

FCC RF EXPOSURE SUPPLEMENT FOR “PUMP-UP” WWAN ANTENNA HOUSING

The 62205ANHMW 802.11a/b/g/n WLAN PCIe Half Mini Card is utilized within the Xplore iX104C5 Rugged Tablet PC with a transmit diversity antenna (MAIN/AUX) supporting MIMO operations. The MAIN transmit diversity antenna is located within the same housing as the co-located WWAN antenna. The co-located WWAN has two (2) alternate antenna types - “Pump-Up” (higher gain) and “Non Pump-Up” (lower gain). The two (2) alternate WWAN antennas have alternate housing - subsequently the WLAN MAIN antenna is located within the alternate housing types for the “Pump-Up” and “Non Pump-Up” WWAN antenna. The WLAN antenna is the same part number as the WWAN antenna (SkyCross 25.90A14.001 for “Pump-Up” configuration and SkyCross 25.90A0P.001 for the “Non Pump-Up” configuration). Preliminary SAR evaluations of the iX104C5 Tablet PC were performed for both the WLAN alternate antenna housing configurations and the “Non Pump-Up” housing configuration was determined to be the worst-case configuration. The SAR measurement data for the WLAN with “Non Pump-Up” housing is shown in Celltech SAR test report serial no. 100511Q2G-T1118-S15W.

Below is a summary of the SAR level comparisons of the WLAN MAIN transmit diversity antenna between the “Pump-Up” housing and the “Non Pump-Up” housing. The comparison results show that the SAR levels are lower for the “Pump-Up” housing configuration; therefore only the “Non Pump-Up” housing configuration was fully evaluated for SAR as shown in Celltech SAR test report serial no. 100511Q2G-T1118-S15W.

Notes:

1. The WLAN AUX transmit diversity antenna housing is identical in both “Pump-Up” and “Non Pump-Up” MAIN antenna housing variants; therefore comparison evaluations were not performed for the WLAN AUX antenna.
2. The iX104C5 Tablet PC contains rubber bumpers mounted to each corner of the device. The rubber bumpers provide additional separation distance from the bottom side and edges of the iX104C5 Tablet PC to the user’s body and are removable by the user; therefore the rubber bumpers were removed for the SAR measurements in order to evaluate the worst-case test configuration.

BODY SAR MEASUREMENT COMPARISON SUMMARY													
ANTENNA HOUSING CONFIG. & PART NO.	Freq. Band (GHz)	Mode	Mod.	Freq.	Ch.	Data Rate	Tablet PC Position to Planar Phantom	Tablet PC Distance to Planar Phantom	WLAN Transmit Diversity Antenna	Cond. Power Before Test	SAR Drift During Test	Measured SAR Level	
				MHz		Mbps				dBm		dB	W/kg
NON PUMP-UP 25.90A0P.001	2.4	802.11g	OFDM	2442	7	6	Bottom Side	Touch (SAM)	MAIN	16.5	-0.094	0.198	1g
PUMP-UP 25.90A14.001	2.4	802.11g	OFDM	2442	7	6	Bottom Side	Touch (Barski)	MAIN	16.5	-0.194	0.130	1g
NON PUMP-UP 25.90A0P.001	5.5-5.7	802.11a	OFDM	5600	120	6	Bottom Side	Touch (SAM)	MAIN	16.2	0.112	0.567	1g
PUMP-UP 25.90A14.001	5.5-5.7	802.11a	OFDM	5600	120	6	Bottom Side	Touch (SAM)	MAIN	16.2	0.131	0.495	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				

DUT with Non Pump-Up Antenna Housing (2.4 GHz Band)

WLAN - 11g - 6 Mbps - 2442 MHz - Main - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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

WLAN - 11g - 6 Mbps - 2442 MHz - Main - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm

