



Jabra Ursa Antenna report

Part No. 27-02181

Revision: 1
Author: Colin Chen
Date: 2024-12-26

Revision History:

Revision	Date	Change by	Description
1	2024.12.26	Colin Chen	First Revision

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1 Introduction

This document describes the radiation performance measurements made on a Jabra Ursa. The measurement results provided in this report are: the total radiated power at three frequencies and the antenna radiation patterns at three frequencies in free space.

The measurements have been performed by:

Colin Chen

RF Specialist

GN Audio A/S

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2 Specification

2.1 Electrical Properties

Frequency Range:	2.402GHz ~2.480GHz
Impedance:	50 Ω nominal
Radiation:	omni-directional

2.2 Physical Properties

Type: FPC antenna

Operating temp: -20 ~ +60 °C

3 Anechoic Chamber



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4 Results

4.1 Conducted power

Results:

a conducted output power of 14.5 dBm on each channel (Classic Basic rate with power setting value = 61).

4.2 Total radiated power

Channel	0	39	78
Frequency [MHz]	2402	2441	2480
Peak Equivalent isotropic radiated power (EIRP)	17.46dBm	17.16 dBm	16.92 dBm
Total radiated power	12.68 dBm	12.16 dBm	11.38 dBm
Antenna Efficiency	-1.82 dB	-2.34 dB	-3.12 dB

4.3 Antenna patterns

2.402 GHz**CTIA TRP Report (RP_Bluetooth_ch0_tot)****Common Information**

Test Description:	GN OTA Test Report
Operating Conditions:	Ursa_FOT_FS_3#
Operator Name:	Haller
Comment:	

Test Information

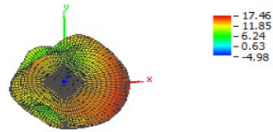
Test Method:	Radiated Power Mobile Phone
Test Condition:	FS: Free Space
EUT Identification:	Device Name: Bluetooth DU, BT address: 09FBA64209B1
Radio Link:	Bluetooth; Channel 0 (2402.000 MHz)
Test Time:	Start: 12/26/2024 1:59:32 PM; Stop: 12/26/2024 2:18:05 PM
CMU200 Connectors:	In: RF2 (45.0 dB), Out: RF2 (45.0 dB)
Cal Data Hor:	18.71 dB (X-OTA_OTA_RadPwr_2205-2695MHz-Horizontal-Att)
Cal Data Ver:	19.74 dB (X-OTA_OTA_RadPwr_2205-2695MHz-Vertical-Att)

OTA Evaluation Results

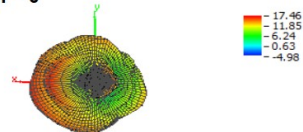
Total Radiated Power	12.68 dBm
Peak EIRP	17.46 dBm
Directivity	4.78 dBi
Peak Gain	17.46 dBi
NHPRP 45j ã	11.44 dBm
NHPRP 45j ã / TRP	-1.25 dB
NHPRP 45j ã / TRP	75.06 %
NHPRP 30j ã	10.16 dBm
NHPRP 30j ã / TRP	-2.52 dB
NHPRP 30j ã / TRP	55.93 %
NHPRP 22.5j ã	9.12 dBm
NHPRP 22.5j ã / TRP	-3.57 dB
NHPRP 22.5j ã / TRP	43.97 %
UHRP	9.74 dBm
UHRP / TRP	-2.95 dB
UHRP / TRP	50.73 %
LHRP	9.61 dBm
LHRP / TRP	-3.07 dB
LHRP / TRP	49.27 %
PGRP (0-120j ã)	11.65 dBm
PGRP / TRP	-1.03 dB
PGRP / TRP	78.86 %
Front/Back Ratio	6.66
PhiBW	140.0 deg
PhiBW Up	59.9 deg
PhiBW Down	80.2 deg
ThetaBW	98.6 deg
ThetaBW Up	26.7 deg
ThetaBW Down	71.9 deg
Boresight Phi	345 deg
Boresight Theta	105 deg
Maximum Power	17.46 dBm
Minimum Power	-4.98 dBm
Average Power	13.14 dBm
Max/Min Ratio	22.44 dB
Max/Avg Ratio	4.32 dB
Min/Avg Ratio	-18.13 dB
Worst Single Value	-14.43 dBm

