

Jabra Evolve2 55 Antenna report

Revision: 1

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Date: 2022-07-01

Revision History:

Revision	Date	Change by	Description
1	2022.07.01	Luisa Gong	First Revision

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1 Introduction

This document describes the radiation performance measurements made on a Jabra Evolve2 55. 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:

Luisa Gong

RF Engineer

GN Audio A/S

2 Specification

2.1 Electrical Properties

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

2.2 Physical Properties

Type: PCB 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 12dBm on each channel.

4.2 Total radiated power

Channel	0	39	78
Frequency[MHz]	2402	2441	2480
Peak Equivalent isotropic radiated power (EIRP)	15.69 dBm	15.26 dBm	14.88 dBm
Total radiated power	10.66 dBm	10.4 dBm	9.73 dBm

4.3 Antenna patterns

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

Test Description:	GN OTA Test Report
Operating Conditions:	Willow_VerB_FS_TRP
Operator Name:	Luisa
Comment:	

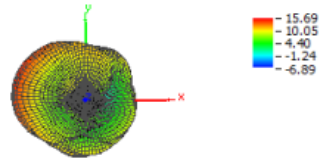
Test Information:

Test Method:	Radiated Power Mobile Phone
Test Condition:	FS: Free Space
Frequency:	2402.000 MHz
Test Time:	Start: 5/26/2022 4:06:12 PM; Stop: 5/26/2022 4:29:12 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)

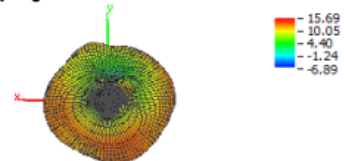
OTA Evaluation Results:

Total Radiated Power	10.66 dBm
Peak EIRP	15.69 dBm
Directivity	5.03 dBi
Peak Gain	15.69 dBi
NHPRP 45 i ā	9.67 dBm
NHPRP 45 i ā / TRP	-0.99 dB
NHPRP 45 i ā / TRP	79.56 %
NHPRP 30 i ā	8.44 dBm
NHPRP 30 i ā / TRP	-2.22 dB
NHPRP 30 i ā / TRP	59.96 %
NHPRP 22.5 i ā	7.27 dBm
NHPRP 22.5 i ā / TRP	-3.39 dB
NHPRP 22.5 i ā / TRP	45.84 %
UHRP	7.17 dBm
UHRP / TRP	-3.50 dB
UHRP / TRP	44.72 %
LHRP	8.09 dBm
LHRP / TRP	-2.57 dB
LHRP / TRP	55.28 %
PGRP (0-120 i ā)	9.38 dBm
PGRP / TRP	-1.28 dB
PGRP / TRP	74.51 %
Front/Back Ratio	4.56
PhiBW	102.6 deg
PhiBW Up	47.0 deg
PhiBW Down	55.6 deg
ThetaBW	56.0 deg
ThetaBW Up	36.7 deg
ThetaBW Down	19.3 deg
Boresight Phi	165 deg
Boresight Theta	75 deg
Maximum Power	15.69 dBm
Minimum Power	-6.89 dBm
Average Power	10.32 dBm
Max/Min Ratio	22.58 dB
Max/Avg Ratio	5.37 dB
Min/Avg Ratio	-17.21 dB
Worst Single Value	-24.78 dBm
Worst Position	Azi = 120 deg; Elev = 135 deg; Pol = Hor

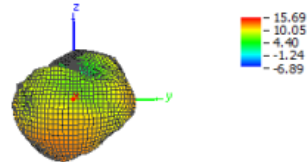
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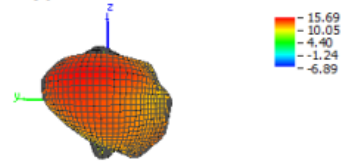
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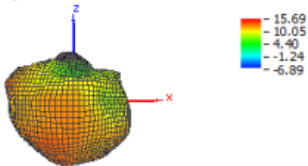
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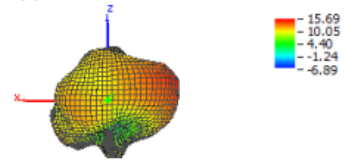
Theta = 90, Phi = 180