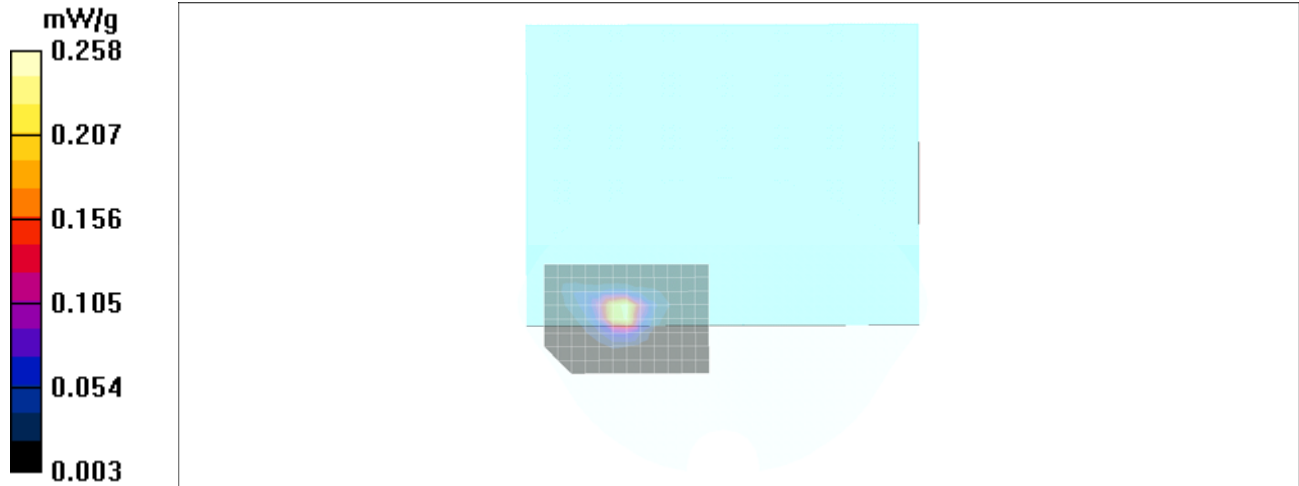
Reference Value = 10.5 V/m; Power Drift = -0.094 dB

Peak SAR (extrapolated) = 0.424 W/kg

SAR(1 g) = 0.198 mW/g; SAR(10 g) = 0.090 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.258 mW/g



DUT with Pump-Up Antenna Housing (2.4 GHz Band)

WLAN - 11g - 6 Mbps - 2442 MHz - Main - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.165 mW/g

WLAN - 11g - 6 Mbps - 2442 MHz - Main - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm

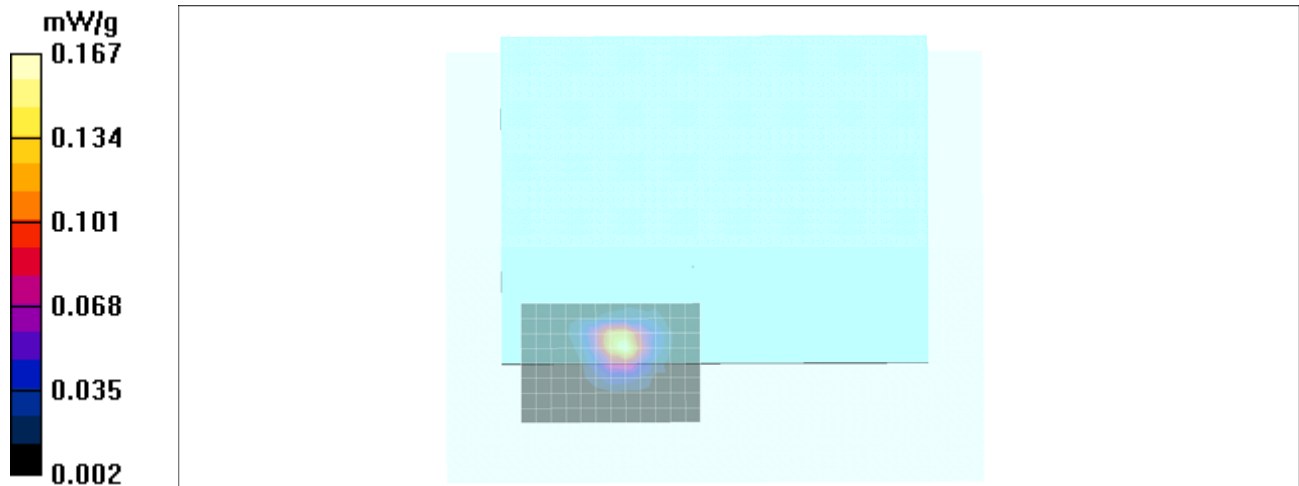
Reference Value = 8.87 V/m; Power Drift = -0.194 dB

