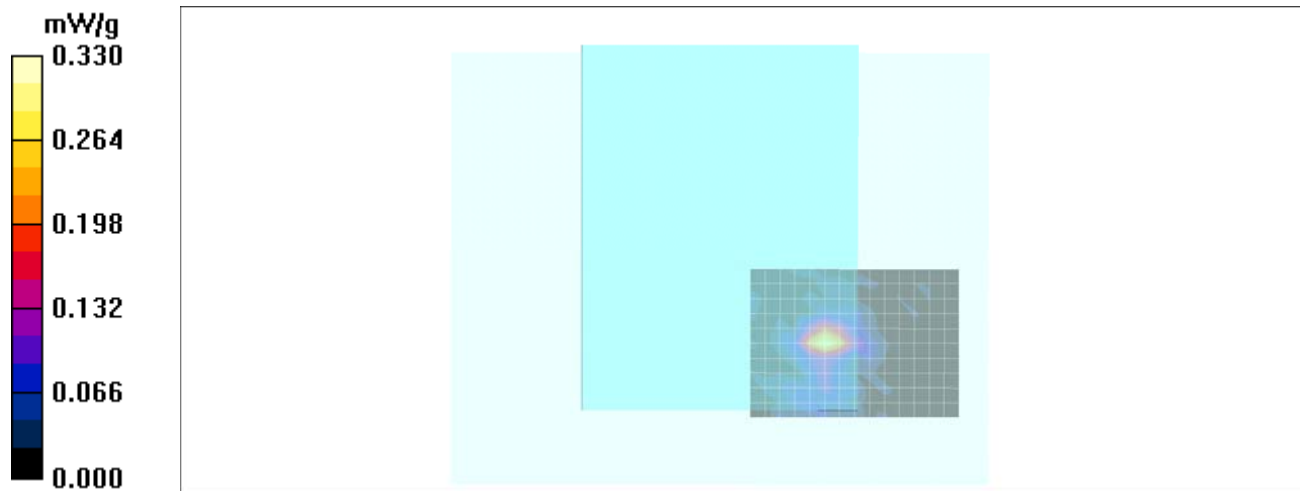
Zoom Scan (7x7x9)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2.5\text{mm}$

Reference Value = 8.42 V/m; Power Drift = 0.088 dB

Peak SAR (extrapolated) = 0.629 W/kg

SAR(1 g) = 0.192 mW/g; SAR(10 g) = 0.088 mW/g

Maximum value of SAR (measured) = 0.330 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Date Tested: 02/28/2011

Body SAR - 802.11a - 6 Mbps - 5260 MHz - MAIN Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: OFDM WLAN

Frequency: 5260 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used: $f = 5260$ MHz; $\sigma = 5.31$ mho/m; $\epsilon_r = 48.7$; $\rho = 1000$ kg/m³

- Probe: EX3DV4 - SN3600; ConvF(3.73, 3.73, 3.73); Calibrated: 29/04/2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x15x1): Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 0.199 mW/g

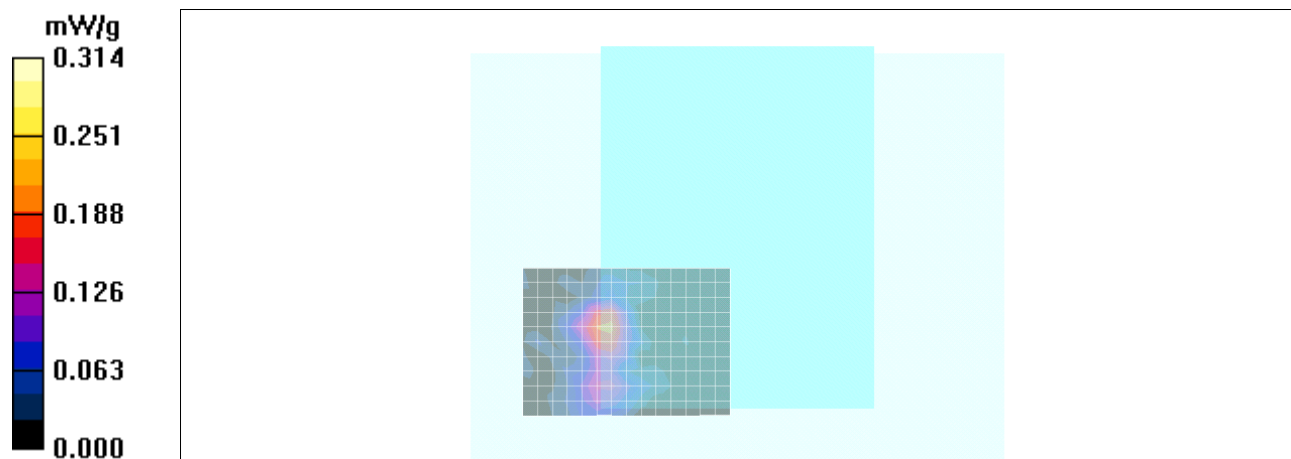
Zoom Scan (7x7x9)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2.5$ mm

Reference Value = 6.48 V/m; Power Drift = 0.161 dB

Peak SAR (extrapolated) = 0.697 W/kg

SAR(1 g) = 0.141 mW/g; SAR(10 g) = 0.057 mW/g

Maximum value of SAR (measured) = 0.314 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Date Tested: 02/28/2011

Body SAR - 802.11a - 6 Mbps - 5260 MHz - AUX Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: OFDM WLAN

Frequency: 5260 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used: $f = 5260$ MHz; $\sigma = 5.31$ mho/m; $\epsilon_r = 48.7$; $\rho = 1000$ kg/m³

- Probe: EX3DV4 - SN3600; ConvF(3.73, 3.73, 3.73); Calibrated: 29/04/2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.336 mW/g

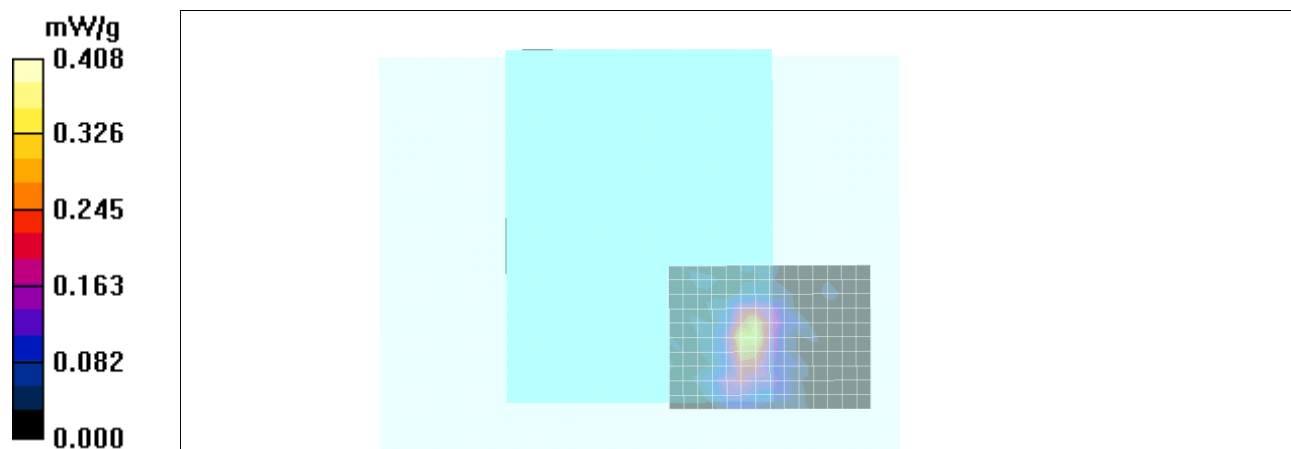
Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 8.32 V/m; Power Drift = -0.129 dB

Peak SAR (extrapolated) = 0.776 W/kg

SAR(1 g) = 0.213 mW/g; SAR(10 g) = 0.089 mW/g

Maximum value of SAR (measured) = 0.408 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Date Tested: 02/28/2011

Body SAR - 802.11n - HT0 - 5260 MHz - MAIN Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: OFDM WLAN

Frequency: 5260 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used: $f = 5260 \text{ MHz}$; $\sigma = 5.31 \text{ mho/m}$; $\epsilon_r = 48.7$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(3.73, 3.73, 3.73); Calibrated: 29/04/2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x15x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.237 mW/g

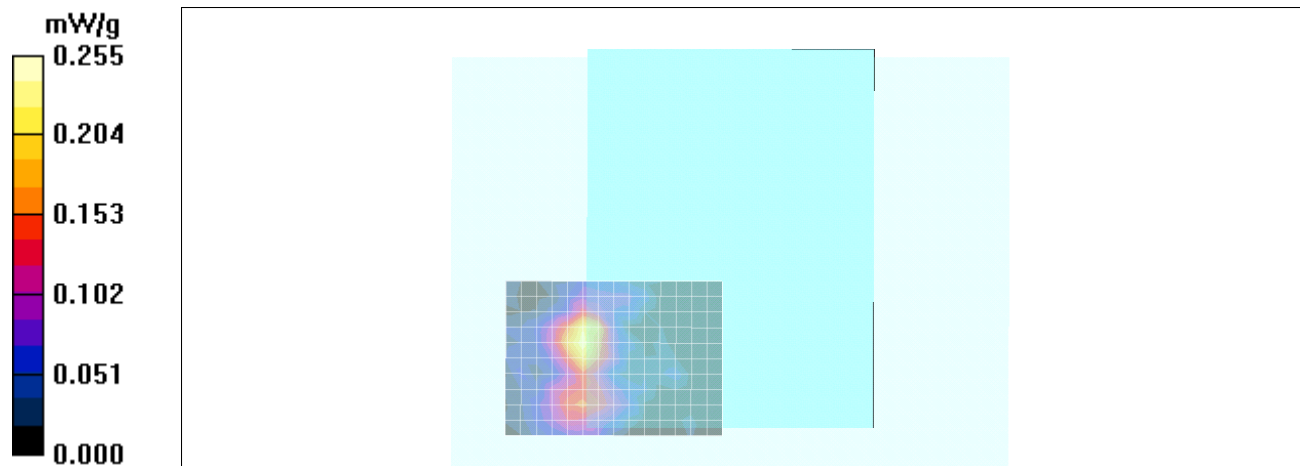
Zoom Scan (7x7x9)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2.5\text{mm}$

Reference Value = 7.39 V/m; Power Drift = 0.189 dB

Peak SAR (extrapolated) = 0.492 W/kg

SAR(1 g) = 0.149 mW/g; SAR(10 g) = 0.072 mW/g

Maximum value of SAR (measured) = 0.255 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Date Tested: 02/28/2011

Body SAR - 802.11n - HT0 - 5260 MHz - AUX Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: OFDM WLAN

Frequency: 5260 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used: $f = 5260$ MHz; $\sigma = 5.31$ mho/m; $\epsilon_r = 48.7$; $\rho = 1000$ kg/m³

- Probe: EX3DV4 - SN3600; ConvF(3.73, 3.73, 3.73); Calibrated: 29/04/2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.324 mW/g

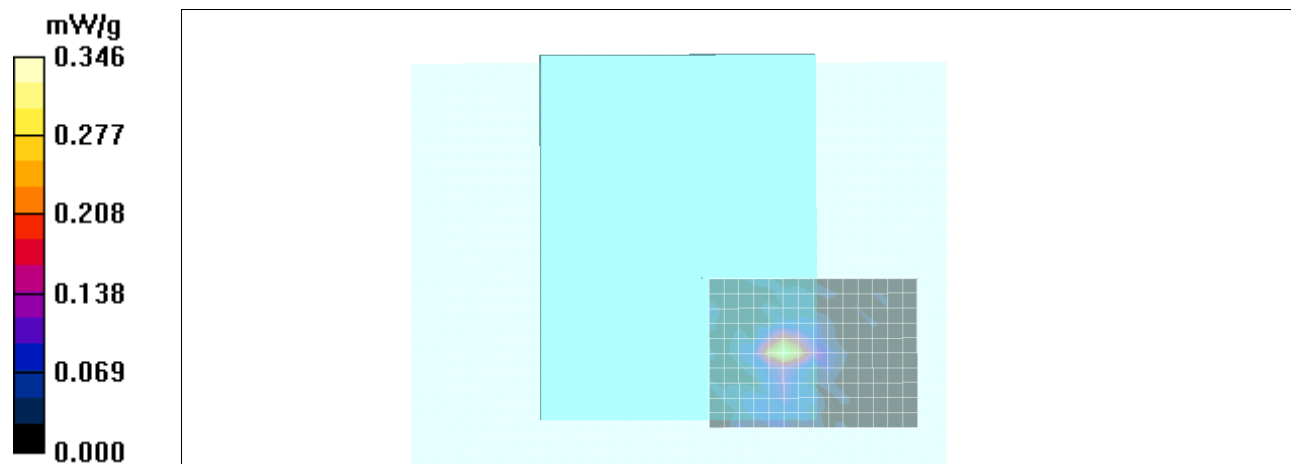
Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 8.53 V/m; Power Drift = 0.098 dB

Peak SAR (extrapolated) = 0.659 W/kg

SAR(1 g) = 0.201 mW/g; SAR(10 g) = 0.093 mW/g

Maximum value of SAR (measured) = 0.346 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Date Tested: 02/28/2011

Body SAR - 802.11a - 6 Mbps - 5500 MHz - MAIN Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: OFDM WLAN

Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used: $f = 5500$ MHz; $\sigma = 5.67$ mho/m; $\epsilon_r = 48.3$; $\rho = 1000$ kg/m³

- Probe: EX3DV4 - SN3600; ConvF(3.3, 3.3, 3.3); Calibrated: 29/04/2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x15x1): Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 0.332 mW/g

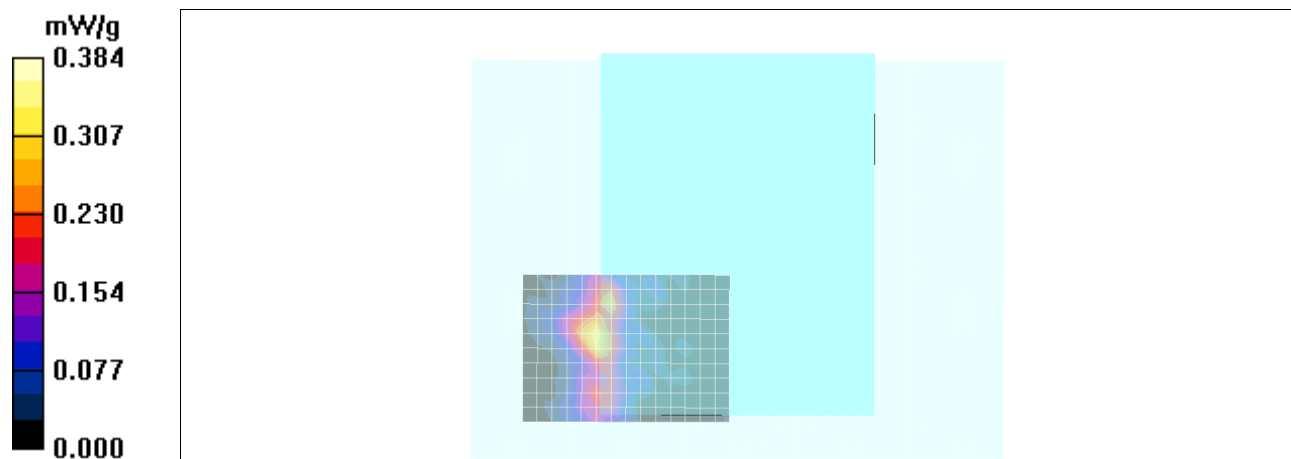
Zoom Scan (7x7x9)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2.5$ mm