Theta = 90, Phi = 270



Theta = 90, Phi = 90



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

Test Description:	GN OTA Test Report
Operating Conditions:	Willow_VerB_FS_TRP
Operator Name:	Luisa
Comment:	

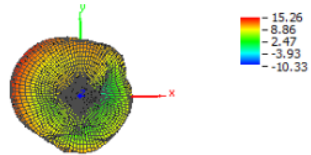
Test Information:

Test Method:	Radiated Power Mobile Phone
Test Condition:	FS: Free Space
Frequency:	2441.000 MHz
Test Time:	Start: 5/26/2022 4:06:12 PM; Stop: 5/26/2022 4:29:12 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)

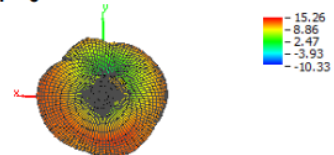
OTA Evaluation Results:

Total Radiated Power	10.40 dBm
Peak EIRP	15.26 dBm
Directivity	4.86 dBi
Peak Gain	15.26 dBi
NHPRP 45 j ā	9.35 dBm
NHPRP 45 j ā / TRP	-1.05 dB
NHPRP 45 j ā / TRP	78.57 %
NHPRP 30 j ā	8.08 dBm
NHPRP 30 j ā / TRP	-2.32 dB
NHPRP 30 j ā / TRP	58.65 %
NHPRP 22.5 j ā	6.90 dBm
NHPRP 22.5 j ā / TRP	-3.50 dB
NHPRP 22.5 j ā / TRP	44.70 %
UHRP	6.94 dBm
UHRP / TRP	-3.46 dB
UHRP / TRP	45.06 %
LHRP	7.80 dBm
LHRP / TRP	-2.60 dB
LHRP / TRP	54.94 %
PGRP (0-120 j ā)	9.10 dBm
PGRP / TRP	-1.30 dB
PGRP / TRP	74.15 %
Front/Back Ratio	3.93
PhiBW	104.3 deg
PhiBW Up	44.7 deg
PhiBW Down	59.6 deg
ThetaBW	54.6 deg
ThetaBW Up	35.4 deg
ThetaBW Down	19.1 deg
Boresight Phi	165 deg
Boresight Theta	75 deg
Maximum Power	15.26 dBm
Minimum Power	-10.33 dBm
Average Power	9.89 dBm
Max/Min Ratio	25.59 dB
Max/Avg Ratio	5.37 dB
Min/Avg Ratio	-20.22 dB
Worst Single Value	-18.92 dBm
Worst Position	Azi = 105 deg; Elev = 135 deg; Pol = Hor

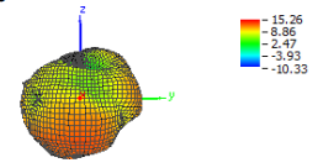
Theta = 0, Phi = 0



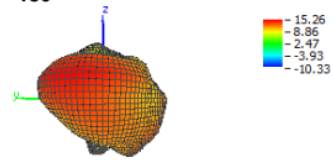
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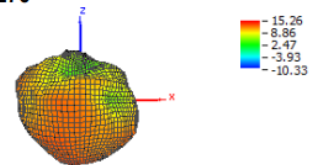
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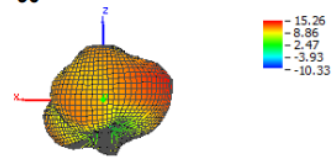
Theta = 90, Phi = 180



Theta = 90, Phi = 270



Theta = 90, Phi = 90



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

Test Description:	GN OTA Test Report
Operating Conditions:	Willow_VerB_FS_TRP
Operator Name:	Luisa
Comment:	