Peak SAR (extrapolated) = 0.264 W/kg

SAR(1 g) = 0.130 mW/g; SAR(10 g) = 0.065 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.167 mW/g



DUT with Non Pump-Up Antenna Housing (5.5-5.7 GHz Band)

WLAN - 11a - 6 Mbps - 5600 MHz - Main - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
 Maximum value of SAR (measured) = 0.822 mW/g

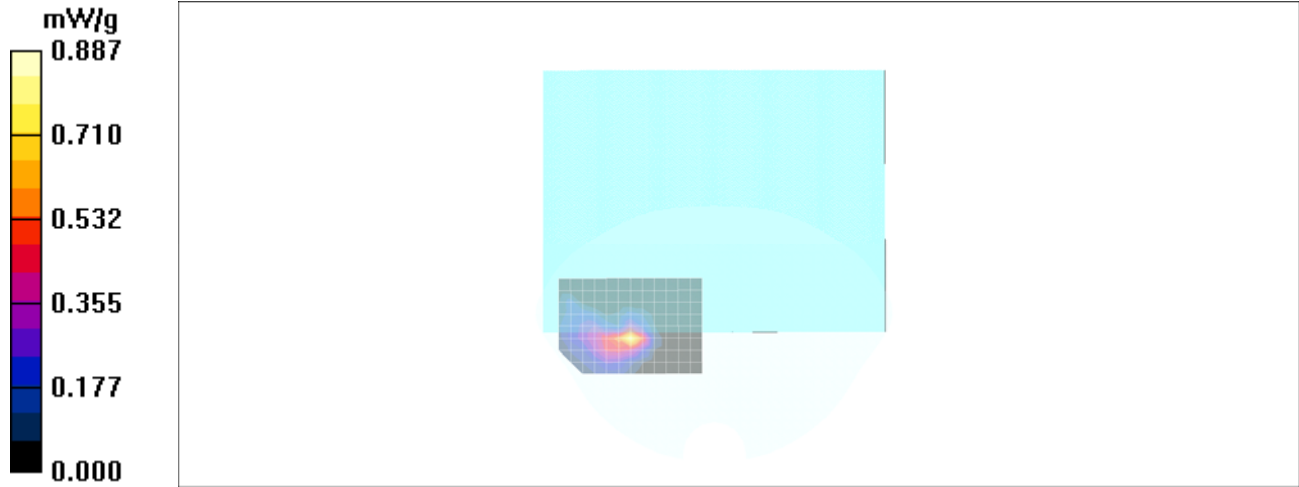
WLAN - 11a - 6 Mbps - 5600 MHz - Main - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm

Reference Value = 12.5 V/m; Power Drift = 0.112 dB

Peak SAR (extrapolated) = 1.50 W/kg

SAR(1 g) = 0.567 mW/g; SAR(10 g) = 0.212 mW/g

Maximum value of SAR (measured) = 0.887 mW/g



DUT with Pump-Up Antenna Housing (5.5-5.7 GHz Band)

WLAN - 11a - 6 Mbps - 5600 MHz - Main - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
 Maximum value of SAR (measured) = 0.502 mW/g