Reference Value = 8.54 V/m; Power Drift = 0.139 dB

Peak SAR (extrapolated) = 0.647 W/kg

SAR(1 g) = 0.214 mW/g; SAR(10 g) = 0.084 mW/g

Maximum value of SAR (measured) = 0.384 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Date Tested: 02/28/2011

Body SAR - 802.11a - 6 Mbps - 5500 MHz - AUX Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: OFDM WLAN

Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used: $f = 5500$ MHz; $\sigma = 5.67$ mho/m; $\epsilon_r = 48.3$; $\rho = 1000$ kg/m³

- Probe: EX3DV4 - SN3600; ConvF(3.3, 3.3, 3.3); Calibrated: 29/04/2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.417 mW/g

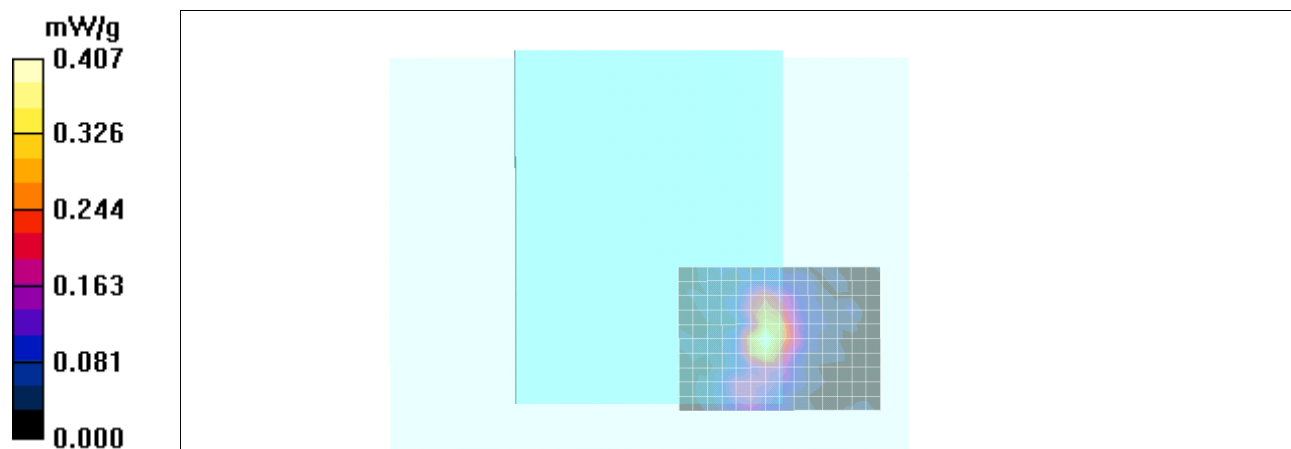
Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 9.61 V/m; Power Drift = -0.145 dB

Peak SAR (extrapolated) = 0.820 W/kg

SAR(1 g) = 0.242 mW/g; SAR(10 g) = 0.100 mW/g

Maximum value of SAR (measured) = 0.407 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Date Tested: 02/28/2011

Body SAR - 802.11n - HT0 - 5500 MHz - MAIN Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: OFDM WLAN

Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used: $f = 5500$ MHz; $\sigma = 5.67$ mho/m; $\epsilon_r = 48.3$; $\rho = 1000$ kg/m³

- Probe: EX3DV4 - SN3600; ConvF(3.3, 3.3, 3.3); Calibrated: 29/04/2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x15x1): Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 0.442 mW/g

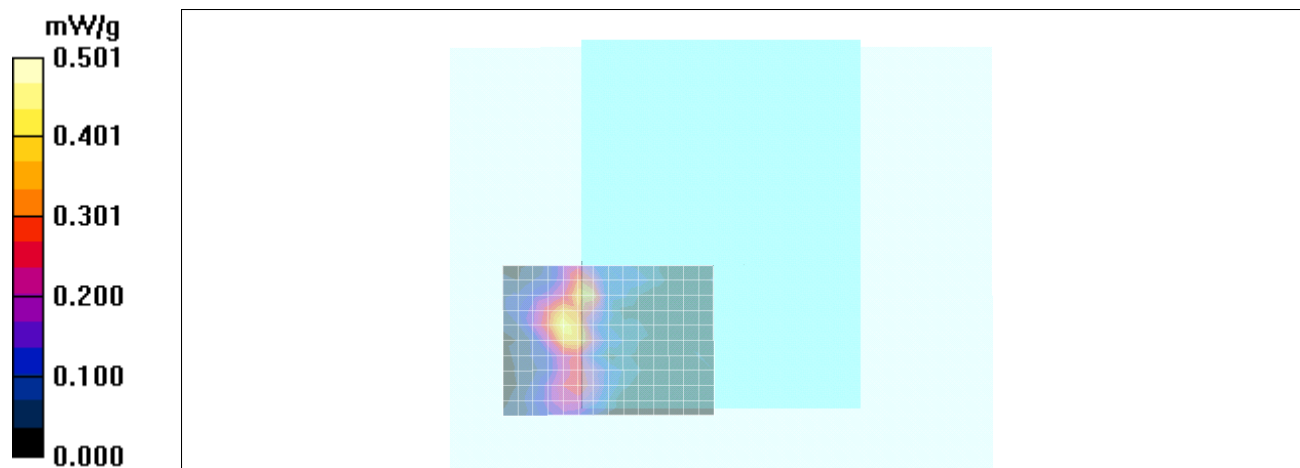
Zoom Scan (7x7x9)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2.5$ mm

Reference Value = 10.4 V/m; Power Drift = -0.153 dB

Peak SAR (extrapolated) = 0.742 W/kg

SAR(1 g) = 0.269 mW/g; SAR(10 g) = 0.121 mW/g

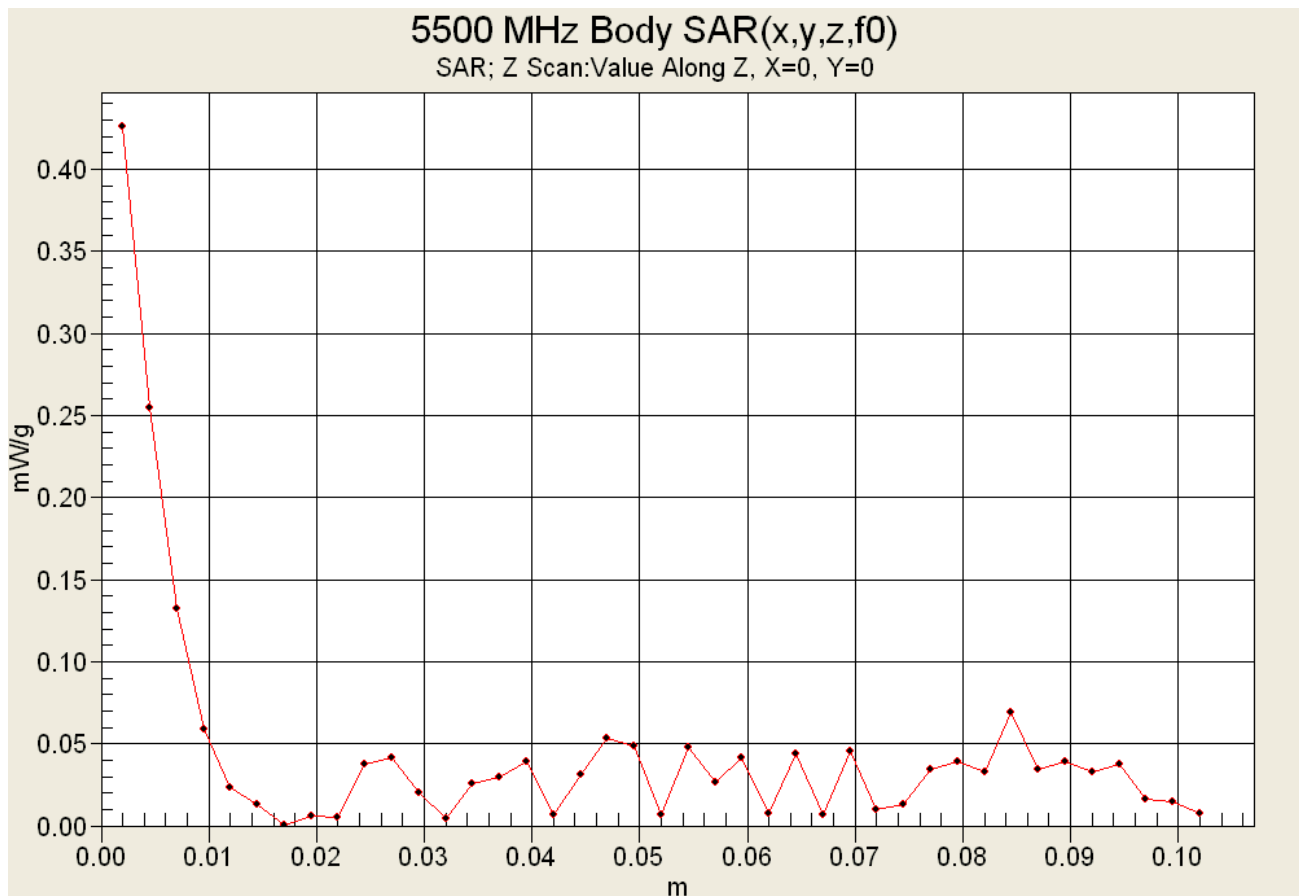
Maximum value of SAR (measured) = 0.501 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Z-axis Scan



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Date Tested: 02/28/2011

Body SAR - 802.11n - HT0 - 5500 MHz - AUX Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: OFDM WLAN

Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used: $f = 5500$ MHz; $\sigma = 5.67$ mho/m; $\epsilon_r = 48.3$; $\rho = 1000$ kg/m³

- Probe: EX3DV4 - SN3600; ConvF(3.3, 3.3, 3.3); Calibrated: 29/04/2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.441 mW/g

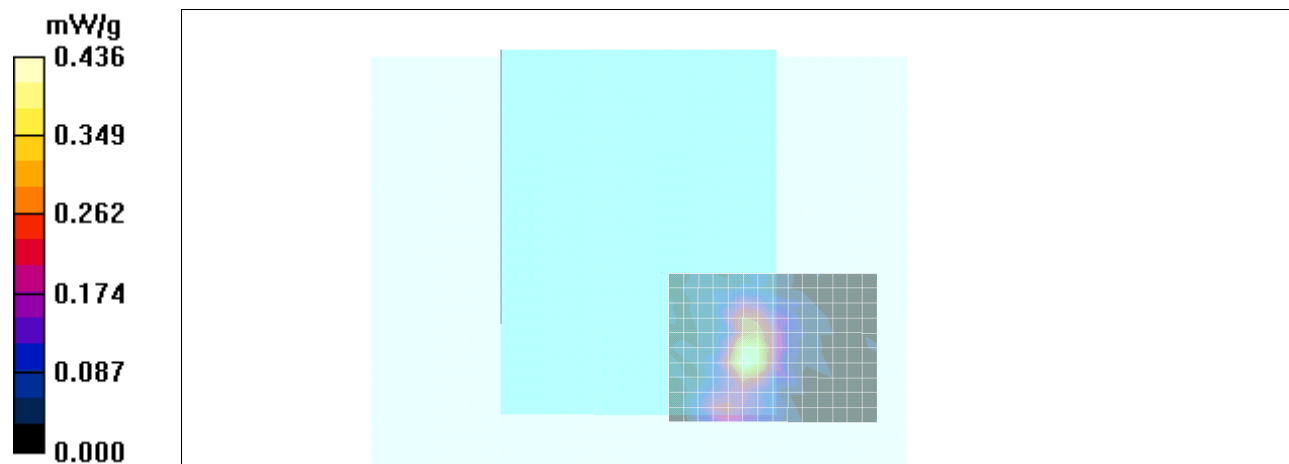
Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 9.72 V/m; Power Drift = -0.090 dB

Peak SAR (extrapolated) = 0.810 W/kg

SAR(1 g) = 0.250 mW/g; SAR(10 g) = 0.100 mW/g

Maximum value of SAR (measured) = 0.436 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Date Tested: 02/28/2011

Body SAR - 802.11a - 6 Mbps - 5785 MHz - MAIN Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: OFDM WLAN

Frequency: 5785 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used (interpolated): $f = 5785$ MHz; $\sigma = 6.08$ mho/m; $\epsilon_r = 47.5$; $\rho = 1000$ kg/m³

- Probe: EX3DV4 - SN3600; ConvF(3.44, 3.44, 3.44); Calibrated: 29/04/2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.273 mW/g

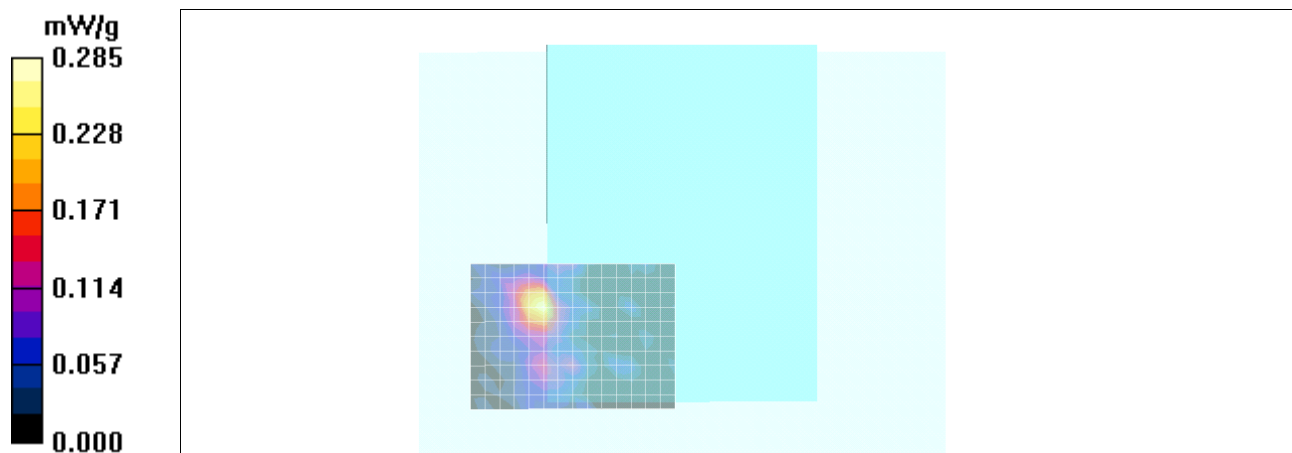
Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 7.77 V/m; Power Drift = -0.196 dB