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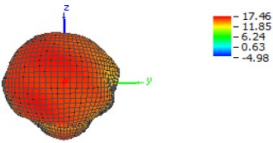
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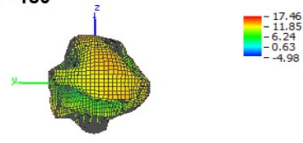
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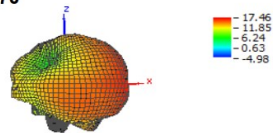
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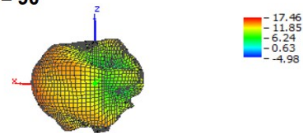
Theta = 90, Phi = 180



Theta = 90, Phi = 270



Theta = 90, Phi = 90



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2.441GHZ**CTIA TRP Report (RP_Bluetooth_ch39_tot)****Common Information**

Test Description:	GN OTA Test Report
Operating Conditions:	Ursa_FOT_FS_3#
Operator Name:	Haller
Comment:	

Test Information

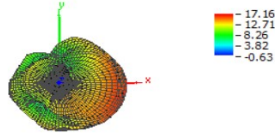
Test Method:	Radiated Power Mobile Phone
Test Condition:	FS: Free Space
EUT Identification:	Device Name: Bluetooth DU, BT address: 09FBA64209B1
Radio Link:	Bluetooth; Channel 39 (2441.000 MHz)
Test Time:	Start: 12/26/2024 1:59:32 PM; Stop: 12/26/2024 2:18:05 PM
CMU200 Connectors:	In: RF2 (45.0 dB), Out: RF2 (45.0 dB)
Cal Data Hor:	18.60 dB (X-OTA_OTA_RadPwr_2205-2695MHz-Horizontal-Att)
Cal Data Ver:	19.59 dB (X-OTA_OTA_RadPwr_2205-2695MHz-Vertical-Att)

OTA Evaluation Results

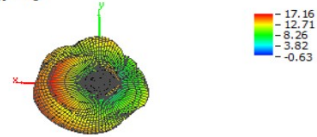
Total Radiated Power	12.16 dBm
Peak EIRP	17.16 dBm
Directivity	5.00 dBi
Peak Gain	17.16 dBi
NHPRP 45j ã	10.87 dBm
NHPRP 45j ã / TRP	-1.28 dB
NHPRP 45j ã / TRP	74.39 %
NHPRP 30j ã	9.61 dBm
NHPRP 30j ã / TRP	-2.55 dB
NHPRP 30j ã / TRP	55.54 %
NHPRP 22.5j ã	8.60 dBm
NHPRP 22.5j ã / TRP	-3.56 dB
NHPRP 22.5j ã / TRP	44.05 %
UHRP	9.17 dBm
UHRP / TRP	-2.98 dB
UHRP / TRP	50.30 %
LHRP	9.12 dBm
LHRP / TRP	-3.04 dB
LHRP / TRP	49.70 %
PGRP (0-120j ã)	11.08 dBm
PGRP / TRP	-1.08 dB
PGRP / TRP	77.98 %
Front/Back Ratio	4.72
PhiBW	98.0 deg
PhiBW Up	48.2 deg
PhiBW Down	49.8 deg
ThetaBW	118.7 deg
ThetaBW Up	3.6 deg
ThetaBW Down	115.1 deg
Boresight Phi	0 deg
Boresight Theta	150 deg
Maximum Power	17.16 dBm
Minimum Power	-0.63 dBm
Average Power	12.71 dBm
Max/Min Ratio	17.79 dB
Max/Avg Ratio	4.45 dB
Min/Avg Ratio	-13.34 dB
Worst Single Value	-26.51 dBm

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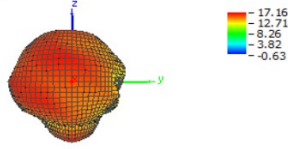
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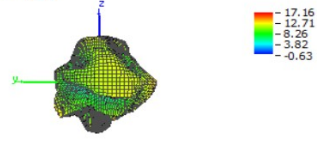
Theta = 180, Phi = 0



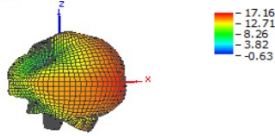
Theta = 90, Phi = 0



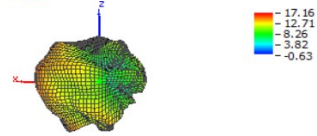
Theta = 90, Phi = 180



Theta = 90, Phi = 270



Theta = 90, Phi = 90



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2.480GHZ**CTIA TRP Report (RP_Bluetooth_ch78_tot)****Common Information**