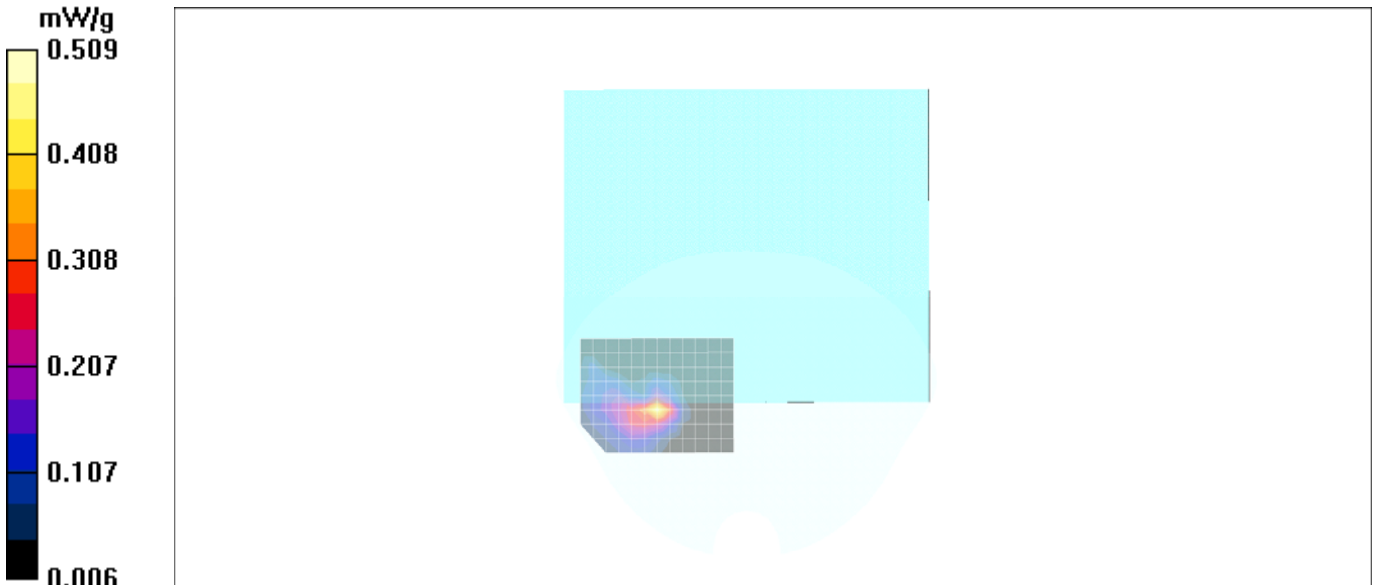
WLAN - 11a - 6 Mbps - 5600 MHz - Main - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm

Reference Value = 11.9 V/m; Power Drift = 0.131 dB

Peak SAR (extrapolated) = 1.36 W/kg

SAR(1 g) = 0.495 mW/g; SAR(10 g) = 0.198 mW/g

Maximum value of SAR (measured) = 0.509 mW/g



Front Side of Tablet PC Model: iX104C5 with WWAN "PUMP-UP" ANTENNA HOUSING



Applicant:	Xplore Technologies Corp.	FCC ID:	Q2GI6205-XPL	IC:	4596A-I6205XPL	
DUT Type:	Xplore 62205ANHMW 802.11abgn WLAN PCIe Half Mini Card installed in Xplore iX104C5 Tablet PC					
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Top Edge of iX104C5 Tablet PC with WWAN "PUMP-UP" Antenna Housing

WLAN AUX Transmit
Antenna Housing

WLAN MAIN Transmit
Antenna Location
(& WWAN "Pump-Up")