Peak SAR (extrapolated) = 0.592 W/kg

SAR(1 g) = 0.156 mW/g; SAR(10 g) = 0.072 mW/g

Maximum value of SAR (measured) = 0.285 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Date Tested: 02/28/2011

Body SAR - 802.11a - 6 Mbps - 5785 MHz - AUX Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: OFDM WLAN

Frequency: 5785 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used (interpolated): $f = 5785 \text{ MHz}$; $\sigma = 6.08 \text{ mho/m}$; $\epsilon_r = 47.5$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(3.44, 3.44, 3.44); Calibrated: 29/04/2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x15x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.323 mW/g

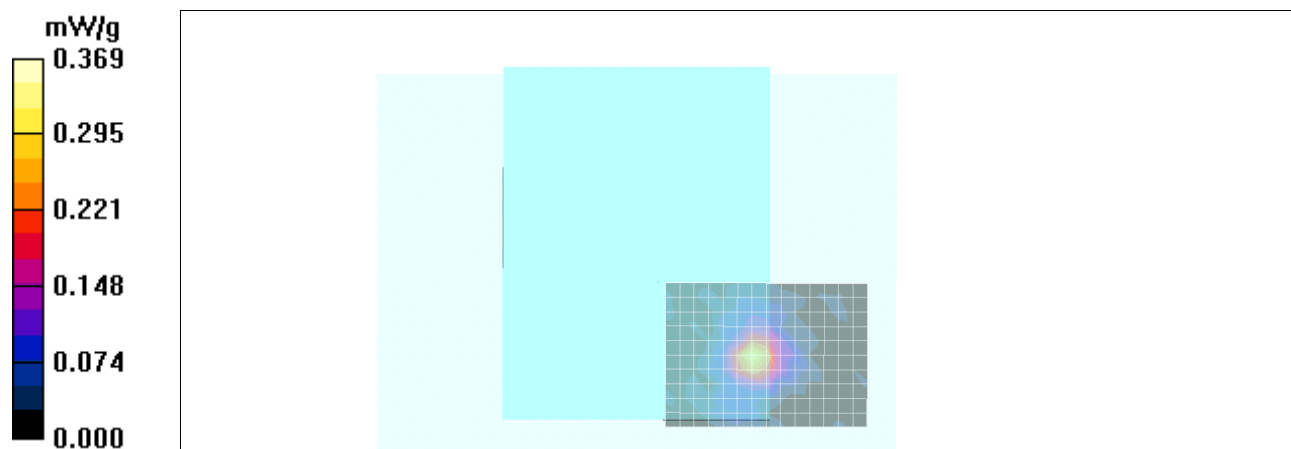
Zoom Scan (7x7x9)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2.5\text{mm}$

Reference Value = 8.24 V/m; Power Drift = -0.138 dB

Peak SAR (extrapolated) = 0.726 W/kg

SAR(1 g) = 0.203 mW/g; SAR(10 g) = 0.085 mW/g

Maximum value of SAR (measured) = 0.369 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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Date Tested: 02/28/2011

Body SAR - 802.11n - HT0 - 5785 MHz - MAIN Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: OFDM WLAN

Frequency: 5785 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used (interpolated): $f = 5785$ MHz; $\sigma = 6.08$ mho/m; $\epsilon_r = 47.5$; $\rho = 1000$ kg/m³

- Probe: EX3DV4 - SN3600; ConvF(3.44, 3.44, 3.44); Calibrated: 29/04/2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.303 mW/g

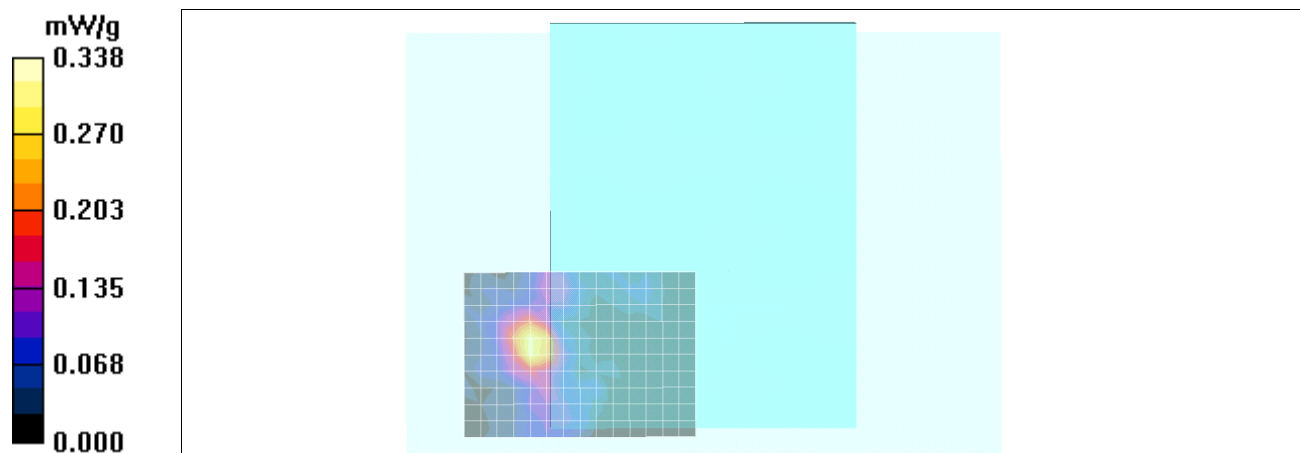
Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 8.17 V/m; Power Drift = -0.210 dB

Peak SAR (extrapolated) = 0.465 W/kg

SAR(1 g) = 0.178 mW/g; SAR(10 g) = 0.080 mW/g

Maximum value of SAR (measured) = 0.338 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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Date Tested: 02/28/2011

Body SAR - 802.11n - HT0 - 5785 MHz - AUX Tx Diversity Antenna - Keypad Side 10mm

DUT: MaxID; Type: Intel 533AN_MMW in iDL750 Handheld RFID Reader; Serial: BHC00036

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: OFDM WLAN

Frequency: 5785 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used (interpolated): $f = 5785$ MHz; $\sigma = 6.08$ mho/m; $\epsilon_r = 47.5$; $\rho = 1000$ kg/m³

- Probe: EX3DV4 - SN3600; ConvF(3.44, 3.44, 3.44); Calibrated: 29/04/2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body SAR - Front (Keypad) Side of Handheld RFID Reader - 10 mm Air-Gap Spacing to Planar Phantom

Area Scan (11x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.453 mW/g

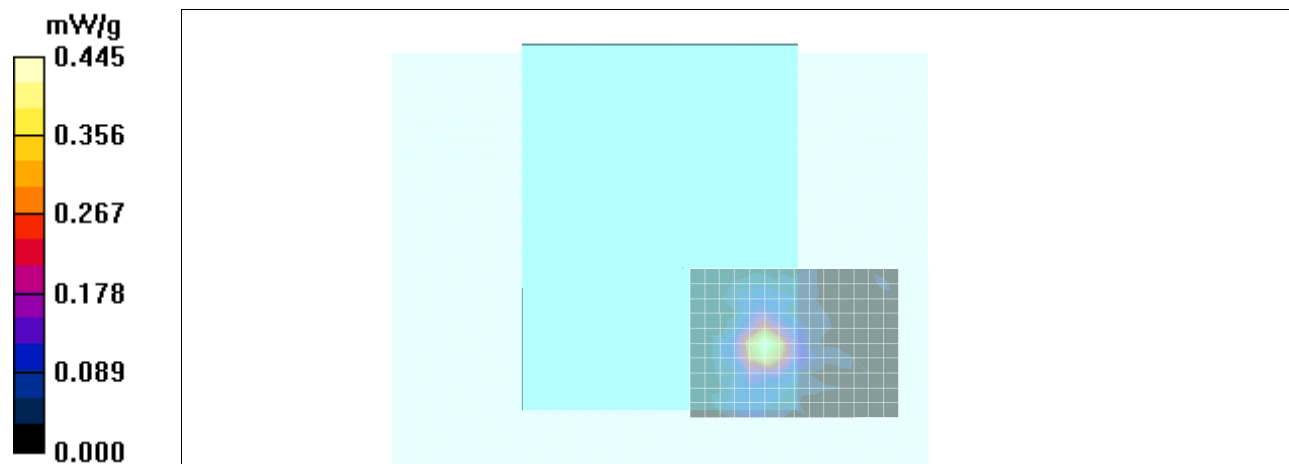
Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 9.47 V/m; Power Drift = 0.030 dB

Peak SAR (extrapolated) = 0.874 W/kg

SAR(1 g) = 0.237 mW/g; SAR(10 g) = 0.090 mW/g

Maximum value of SAR (measured) = 0.445 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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APPENDIX B - SYSTEM PERFORMANCE CHECK PLOTS

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	
Test Lab Certificate No. 2470.01				

Date Tested: 02/25/2011

System Performance Check - 2450 MHz Dipole - Body

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 825; Calibrated: 17/04/2009

Ambient Temp: 23.1°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 33%

Communication System: CW

Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 2 \text{ mho/m}$; $\epsilon_r = 50.1$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(6.24, 6.24, 6.24); Calibrated: 29/04/2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

2450 MHz System Performance Check

Area Scan (6x10x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 17.3 mW/g

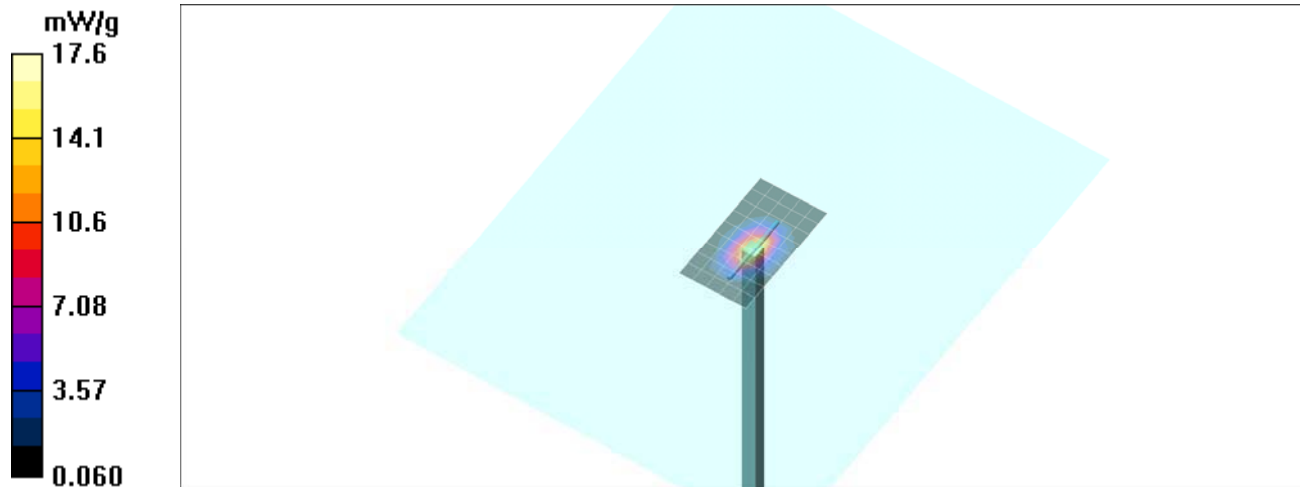
/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 89.1 V/m; Power Drift = -0.133 dB

Peak SAR (extrapolated) = 30.2 W/kg

SAR(1 g) = 13.3 mW/g; SAR(10 g) = 5.8 mW/g

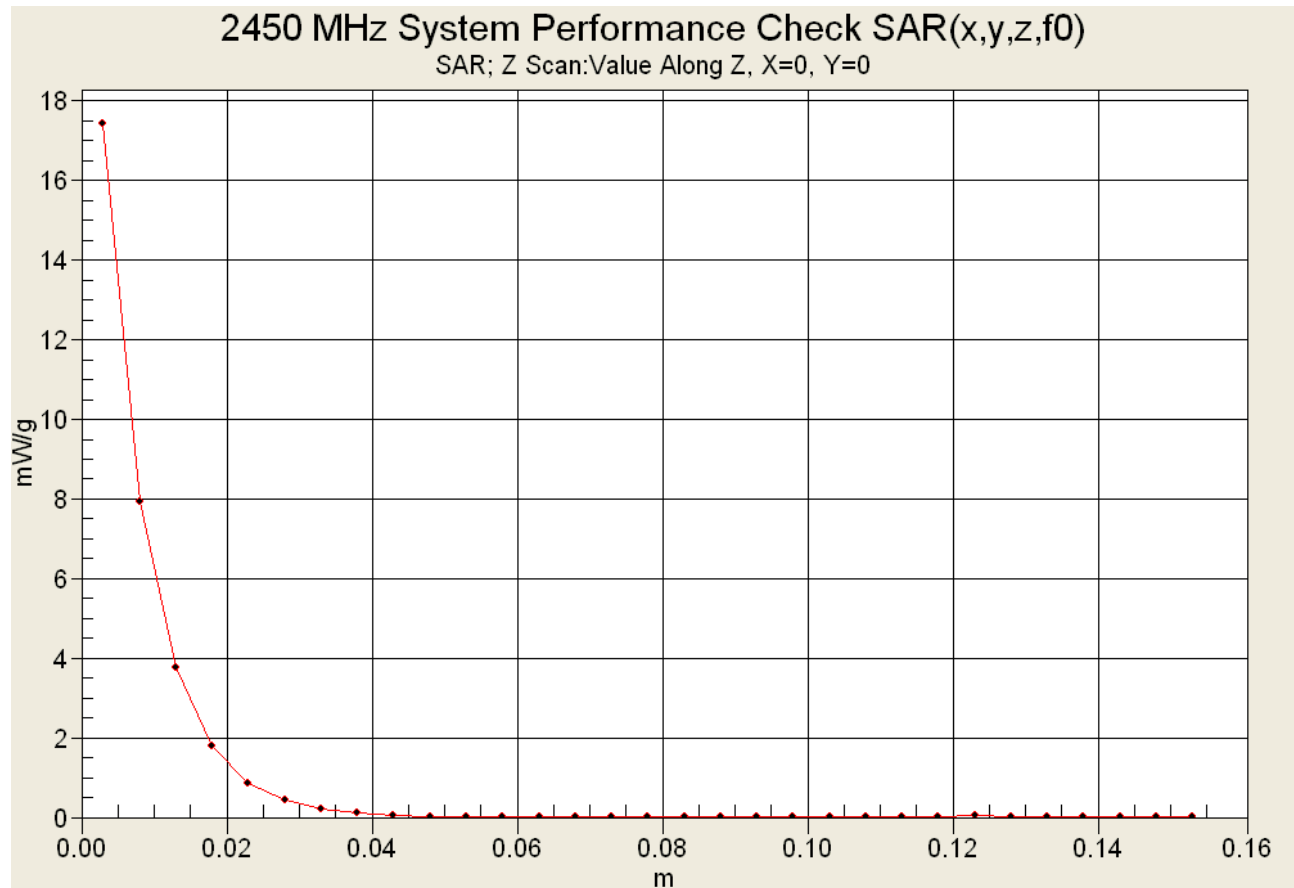
Maximum value of SAR (measured) = 17.6 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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Z-axis Scan