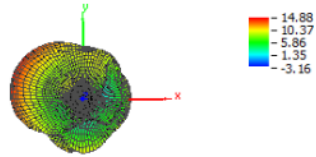
Test Information:

Test Method:	Radiated Power Mobile Phone
Test Condition:	FS: Free Space
Frequency:	2480.000 MHz
Test Time:	Start: 5/26/2022 4:06:12 PM; Stop: 5/26/2022 4:29:12 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)

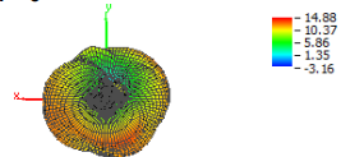
OTA Evaluation Results:

Total Radiated Power	9.73 dBm
Peak EIRP	14.88 dBm
Directivity	5.15 dBi
Peak Gain	14.88 dBi
NHPRP 45 i a	8.64 dBm
NHPRP 45 i a / TRP	-1.09 dB
NHPRP 45 i a / TRP	77.79 %
NHPRP 30 i a	7.36 dBm
NHPRP 30 i a / TRP	-2.37 dB
NHPRP 30 i a / TRP	57.91 %
NHPRP 22.5 i a	6.17 dBm
NHPRP 22.5 i a / TRP	-3.57 dB
NHPRP 22.5 i a / TRP	43.99 %
UHRP	6.21 dBm
UHRP / TRP	-3.52 dB
UHRP / TRP	44.46 %
LHRP	7.18 dBm
LHRP / TRP	-2.55 dB
LHRP / TRP	55.54 %
PGRP (0-120 i a)	8.38 dBm
PGRP / TRP	-1.35 dB
PGRP / TRP	73.27 %
Front/Back Ratio	4.52
PhiBW	98.1 deg
PhiBW Up	42.2 deg
PhiBW Down	55.8 deg
ThetaBW	51.8 deg
ThetaBW Up	32.3 deg
ThetaBW Down	19.5 deg
Boresight Phi	165 deg
Boresight Theta	75 deg
Maximum Power	14.88 dBm
Minimum Power	-3.16 dBm
Average Power	9.26 dBm
Max/Min Ratio	18.05 dB
Max/Avg Ratio	5.63 dB
Min/Avg Ratio	-12.42 dB
Worst Single Value	-17.09 dBm
Worst Position	Azi = 120 deg; Elev = 135 deg; Pol = Hor

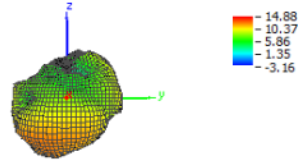
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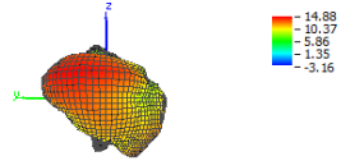
Theta = 180, Phi = 0



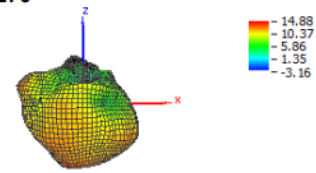
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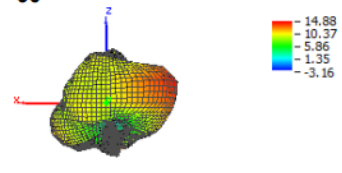
Theta = 90, Phi = 180



Theta = 90, Phi = 270



Theta = 90, Phi = 90



5 Conclusion

The total radiated power from the Jabra Evolve2 55 varies from 9.73 dBm to 10.66 dBm in free space depending on the frequency. The conducted power is 12 dBm. These figures yield an antenna gain(peak) in the range of 2.88 dBi and 3.69 dBi.

	2402 MHz	2440 MHz	2480 MHz
Conducted power	12 dBm	12 dBm	12 dBm
Peak Equivalent isotropic radiated power (EIRP)	15.69 dBm	15.26 dBm	14.88 dBm

	2402 MHz	2440 MHz	2480 MHz
Antenna gain (Peak)	3.69 dBi	3.26 dBi	2.88 dBi