Bottom Side of iX104C5 Tablet PC with WWAN "PUMP-UP" Antenna Housing

Applicant:	Xplore Technologies Corp.	FCC ID:	Q2GI6205-XPL	IC:	4596A-I6205XPL	
DUT Type:	Xplore 62205ANHW 802.11abgn WLAN PCIe Half Mini Card installed in Xplore iX104C5 Tablet PC					
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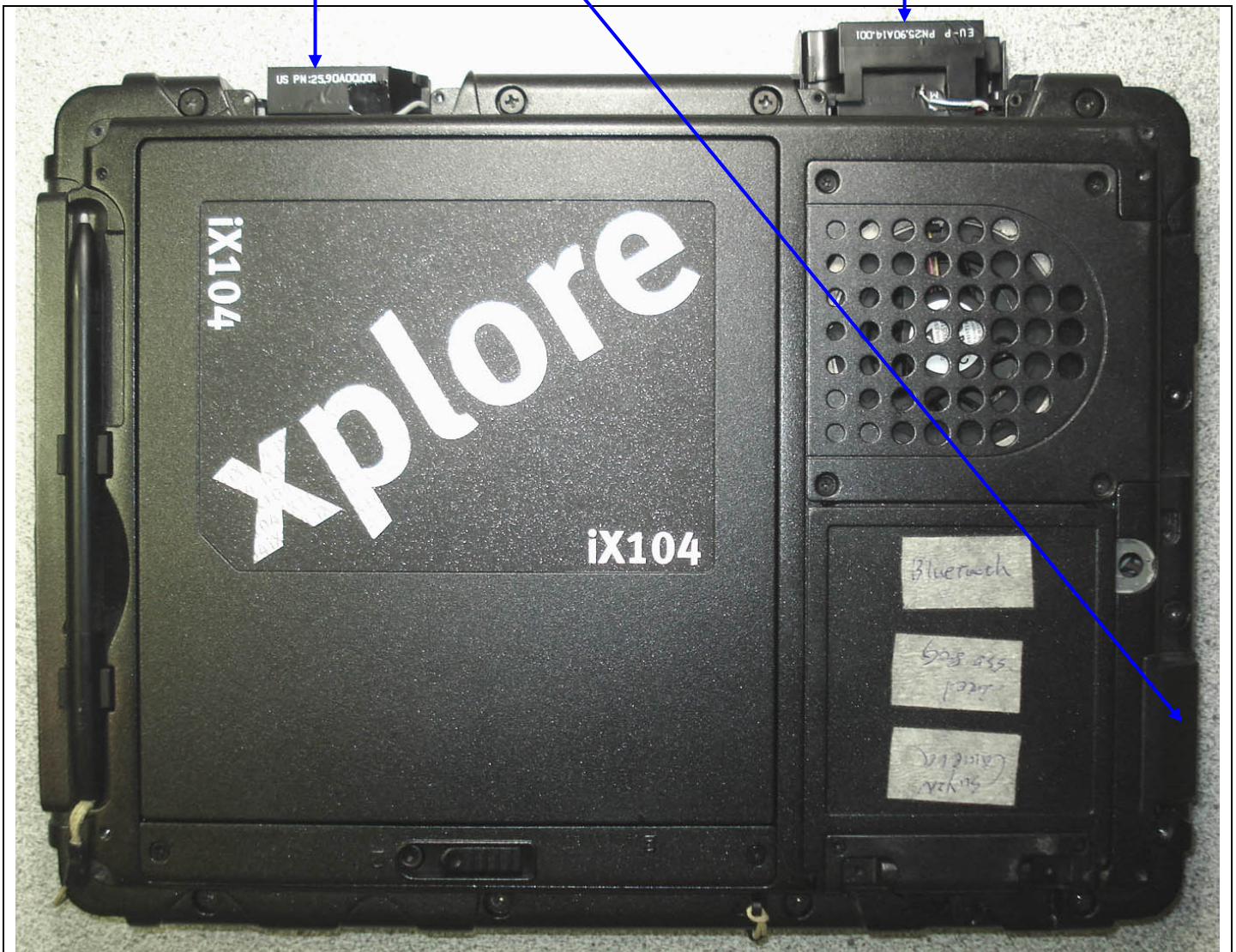


Top Edge of iX104C5 Tablet PC with WWAN "PUMP-UP" Antenna Housing removed

WLAN AUX Transmit
Antenna Location

Bluetooth
Antenna Location

WLAN MAIN Transmit
Antenna Location
(& WWAN "Pump-Up")