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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Date Tested: 02/28/2011

System Performance Check - 5000 MHz Dipole - Body

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: 1031; Calibrated: 29/04/2009

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used: $f = 5200$ MHz; $\sigma = 5.17$ mho/m; $\epsilon_r = 48.5$; $\rho = 1000$ kg/m³

- Probe: EX3DV4 - SN3600; ConvF(3.73, 3.73, 3.73); Calibrated: 29/04/2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

5200 MHz System Performance Check

Area Scan (9x13x1): Measurement grid: $dx=5$ mm, $dy=5$ mm

Maximum value of SAR (measured) = 6.73 mW/g

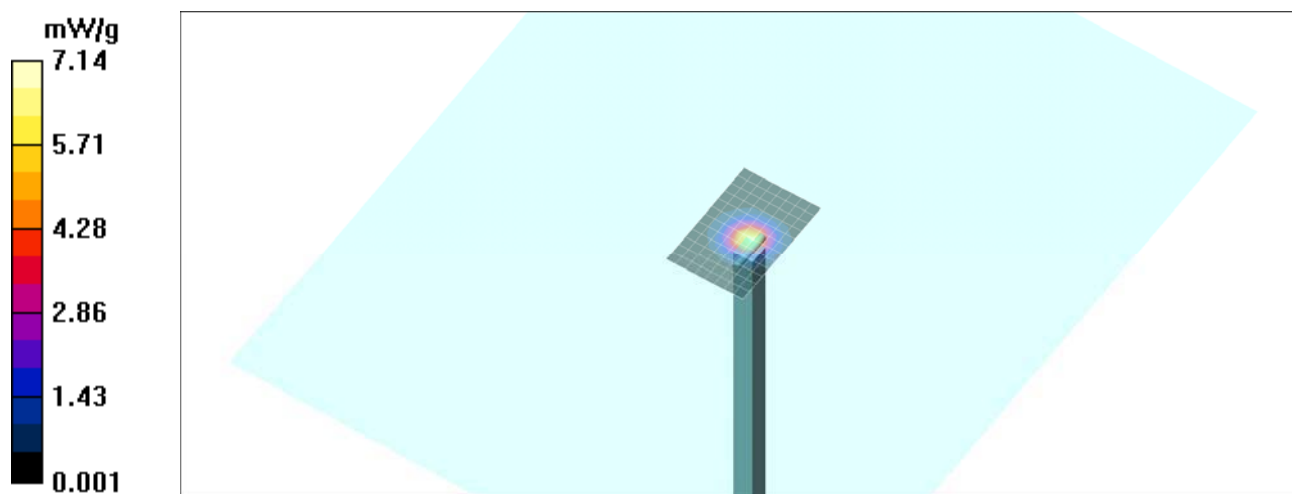
Zoom Scan (7x7x9)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2.5$ mm

Reference Value = 39.3 V/m; Power Drift = 0.037 dB

Peak SAR (extrapolated) = 12.7 W/kg

SAR(1 g) = 3.44 mW/g; SAR(10 g) = 0.970 mW/g

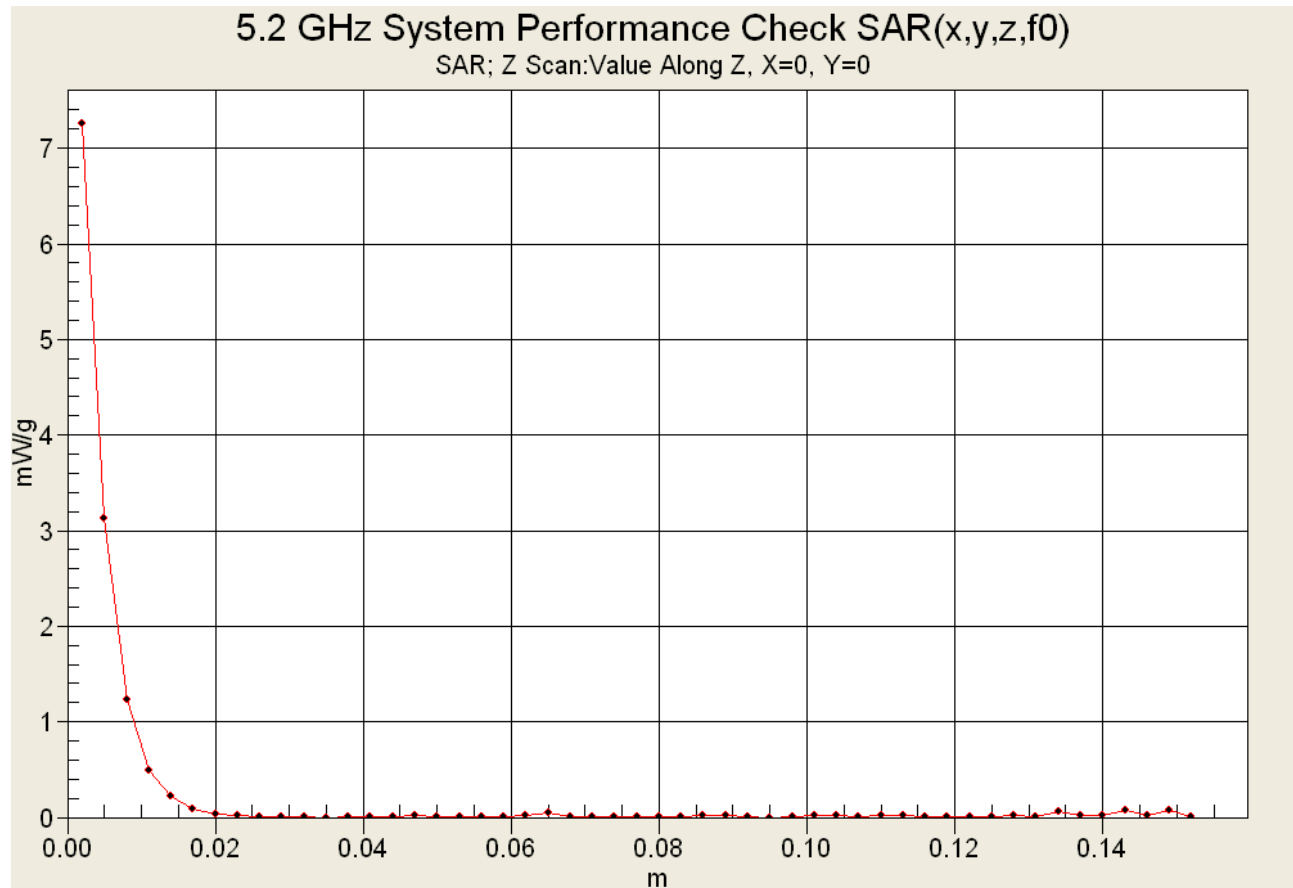
Maximum value of SAR (measured) = 7.14 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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 Testing and Engineering Services Lab	<u>Date(s) of Evaluation</u> February 25 & 28, 2011	<u>Test Report Serial No.</u> 022311TFT-T1083-S15W	<u>Test Report Revision No.</u> Rev. 1.1 (2nd Release)	 Test Lab Certificate No. 2470.01
	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Z-axis Scan



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Date Tested: 02/28/2011

System Performance Check - 5000 MHz Dipole - Body

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: 1031; Calibrated: 29/04/2009

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used: $f = 5500 \text{ MHz}$; $\sigma = 5.67 \text{ mho/m}$; $\epsilon_r = 48.3$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(3.3, 3.3, 3.3); Calibrated: 29/04/2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

5500 MHz System Performance Check

Area Scan (5x7x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 12.1 mW/g

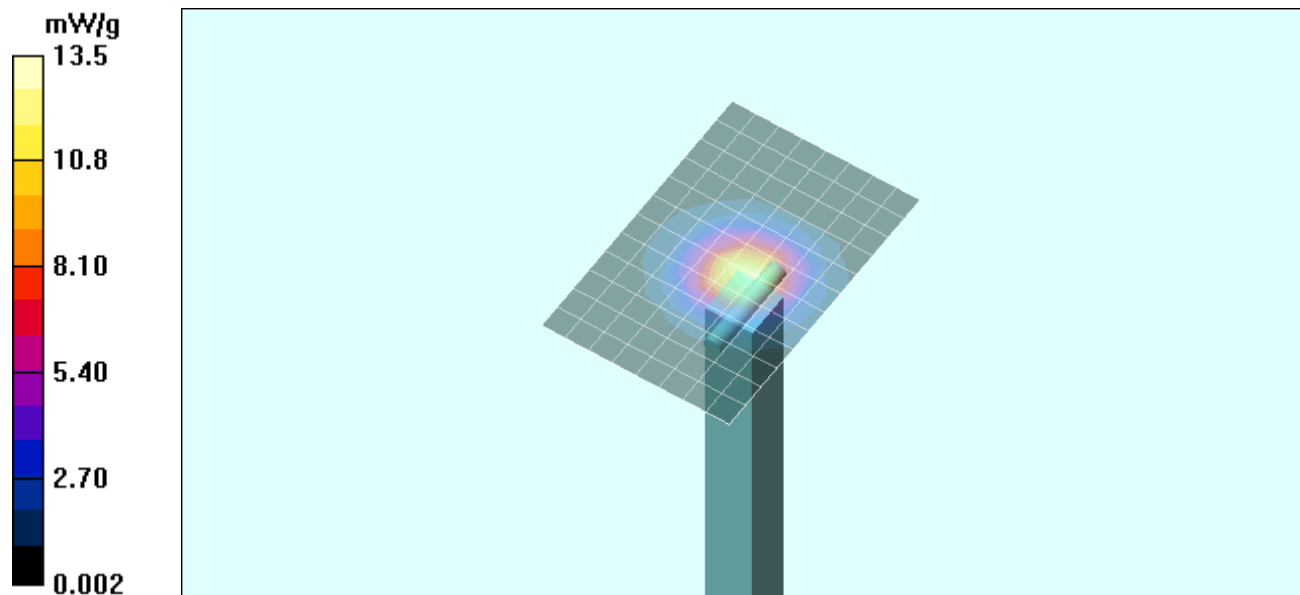
Zoom Scan (7x7x9)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2.5\text{mm}$

Reference Value = 50.1 V/m; Power Drift = -0.051 dB

Peak SAR (extrapolated) = 25.5 W/kg

SAR(1 g) = 8.17 mW/g; SAR(10 g) = 2.36 mW/g

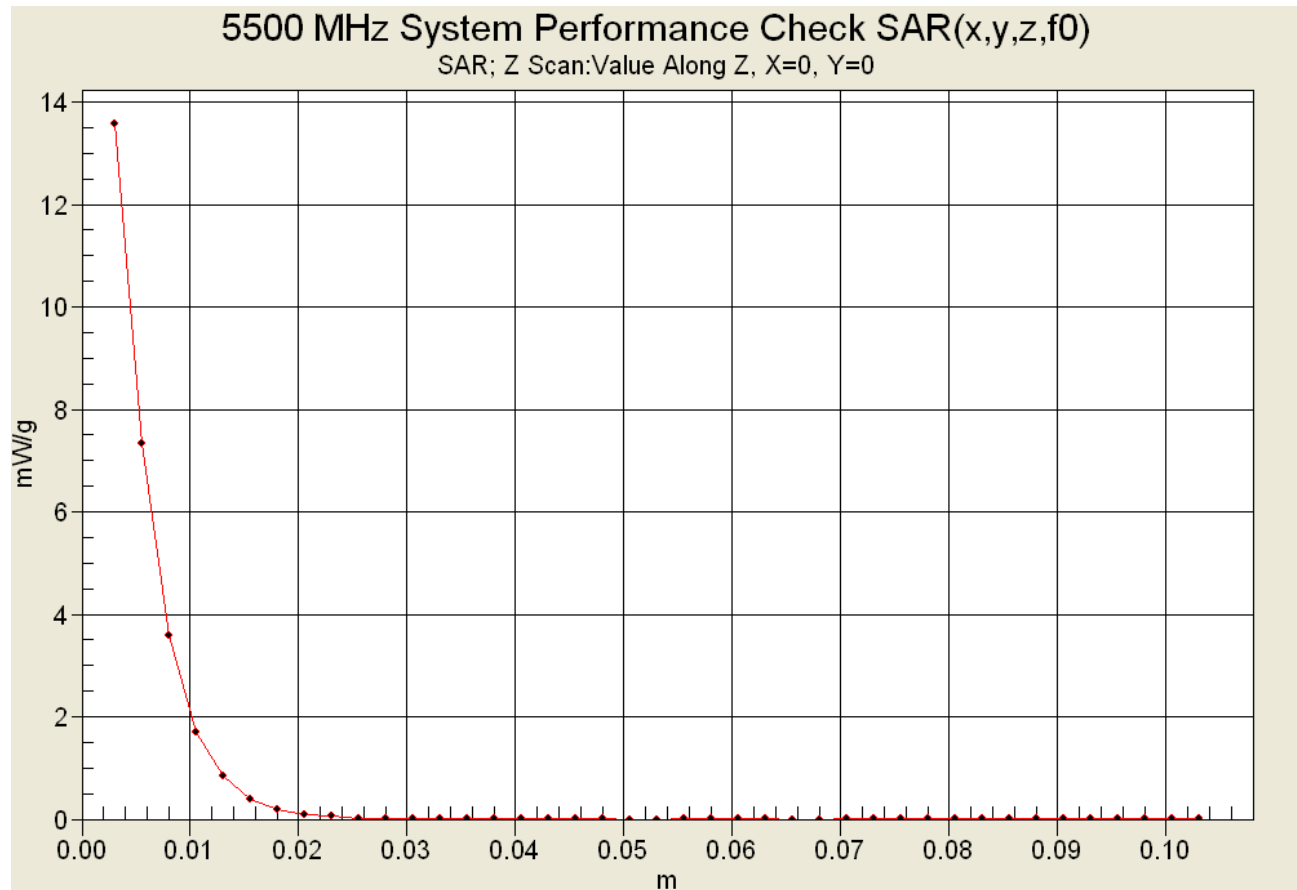
Maximum value of SAR (measured) = 13.5 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Z-axis Scan