Test Description:	GN OTA Test Report
Operating Conditions:	Ursa_FOT_FS_3#
Operator Name:	Haller
Comment:	

Test Information

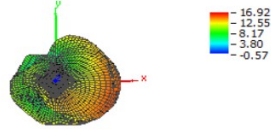
Test Method:	Radiated Power Mobile Phone
Test Condition:	FS: Free Space
EUT Identification:	Device Name: Bluetooth DU, BT address: 09FBA64209B1
Radio Link:	Bluetooth; Channel 78 (2480.000 MHz)
Test Time:	Start: 12/26/2024 1:59:32 PM; Stop: 12/26/2024 2:18:05 PM
CMU200 Connectors:	In: RF2 (45.0 dB), Out: RF2 (45.0 dB)
Cal Data Hor:	18.58 dB (X-OTA_OTA_RadPwr_2205-2695MHz-Horizontal-Att)
Cal Data Ver:	19.25 dB (X-OTA_OTA_RadPwr_2205-2695MHz-Vertical-Att)

OTA Evaluation Results

Total Radiated Power	11.38 dBm
Peak EIRP	16.92 dBm
Directivity	5.54 dBi
Peak Gain	16.92 dBi
NHPRP 45j ã	10.05 dBm
NHPRP 45j ã / TRP	-1.33 dB
NHPRP 45j ã / TRP	73.67 %
NHPRP 30j ã	8.77 dBm
NHPRP 30j ã / TRP	-2.61 dB
NHPRP 30j ã / TRP	54.87 %
NHPRP 22.5j ã	7.77 dBm
NHPRP 22.5j ã / TRP	-3.61 dB
NHPRP 22.5j ã / TRP	43.52 %
UHRP	8.34 dBm
UHRP / TRP	-3.04 dB
UHRP / TRP	49.72 %
LHRP	8.39 dBm
LHRP / TRP	-2.99 dB
LHRP / TRP	50.28 %
PGRP (0-120j ã)	10.24 dBm
PGRP / TRP	-1.14 dB
PGRP / TRP	76.90 %
Front/Back Ratio	5.90
PhiBW	99.4 deg
PhiBW Up	49.5 deg
PhiBW Down	49.8 deg
ThetaBW	115.9 deg
ThetaBW Up	4.5 deg
ThetaBW Down	111.4 deg
Boresight Phi	0 deg
Boresight Theta	150 deg
Maximum Power	16.92 dBm
Minimum Power	-0.57 dBm
Average Power	11.87 dBm
Max/Min Ratio	17.48 dB
Max/Avg Ratio	5.05 dB
Min/Avg Ratio	-12.44 dB
Worst Single Value	-10.06 dBm

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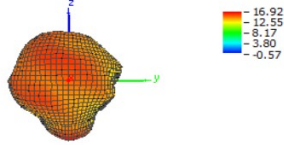
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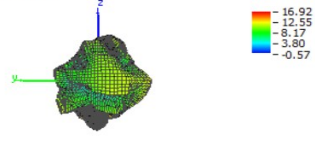
Theta = 180, Phi = 0



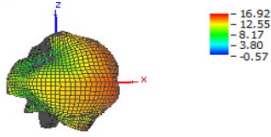
Theta = 90, Phi = 0



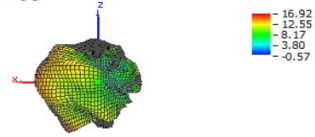
Theta = 90, Phi = 180



Theta = 90, Phi = 270



Theta = 90, Phi = 90



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5 Conclusion

The total radiated power from the Jabra Ursa varies from 11.38 dBm to 12.68 dBm in free space depending on the frequency. The conducted power is 14.5 dBm. These figures yield an antenna gain(peak) in the range of 2.42 dBi and 2.96 dBi.

	2402 MHz	2440 MHz	2480 MHz
Conducted power	14.5 dBm	14.5 dBm	14.5 dBm
Peak Equivalent isotropic radiated power (EIRP)	17.46dBm	17.16 dBm	16.92 dBm

	2402 MHz	2440 MHz	2480 MHz
Antenna gain (Peak)	2.96 dBi	2.66 dBi	2.42 dBi