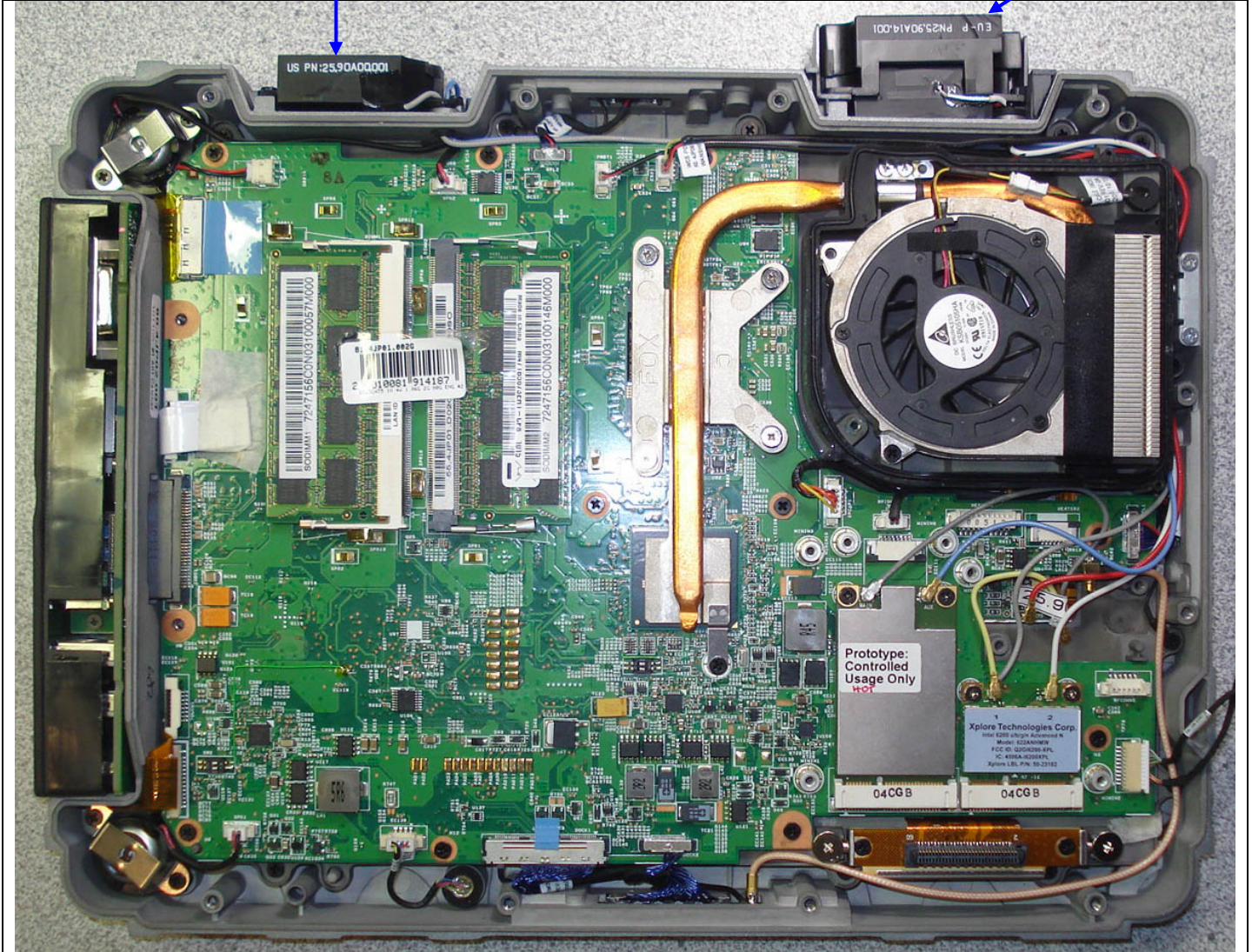
ANTENNA LOCATION(S) – BOTTOM SIDE OF iX104C5 TABLET PC

Applicant:	Xplore Technologies Corp.	FCC ID:	Q2GI6205-XPL	IC:	4596A-I6205XPL	
DUT Type:	Xplore 62205ANHMW 802.11abgn WLAN PCIe Half Mini Card installed in Xplore iX104C5 Tablet PC					
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WLAN AUX Transmit
Antenna Location

WLAN MAIN Transmit
Antenna Location
(& WWAN "Pump-Up")