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Date Tested: 02/28/2011

System Performance Check - 5000 MHz Dipole - Body

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: 1031; Calibrated: 29/04/2009

Ambient Temp: 22.0°C; Fluid Temp: 22.8°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: M5200-5800 Medium parameters used: $f = 5800 \text{ MHz}$; $\sigma = 6.01 \text{ mho/m}$; $\epsilon_r = 47.4$; $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3600; ConvF(3.44, 3.44, 3.44); Calibrated: 29/04/2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

5800 MHz System Performance Check

Area Scan (9x13x1): Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$

Maximum value of SAR (measured) = 6.04 mW/g

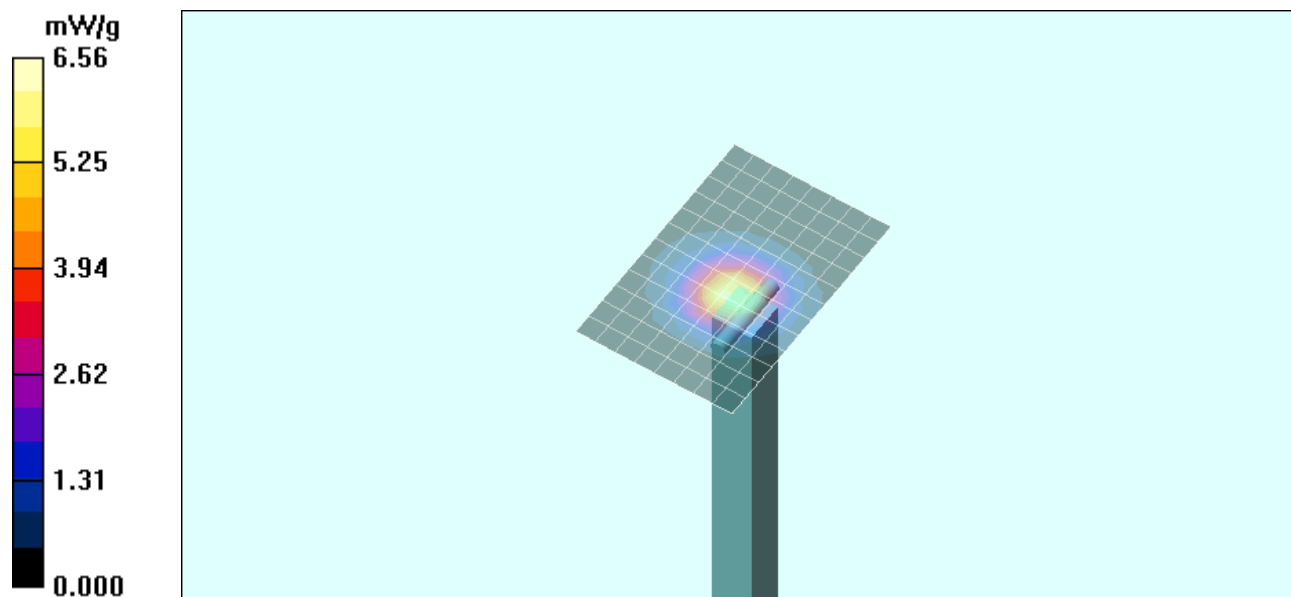
Zoom Scan (7x7x9)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2.5\text{mm}$

Reference Value = 34.7 V/m; Power Drift = -0.010 dB

Peak SAR (extrapolated) = 12.5 W/kg

SAR(1 g) = 3.09 mW/g; SAR(10 g) = 0.865 mW/g

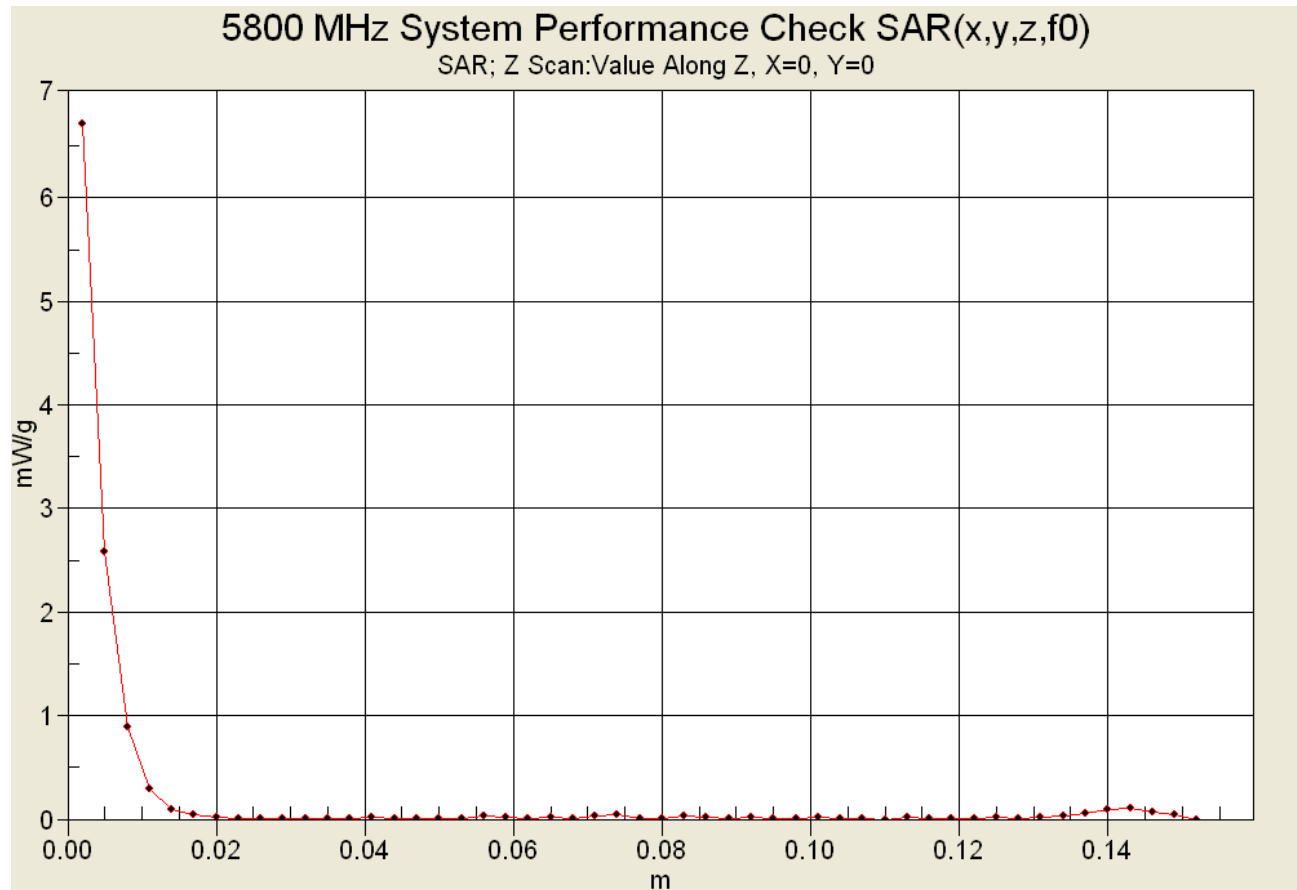
Maximum value of SAR (measured) = 6.56 mW/g



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	
Test Lab Certificate No. 2470.01				

Z-axis Scan



Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

APPENDIX C - MEASURED FLUID DIELECTRIC PARAMETERS

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Date(s) of Evaluation</u> February 25 & 28, 2011	<u>Test Report Serial No.</u> 022311TFT-T1083-S15W	<u>Test Report Revision No.</u> Rev. 1.1 (2nd Release)	 Test Lab Certificate No. 2470.01
	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

2450 MHz (Body)

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
25/Feb/2011
Frequency (GHz)
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

Freq	FCC_eB	FCC_sB	Test_e	Test_s
2.3500	52.83	1.85	50.39	1.90
2.3600	52.82	1.86	50.38	1.90
2.3700	52.81	1.87	50.35	1.93
2.3800	52.79	1.88	50.33	1.94
2.3900	52.78	1.89	50.19	1.95
2.4000	52.77	1.90	50.23	1.95
2.4100	52.75	1.91	50.16	1.98
2.4200	52.74	1.92	50.09	1.97
2.4300	52.73	1.93	50.36	1.98
2.4400	52.71	1.94	50.12	1.99
2.4500	52.70	1.95	50.14	2.00
2.4600	52.69	1.96	50.15	2.03
2.4700	52.67	1.98	49.96	2.04
2.4800	52.66	1.99	49.90	2.05
2.4900	52.65	2.01	49.96	2.06
2.5000	52.64	2.02	49.91	2.10
2.5100	52.62	2.04	49.97	2.09
2.5200	52.61	2.05	49.80	2.08
2.5300	52.60	2.06	49.67	2.14
2.5400	52.59	2.08	49.68	2.13
2.5500	52.57	2.09	49.84	2.14

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

5.2-5.3 GHz (Body)

Celltech Labs Inc.
 Test Result for UIM Dielectric Parameter
 28/Feb/2011
 Frequency (GHz)
 FCC_eB FCC Limits for Body Epsilon
 FCC_sB FCC Limits for Body Sigma
 Test_e Epsilon of UIM
 Test_s Sigma of UIM

Freq	FCC_eB	FCC_sB	Test_e	Test_s
5.1000	49.15	5.18	48.78	5.00
5.1100	49.14	5.19	48.97	5.10
5.1200	49.12	5.21	48.68	5.18
5.1300	49.11	5.22	49.16	5.05
5.1400	49.10	5.23	49.01	5.08
5.1500	49.08	5.24	48.72	5.09
5.1600	49.07	5.25	49.13	5.17
5.1700	49.06	5.26	48.83	5.09
5.1800	49.04	5.28	48.79	5.21
5.1900	49.03	5.29	48.86	5.31
5.2000	49.01	5.30	48.52	5.17
5.2100	49.00	5.31	49.11	5.25
5.2200	48.99	5.32	48.92	5.33
5.2300	48.97	5.33	48.67	5.30
5.2400	48.96	5.35	48.52	5.28
5.2500	48.95	5.36	48.60	5.29
5.2600	48.93	5.37	48.67	5.31
5.2700	48.92	5.38	48.38	5.32
5.2800	48.91	5.39	48.78	5.43
5.2900	48.89	5.40	48.76	5.44
5.3000	48.88	5.42	48.35	5.37
5.3100	48.87	5.43	48.58	5.24
5.3200	48.85	5.44	48.40	5.42
5.3300	48.84	5.45	48.08	5.45
5.3400	48.82	5.46	48.17	5.45
5.3500	48.81	5.47	48.45	5.43
5.3600	48.80	5.49	48.54	5.43
5.3700	48.78	5.50	48.34	5.45
5.3800	48.77	5.51	47.90	5.44
5.3900	48.76	5.52	48.26	5.40

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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5.5-5.8 GHz (Body)

Celltech Labs Inc.
 Test Result for UIM Dielectric Parameter
 28/Feb/2011
 Frequency (GHz)
 FCC_eB FCC Limits for Body Epsilon
 FCC_sB FCC Limits for Body Sigma
 Test_e Epsilon of UIM
 Test_s Sigma of UIM

Freq	FCC_eB	FCC_sB	Test_e	Test_s
5.4000	48.74	5.53	48.21	5.46
5.4100	48.73	5.54	48.27	5.52
5.4200	48.72	5.56	48.10	5.48
5.4300	48.70	5.57	47.83	5.60
5.4400	48.69	5.58	48.20	5.67
5.4500	48.67	5.59	48.15	5.54
5.4600	48.66	5.60	48.22	5.51
5.4700	48.65	5.61	47.96	5.61
5.4800	48.63	5.63	48.10	5.70
5.4900	48.62	5.64	48.21	5.54
5.5000	48.61	5.65	48.28	5.67
5.5100	48.59	5.66	47.89	5.57
5.5200	48.58	5.67	47.77	5.73
5.5300	48.57	5.68	47.86	5.77
5.5400	48.55	5.70	48.02	5.79
5.5500	48.54	5.71	47.81	5.69
5.5600	48.53	5.72	47.56	5.72
5.5700	48.51	5.73	47.89	5.74
5.5800	48.50	5.74	47.85	5.77
5.5900	48.48	5.75	47.88	5.71
5.6000	48.47	5.77	47.57	5.80
5.6100	48.46	5.78	47.88	5.76
5.6200	48.44	5.79	47.48	5.86
5.6300	48.43	5.80	47.40	5.80
5.6400	48.42	5.81	47.25	5.85
5.6500	48.40	5.82	47.66	5.92
5.6600	48.39	5.84	47.83	5.85
5.6700	48.38	5.85	47.62	5.90
5.6800	48.36	5.86	47.64	5.92
5.6900	48.35	5.87	47.38	5.81
5.7000	48.34	5.88	47.44	5.90
5.7100	48.32	5.89	47.28	5.90
5.7200	48.31	5.91	47.52	5.93
5.7300	48.30	5.92	47.61	5.80
5.7400	48.28	5.93	47.17	6.00
5.7500	48.27	5.94	47.42	6.05
5.7600	48.25	5.95	47.54	6.04
5.7700	48.24	5.96	47.34	6.15
5.7800	48.23	5.98	47.40	6.08
5.7900	48.21	5.99	47.48	6.09
5.8000	48.20	6.00	47.37	6.01
5.8100	48.19	6.01	47.19	6.06
5.8200	48.17	6.02	47.29	6.06
5.8300	48.16	6.04	47.06	6.02
5.8400	48.15	6.05	47.19	6.06
5.8500	48.13	6.06	47.47	6.14
5.8600	48.12	6.07	47.27	6.11
5.8700	48.10	6.08	47.07	6.22
5.8800	48.09	6.09	47.26	6.24
5.8900	48.08	6.11	47.28	6.24
5.9000	48.06	6.12	47.03	6.20

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

APPENDIX D - MANUFACTURER'S TISSUE SIMULANT DATA SHEET (5 GHz)

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

Schmid & Partner Engineering AG

s p e a g

Zeughausstrasse 43, 8004 Zurich, Switzerland
 Phone +41 1 245 9700, Fax +41 1 245 9779
 info@speag.com, http://www.speag.com

Material Safety Data Sheet

1 Identification of the substance and of the manufacturer / origin

Item	Head Tissue Simulation Liquid HSL5800 Muscle Tissue Simulation Liquid MSL 5800
Type No	SL AAH 580, SL AAM 580
Series No	N/A
Manufacturer / Origin	Schmid & Partner Engineering AG Zeughausstrasse 43 8004 Zürich Switzerland Phone +41 1 245 9700, Fax +41 1 245 9779, support@speag.com

Use of the substance:

Liquid simulating physical parameters of Head or Muscle Tissue in the RF range to 6GHz.