Internal View of iX104C5 Tablet PC with WWAN "PUMP-UP" Antenna



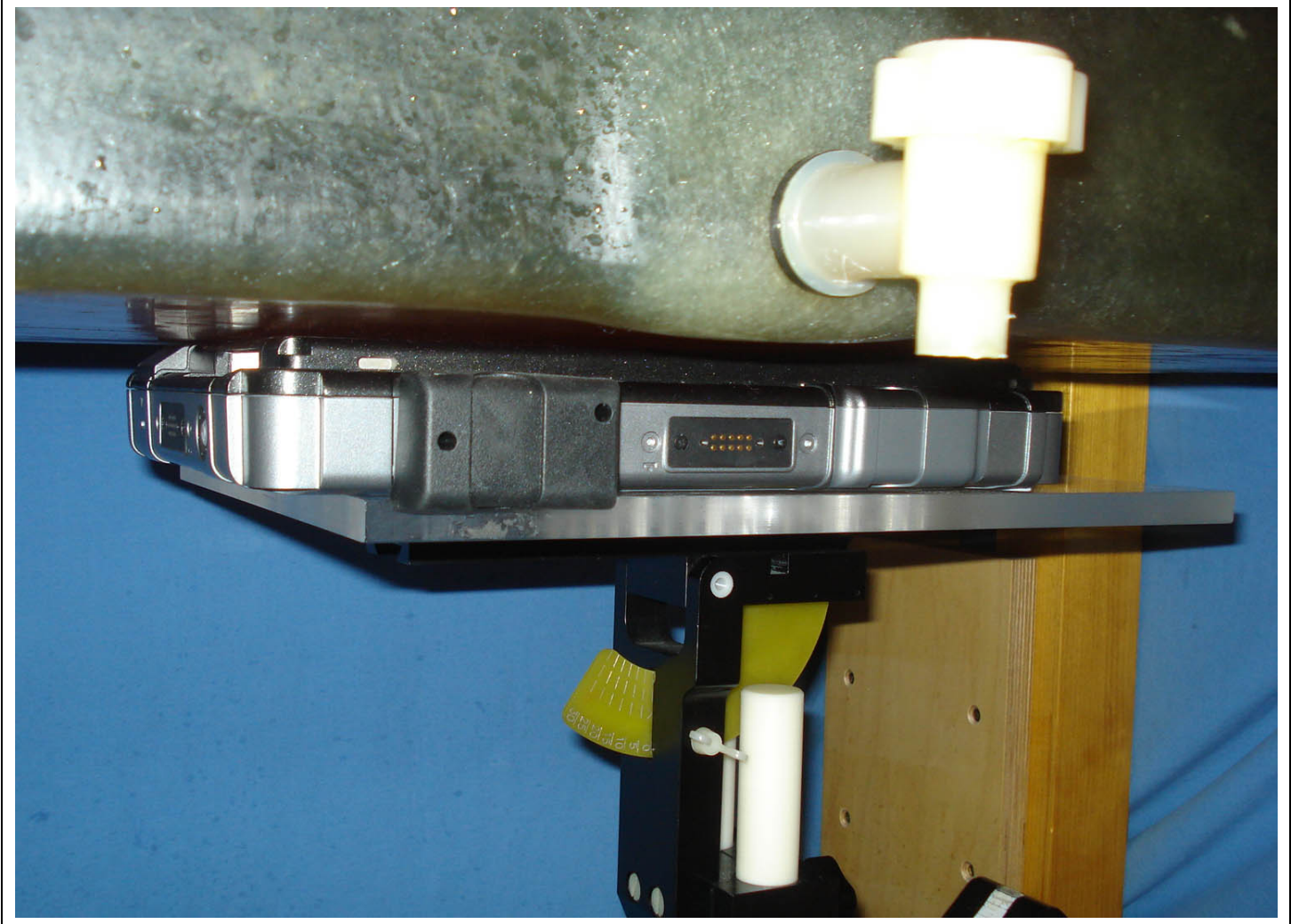
Applicant:	Xplore Technologies Corp.	FCC ID:	Q2GI6205-XPL	IC:	4596A-I6205XPL	
DUT Type:	Xplore 62205ANHMW 802.11abgn WLAN PCIe Half Mini Card installed in Xplore iX104C5 Tablet PC					
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BODY SAR TEST SETUP PHOTOGRAPHS
Bottom Side of iX104C5 Tablet PC (w/ "Pump-up" Antenna Housing) Touching Planar Section of SAM Phantom




5.6 GHz Evaluation

BODY SAR TEST SETUP PHOTOGRAPHS
Bottom Side of iX104C5 Tablet PC (w/ "Pump-up" Antenna Housing) Touching Barski Planar Phantom



2.4 GHz Evaluation

Applicant:	Xplore Technologies Corp.	FCC ID:	Q2GI6205-XPL	IC:	4596A-I6205XPL	
DUT Type:	Xplore 62205ANHMW 802.11abgn WLAN PCIe Half Mini Card installed in Xplore iX104C5 Tablet PC					
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