2 Composition / Information on ingredients

The Item is composed of the following ingredients:

Water	64 - 78%
Mineral Oil	11 - 18%
Emulsifiers	9 - 15%
Additives and Salt	2 - 3%

Safety relevant ingredients according to EU directives:

CAS-No 107-41-5	< 4%	2-Methyl-2,4-pentandiol (Hexylene Glycol): Xi irritant, R36/38 irritant for eyes and skin
CAS-No 770-35-4	< 2%	1-Phenoxy-2-propanol (Propylene Glycol Phenyl Ether): Xi irritant, R36 irritant for eyes
CAS-No 93-83-4	< 2%	N,N-bis(2-Hydroxyethyl)oleamide: Xi irritant, R36/38 irritant for eyes and skin
CAS-No 9004-95-9	< 0.5%	Polyethylene glycol cetyl ether: Xi irritant, R22 harmful if swallowed, R36/38 irritant for eyes and skin R50 Very toxic to aquatic organisms

According to EU guidelines and Swiss rules, the product is not a dangerous mixture and therefore not required to be marked by symbols.

3 Hazards identification

Identification not required.

4 First aid measures

The product reacts slightly alkaline.

After skin contact:	Wash with fresh water and mild sope
After eye contact:	Rinse out with plenty of water for several minutes with the eyelid held open. Consult an ophthalmologist if necessary.
After ingestion:	Do not induce vomiting. Get medical attention.

5 Fire-fighting measures

Firefighting media	CO2, foam, dry chemical
Combustion products	Carbon oxides, nitrogen and traces of oxides of chlorine and sulfur, HCl
Due to the high water content, the liquid is self-extinguishing.	

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

6 Accidental release measures

Person-related precaution measures: wash with water and mild soap.
Environmental-protection measures: do not allow to enter sewerage system.
Procedures for cleaning / absorption: Use oil-binding agents., forward for disposal. Spills may cause slippery conditions.

7 Handling and storage

Handling: Keep in open container only for minimum required time in order to avoid water evaporation.
Storage: tightly closed, between >0 to 40°C. Avoid direct solar irradiation of the storage containers.

8 Exposure controls / personal protection

Protection measures are not generally required. For eye protection, industrial safety glasses are recommended.
Personal hygiene and clean working practices are sufficient.

9 Physical and chemical properties

Form: liquid
Colour: medium to dark brown, transparent to opaque
Odour: almost odourless / slightly oily
pH-Value: slightly alcalic
Boiling point: 100°C
Density: 1g/cm³

10 Stability and reactivity

Conditions to be avoided: heating above 40°C
The product contains water and is not compatible with strong oxidizers or magnesium.

11 Toxicological information

LD50 > 40 g/kg
Further data: the product should be handled with the care usual when dealing with chemicals

12 Ecological information

Contains mineral oil. Do not allow to enter waters, waste water, or soil!

13 Disposal considerations

Disposal is possible by splitting the mineral oil from the emulsion with absorbing agents, with salt or ultra-filtration. Dispose as other mineral oil containing products according to local regulations.
Product packing must be disposed of in compliance with respect national regulations.

14 Transport information

Not subject to transport regulations.

15 Regulatory information

No special labelling required.

16 Other information

Release date: 6.1.2005
Responsible: FB

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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	<u>Date(s) of Evaluation</u> February 25 & 28, 2011	<u>Test Report Serial No.</u> 022311TFT-T1083-S15W	<u>Test Report Revision No.</u> Rev. 1.1 (2nd Release)	 Test Lab Certificate No. 2470.01
	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

APPENDIX G - DIPOLE CALIBRATION

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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Accreditation No.: **SCS 108**

Client **Celltech**

Certificate No.: **D2450V2-825_Apr09**

CALIBRATION CERTIFICATE

Object **D2450V2 - SN: 825**

Calibration procedure(s) **QA CAL-05.v7**
Calibration procedure for dipole validation kits

Calibration date: **April 17, 2009**

Condition of the calibrated item **In Tolerance**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV2	SN: 3025	28-Apr-08 (No. ES3-3025_Apr08)	Apr-09
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-08)	In house check: Oct-09

Calibrated by: **Claudio Leubler** **Laboratory Technician**

Signature

Approved by: **Katja Pokovic** **Technical Manager**

Issued: April 22, 2009

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

- d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V5.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	38.0 $\pm$ 6 %	1.82 mho/m $\pm$ 6 %
Head TSL temperature during test	(22.0 $\pm$ 0.2) °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.6 mW / g
SAR normalized	normalized to 1W	54.4 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	53.7 mW / g $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.29 mW / g
SAR normalized	normalized to 1W	25.2 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	25.0 mW / g $\pm$ 16.5 % (k=2)

¹ Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.4 ± 6 %	1.98 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	—	—

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	12.9 mW / g
SAR normalized	normalized to 1W	51.6 mW / g
SAR for nominal Body TSL parameters ²	normalized to 1W	51.6 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.05 mW / g
SAR normalized	normalized to 1W	24.2 mW / g
SAR for nominal Body TSL parameters ²	normalized to 1W	24.2 mW / g ± 16.5 % (k=2)

² Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	$54.5 \Omega + 4.7 j\Omega$
Return Loss	- 24.1 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	$49.2 \Omega + 5.6 j\Omega$
Return Loss	- 24.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.160 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	December 11, 2008

DASY5 Validation Report for Head TSL

Date/Time: 17.04.2009 12:17:23

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN825

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL U10 BB

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.82$ mho/m; $\epsilon_r = 38$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.4, 4.4, 4.4); Calibrated: 28.04.2008
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:

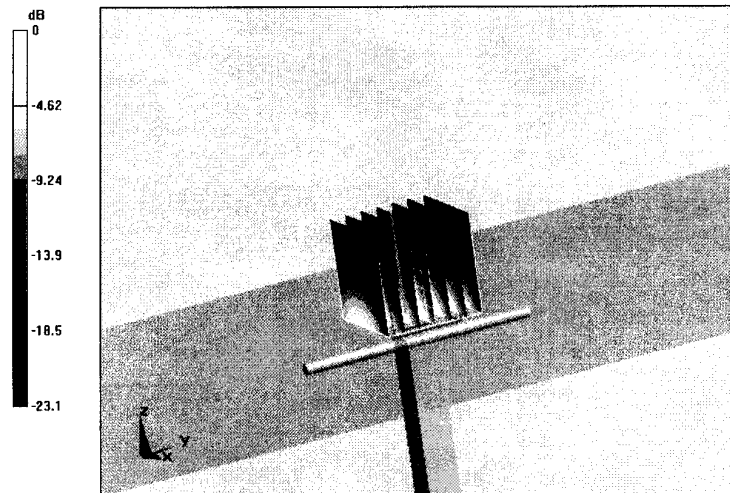
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.1 V/m; Power Drift = 0.026 dB

Peak SAR (extrapolated) = 28.4 W/kg

SAR(1 g) = 13.6 mW/g; SAR(10 g) = 6.29 mW/g

Maximum value of SAR (measured) = 17.7 mW/g



0 dB = 17.7mW/g

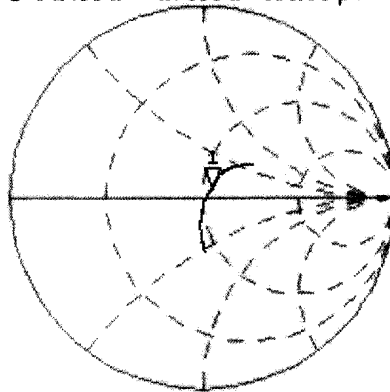
Impedance Measurement Plot for Head TSL

17 Apr 2009 09:36:50
 CH1 S11 1 U FS 1: 54.469 Ω 4.7090 Ω 305.90 pH 2 450.000 000 MHz

*
 Del
 Cor

Avg
 16

↑

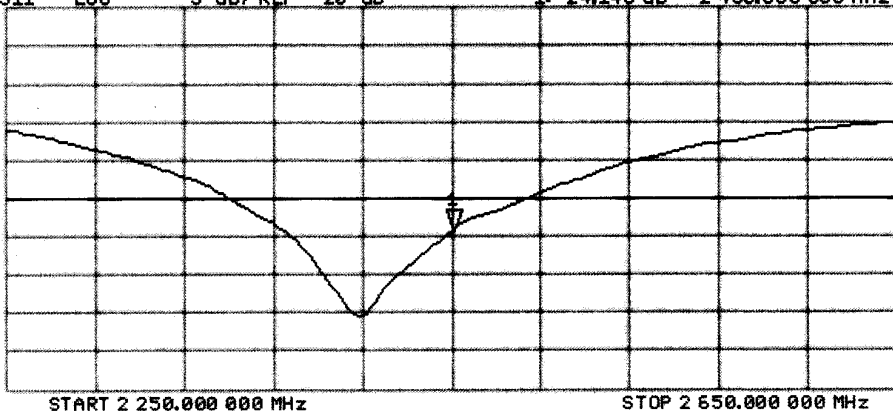


CH2 S11 L06 5 dB/REF -20 dB 1:-24.145 dB 2 450.000 000 MHz

Cor

Avg
 16

↑



DASY5 Validation Report for Body TSL

Date/Time: 17.04.2009 14:54:34

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:825

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: MSL U10 BB

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.98$ mho/m; $\epsilon_r = 54.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.07, 4.07, 4.07); Calibrated: 28.04.2008
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:

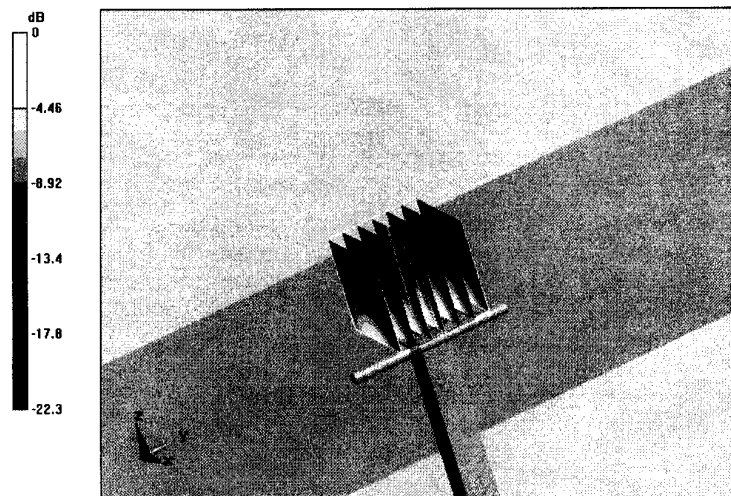
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 91.6 V/m; Power Drift = 0.046 dB

Peak SAR (extrapolated) = 26.1 W/kg

SAR(1 g) = 12.9 mW/g; SAR(10 g) = 6.05 mW/g

Maximum value of SAR (measured) = 16.6 mW/g



0 dB = 16.6mW/g

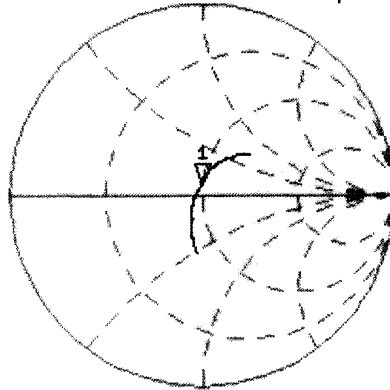
Impedance Measurement Plot for Body TSL

17 Apr 2009 09:37:35
CH1 S11 1 U FS 1: 49.158 Ω 5.6484 Ω 366.93 pH 2 450.000 000 MHz

*
De1
Cor

Avg
16

↑

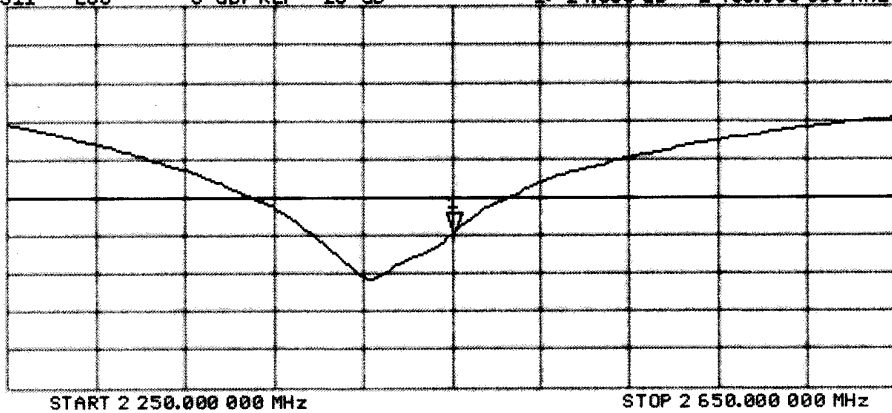


CH2 S11 L06 5 dB/REF -20 dB 1:-24.800 dB 2 450.000 000 MHz

Cor

Avg
16

↑





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Accreditation No.: **SCS 108**

Client **Colttech**

Certificate No: **D5GHzV2-1031_Apr09**

CALIBRATION CERTIFICATE

Object **D5GHzV2 - SN: 1031**

Calibration procedure(s) **QA CAL-22.v1**
Calibration procedure for dipole validation kits between 3-6 GHz

Calibration date: **April 29, 2009**

Condition of the calibrated item **In Tolerance**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature $(22 \pm 3)^{\circ}\text{C}$ and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe EX3DV4	SN: 3503	11-Mar-09 (No. EX3-3503_Mar09)	Mar-10
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-08)	In house check: Oct-09

Calibrated by: **Claudio Leubler** Function: **Laboratory Technician**

Approved by: **Katja Pokovic** Technical Manager

Signature

Issued: April 29, 2009

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Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEC Std 62209 Part 2, "Evaluation of Human Exposure to Radio Frequency Fields from Handheld and Body-Mounted Wireless Communication Devices in the Frequency Range of 30 MHz to 6 GHz: Human models, Instrumentation, and Procedures"; Part 2: "Procedure to determine the Specific Absorption Rate (SAR) for including accessories and multiple transmitters", Draft Version 0.9, December 2004
- b) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

- c) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V5.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Area Scan resolution	dx, dy = 10 mm	
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 2.5 mm	
Frequency	5200 MHz $\pm$ 1 MHz 5500 MHz $\pm$ 1 MHz 5800 MHz $\pm$ 1 MHz	

Body TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	47.5 $\pm$ 6 %	5.37 mho/m $\pm$ 6 %
Body TSL temperature during test	(22.0 $\pm$ 0.2) °C	---	---

SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	100 mW input power	7.63 mW / g
SAR normalized	normalized to 1W	76.3 mW / g
SAR for nominal Body TSL parameters ¹	normalized to 1W	75.8 mW / g $\pm$ 19.9 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.13 mW / g
SAR normalized	normalized to 1W	21.3 mW / g
SAR for nominal Body TSL parameters ¹	normalized to 1W	21.2 mW / g $\pm$ 19.5 % (k=2)

¹ Correction to nominal TSL parameters according to c), chapter "SAR Sensitivities"

Body TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.6	5.65 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.8 ± 6 %	5.74 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	---	---

SAR result with Body TSL at 5500 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	condition	
SAR measured	100 mW input power	8.01 mW / g
SAR normalized	normalized to 1W	80.1 mW / g
SAR for nominal Body TSL parameters ¹	normalized to 1W	79.5 mW / g ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.22 mW / g
SAR normalized	normalized to 1W	22.2 mW / g
SAR for nominal Body TSL parameters ¹	normalized to 1W	22.0 mW / g ± 19.5 % (k=2)

Body TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.1 ± 6 %	6.13 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	---	----

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	condition	
SAR measured	100 mW input power	6.82 mW / g
SAR normalized	normalized to 1W	68.2 mW / g
SAR for nominal Body TSL parameters ¹	normalized to 1W	67.7 mW / g ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	1.89 mW / g
SAR normalized	normalized to 1W	18.9 mW / g
SAR for nominal Body TSL parameters ¹	normalized to 1W	18.7 mW / g ± 19.5 % (k=2)

¹ Correction to nominal TSL parameters according to c), chapter "SAR Sensitivities"

Appendix

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	50.1 Ω - 6.7 $\mu\Omega$
Return Loss	-23.5 dB

Antenna Parameters with Body TSL at 5500 MHz

Impedance, transformed to feed point	51.6 Ω - 3.3 $\mu\Omega$
Return Loss	-29.0 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	59.4 Ω - 3.5 $\mu\Omega$
Return Loss	-20.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.197 ns
----------------------------------	----------

After long term use with 40 W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 09, 2004

DASY5 Validation Report for Body TSL

29.04.2009 13:52:12

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHz; Serial: D5GHzV2 - SN:1031

Communication System: CW-5GHz; Frequency: 5200 MHzFrequency: 5500 MHzFrequency: 5800 MHz;
Duty Cycle: 1:1

Medium: MSL 5800 MHz

Medium parameters used: $f = 5200$ MHz; $\sigma = 5.37$ mho/m; $\epsilon_r = 47.5$; $\rho = 1000$ kg/m³

Medium parameters used: $f = 5500$ MHz; $\sigma = 5.74$ mho/m; $\epsilon_r = 46.8$; $\rho = 1000$ kg/m³

Medium parameters used: $f = 5800$ MHz; $\sigma = 6.13$ mho/m; $\epsilon_r = 46.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.88, 4.88, 4.88)ConvF(4.37, 4.37, 4.37)ConvF(4.57, 4.57, 4.57); Calibrated: 11.03.2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

d=10mm, Pin=100mW, f=5200 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 49.6 V/m; Power Drift = 0.00494 dB

Peak SAR (extrapolated) = 28.5 W/kg

SAR(1 g) = 7.63 mW/g; SAR(10 g) = 2.13 mW/g

Maximum value of SAR (measured) = 15.7 mW/g

d=10mm, Pin=100mW, f=5500 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 49 V/m; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 32 W/kg

SAR(1 g) = 8.01 mW/g; SAR(10 g) = 2.22 mW/g

Maximum value of SAR (measured) = 16.8 mW/g

d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10)/Cube 0:

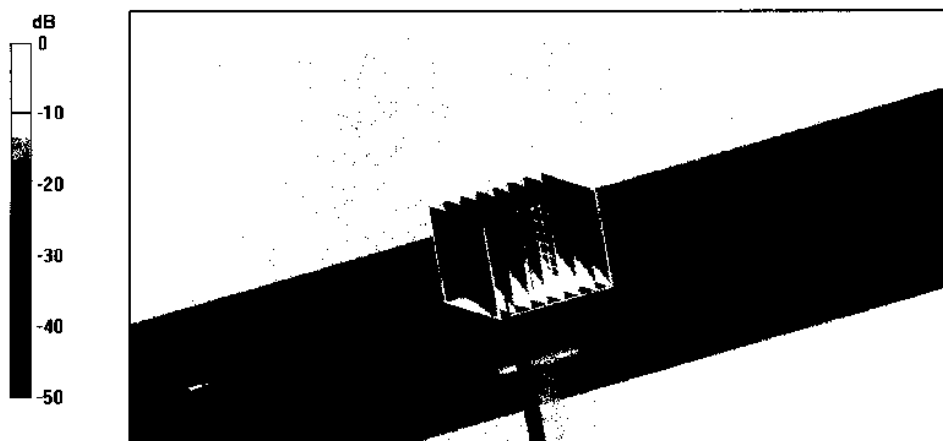
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 43.7 V/m; Power Drift = -0.029 dB

Peak SAR (extrapolated) = 28.9 W/kg

SAR(1 g) = 6.82 mW/g; SAR(10 g) = 1.89 mW/g

Maximum value of SAR (measured) = 14.4 mW/g

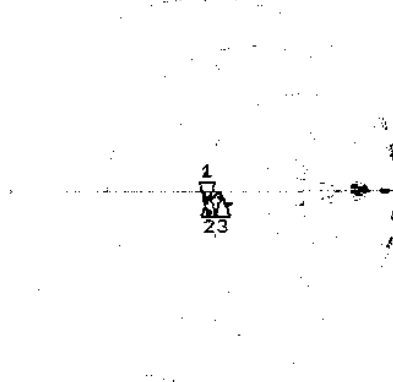


0 dB = 14.4mW/g

Impedance Measurement Plot for Body TSL

28 Apr 2009 10:39:01
 CH1 S11 1 U FS 1: 50.135 Ω -6.5777 Ω 4.5834 pF 5 200.000 000 MHz

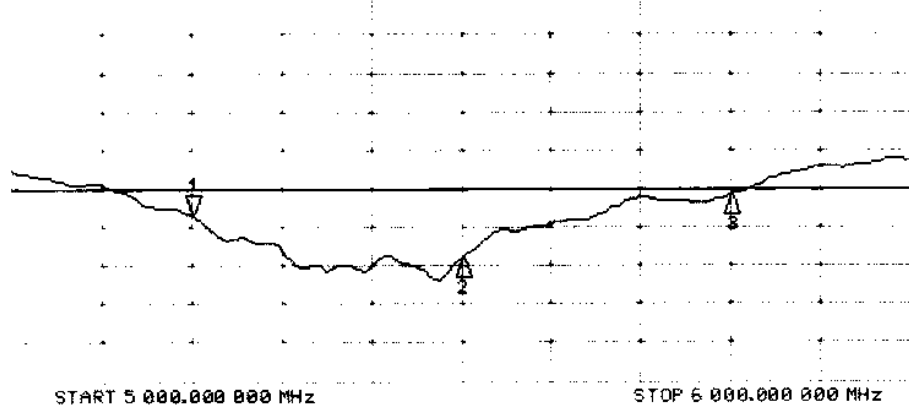
*
 Del
 Cor
 Avg
 16



CH1 Markers
 2: 51.553 Ω
 -3.2539 Ω
 5.50000 GHz
 3: 59.363 Ω
 -3.5331 Ω
 5.00000 GHz

CH2 S11 L06 5 dB/REF -20 dB 1: -23.533 dB 5 200.000 000 MHz

Cor
 Avg
 16



CH2 Markers
 2: -23.001 dB
 5.50000 GHz
 3: -20.776 dB
 5.00000 GHz

START 5 000.000 000 MHz

STOP 6 000.000 000 MHz

	<u>Date(s) of Evaluation</u> February 25 & 28, 2011	<u>Test Report Serial No.</u> 022311TFT-T1083-S15W	<u>Test Report Revision No.</u> Rev. 1.1 (2nd Release)	 Test Lab Certificate No. 2470.01
	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

APPENDIX H - PROBE CALIBRATION

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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Accredited by the Swiss Accreditation Service (SAS)
 The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Celltech**

Certificate No: **EX3-3600_Apr10**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3600**

Calibration procedure(s) **QA CAL-01.v6, QA CAL-14.v3, QA CAL-23.v3 and QA CAL-25.v2**
Calibration procedure for dosimetric E-field probes

Calibration date: **April 29, 2010**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41495277	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41498087	1-Apr-10 (No. 217-01136)	Apr-11
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11
Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11
Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11
Reference Probe ES3DV2	SN: 3013	30-Dec-09 (No. ES3-3013_Dec09)	Dec-10
DAE4	SN: 660	29-Sep-09 (No. DAE4-660_Sep09)	Sep-10
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

Calibrated by: **Katja Pokovic** Name **Technical Manager** Function

Approved by: **Niels Kuster** Name **Quality Manager** Function

Signature

Issued: April 29, 2010

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

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Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; VR_{x,y,z}**: A, B, C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Probe EX3DV4

SN:3600

Manufactured:	January 10, 2007
Last calibrated:	April 28, 2009
Recalibrated:	April 29, 2010

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: EX3DV4 SN:3600**Basic Calibration Parameters**

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.51	0.51	0.40	± 10.1%
DCP (mV) ^B	90.5	88.5	85.2	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dBuV	C	VR mV	Unc ^E (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	300	± 1.5%
			Y	0.00	0.00	1.00	300	
			Z	0.00	0.00	1.00	300	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^A The uncertainties of NormX,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).

^B Numerical linearization parameter: uncertainty not required.

^E Uncertainty is determined using the maximum deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY - Parameters of Probe: EX3DV4 SN:3600

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz]	Validity [MHz] ^c	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
900	± 50 / ± 100	41.5 ± 5%	0.97 ± 5%	7.79	7.79	7.79	0.74	0.61 ± 11.0%
1810	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	6.79	6.79	6.79	0.59	0.70 ± 11.0%
1950	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	6.46	6.46	6.46	0.57	0.72 ± 11.0%
2450	± 50 / ± 100	39.2 ± 5%	1.80 ± 5%	6.15	6.15	6.15	0.34	0.89 ± 11.0%

^c The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

DASY - Parameters of Probe: EX3DV4 SN:3600

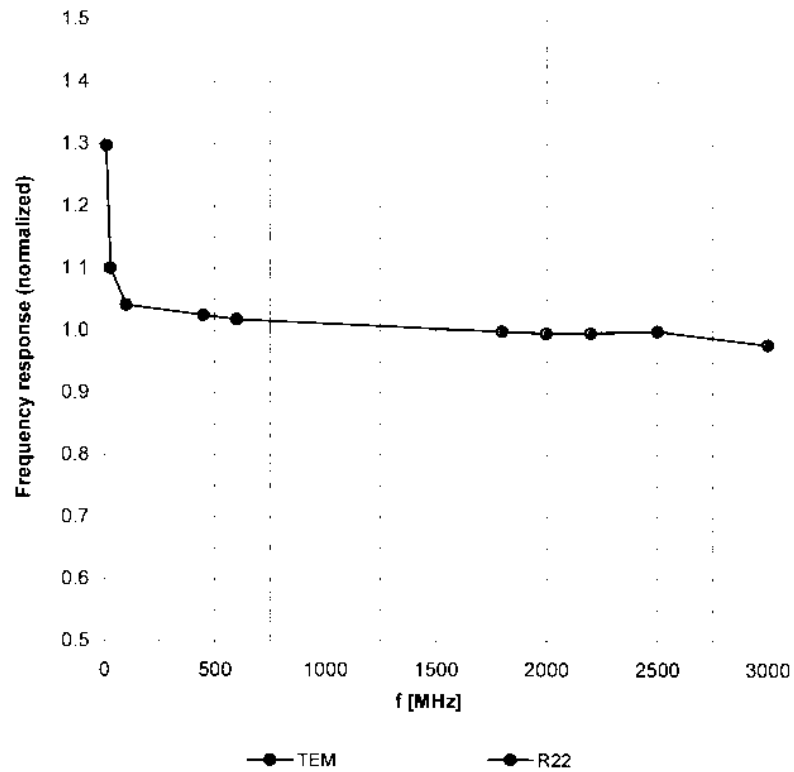
Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz]	Validity [MHz] ^c	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
900	± 50 / ± 100	55.0 ± 5%	1.05 ± 5%	7.92	7.92	7.92	0.50	0.77 ± 11.0%
1810	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	6.47	6.47	6.47	0.70	0.64 ± 11.0%
1950	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	6.53	6.53	6.53	0.64	0.67 ± 11.0%
2450	± 50 / ± 100	52.7 ± 5%	1.95 ± 5%	6.24	6.24	6.24	0.43	0.87 ± 11.0%
5200	± 50 / ± 100	49.0 ± 5%	5.30 ± 5%	3.73	3.73	3.73	0.52	1.95 ± 13.1%
5500	± 50 / ± 100	48.6 ± 5%	5.65 ± 5%	3.30	3.30	3.30	0.58	1.95 ± 13.1%
5800	± 50 / ± 100	48.2 ± 5%	6.00 ± 5%	3.44	3.44	3.44	0.63	1.95 ± 13.1%

^c The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

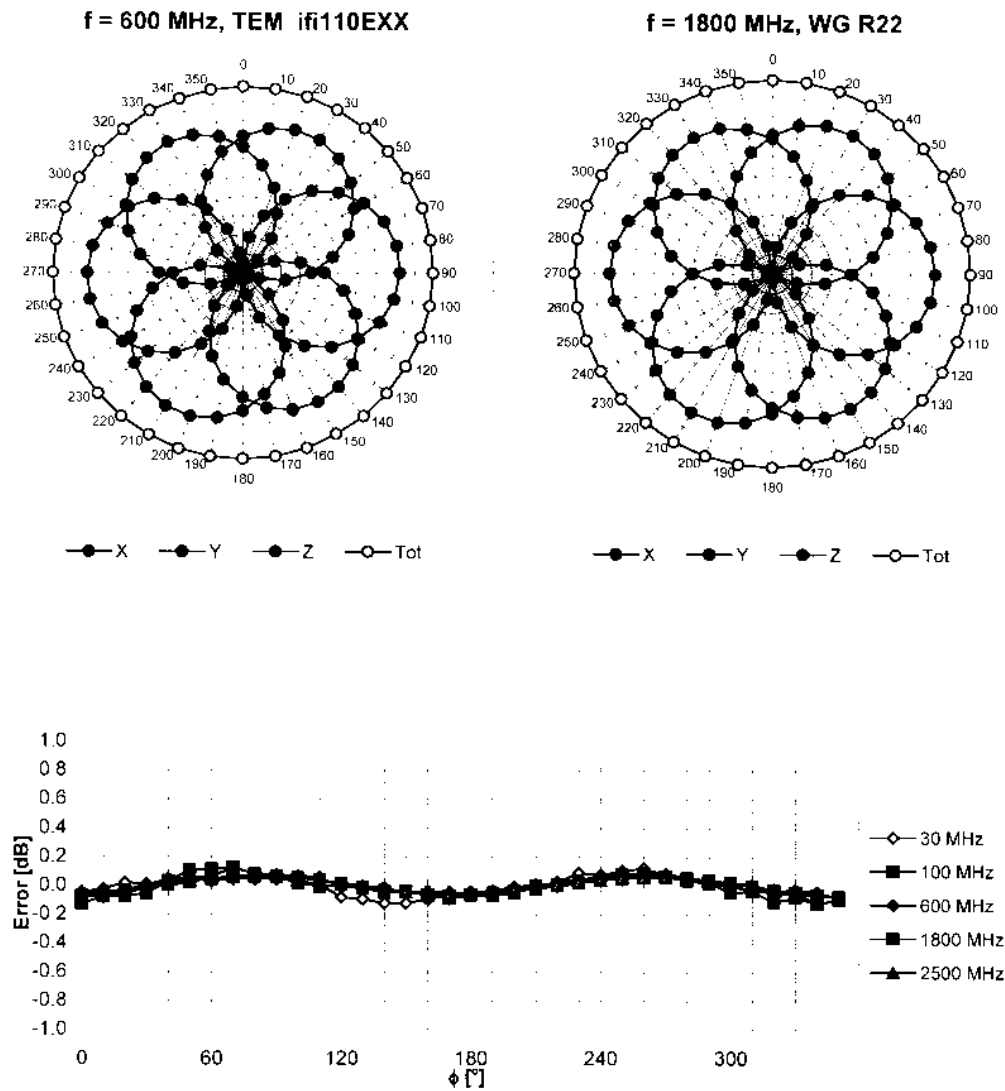
Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)



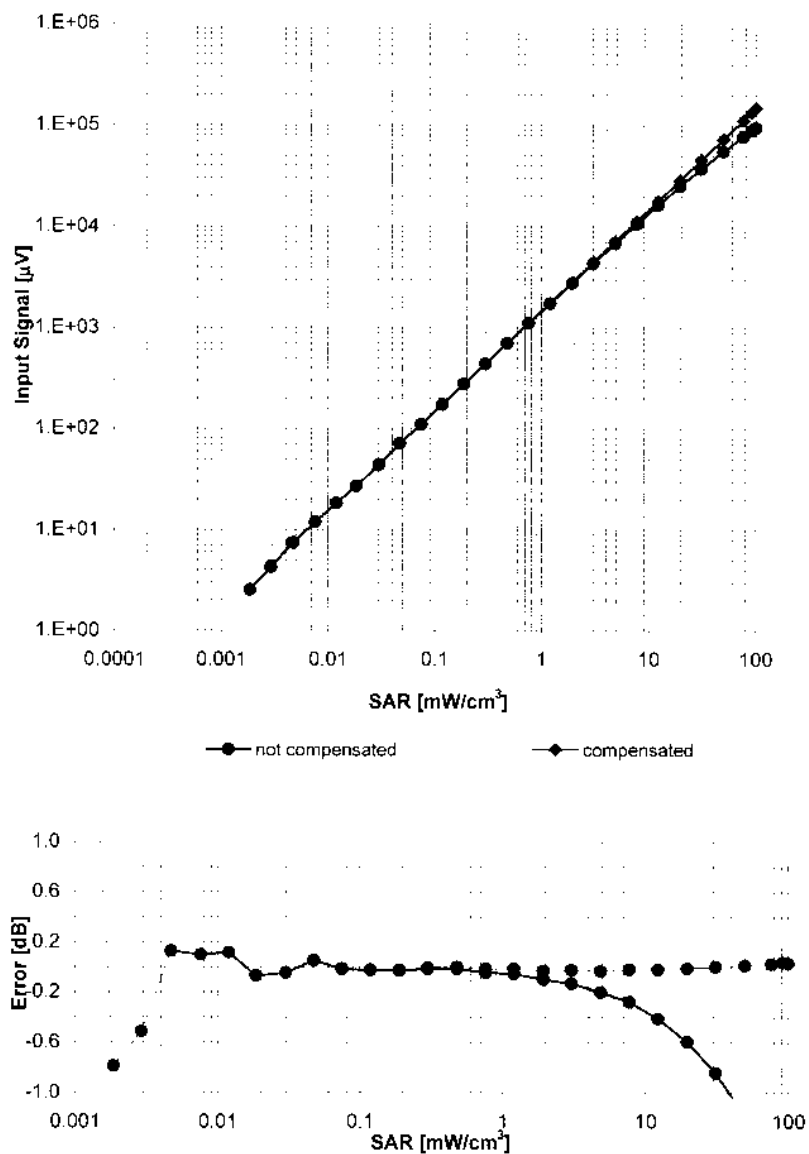
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

Receiving Pattern (ϕ), $\vartheta = 0^\circ$



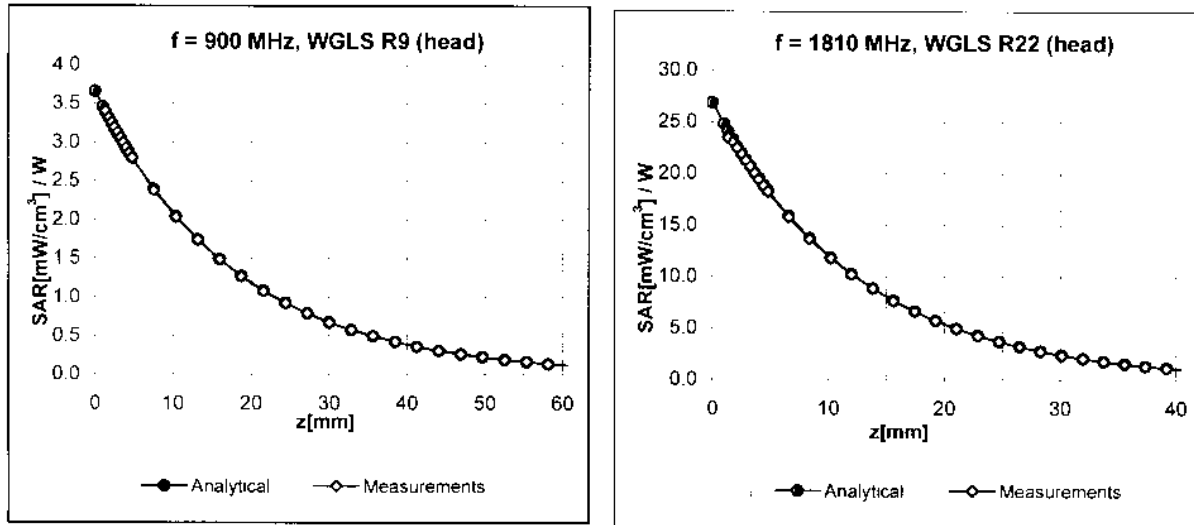
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

Dynamic Range $f(\text{SAR}_{\text{head}})$ (Waveguide R22, $f = 1800 \text{ MHz}$)



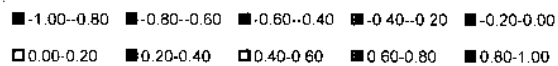
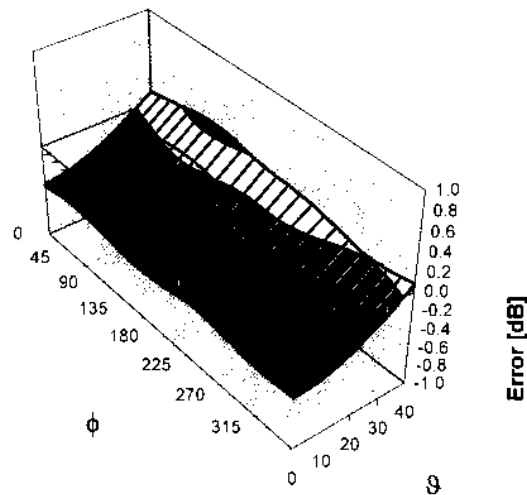
Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

Conversion Factor Assessment



Deviation from Isotropy in HSL

Error (ϕ , θ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: $\pm 2.6\%$ ($k=2$)

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

	<u>Date(s) of Evaluation</u> February 25 & 28, 2011	<u>Test Report Serial No.</u> 022311TFT-T1083-S15W	<u>Test Report Revision No.</u> Rev. 1.1 (2nd Release)	 Test Lab Certificate No. 2470.01
	<u>Test Report Issue Date</u> September 28, 2011	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Gen. Pop. / Uncontrolled	

APPENDIX I - BARSKI PLANAR PHANTOM CERTIFICATE OF CONFORMITY

Applicant:	MaxID Corporation	FCC ID:	TFT-IDL750	DUT Model:	iDL750	
DUT Type:	Handheld RFID Reader w/ co-located 533AN_MMW 802.11a/b/g/n, WWAN & Class 2 Bluetooth					
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Ph. # 250-769-6848
Fax # 250-769-6334
E-mail: barskiind@shaw.ca
Web: www.bcfiberglass.com

FIBERGLASS FABRICATORS

Certificate of Conformity

Item : Flat Planar Phantom Unit # 03-01
Date: June 16, 2003
Manufacturer: Barski Industries (1985 Ltd)

Test	Requirement	Details
Shape	Compliance to geometry according to drawing	Supplied CAD drawing
Material Thickness	Compliant with the requirements	2mm +/- 0.2mm in measurement area
Material Parameters	Dielectric parameters for required frequencies Based on Dow Chemical technical data	100 MHz-5 GHz Relative permittivity<5 Loss Tangent<0.05

Conformity

Based on the above information, we certify this product to be compliant to the requirements specified.

Signature: 

Daniel Chailier



Fiberglass Planar Phantom - Top View



Fiberglass Planar Phantom - Front View



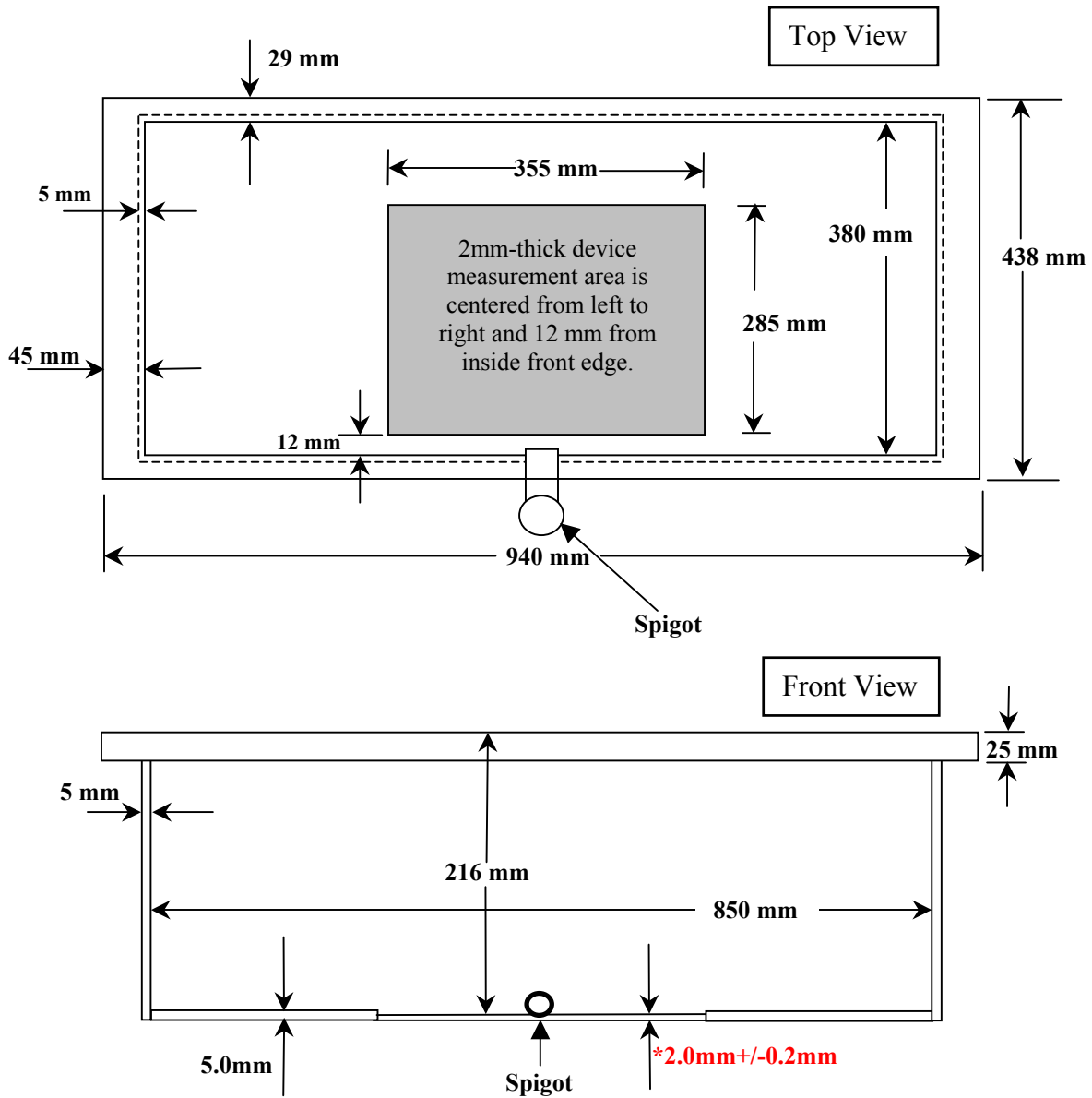
Fiberglass Planar Phantom - Back View



Fiberglass Planar Phantom - Bottom View

Dimensions of Fiberglass Planar Phantom

(Manufactured by Barski Industries Ltd. - Unit# 03-01)



**Note: Measurements that aren't repeated for the opposite sides are the same as the side measured.
This drawing is not to scale.**