

RA-53 Antena Spec (Model: C-WIRE 0.08/30(0-2)BLACK 30)

Antena Type: $1/4 \lambda$ monopole

Antena Gain: -7.20 dBi

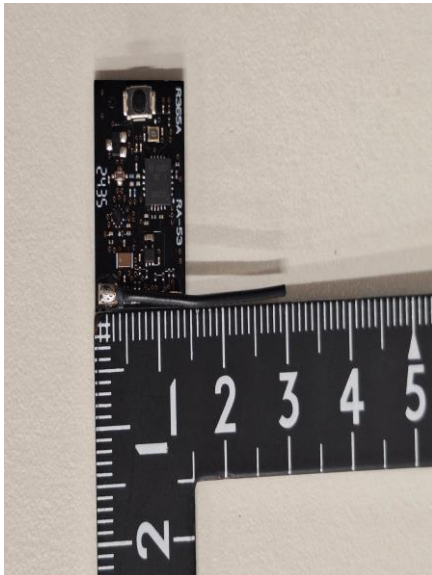
Frequency: 2400MHz – 2480MHz

Antenna manufacturer: Futaba



Robotics Solution Business Center, Futaba
Corporation

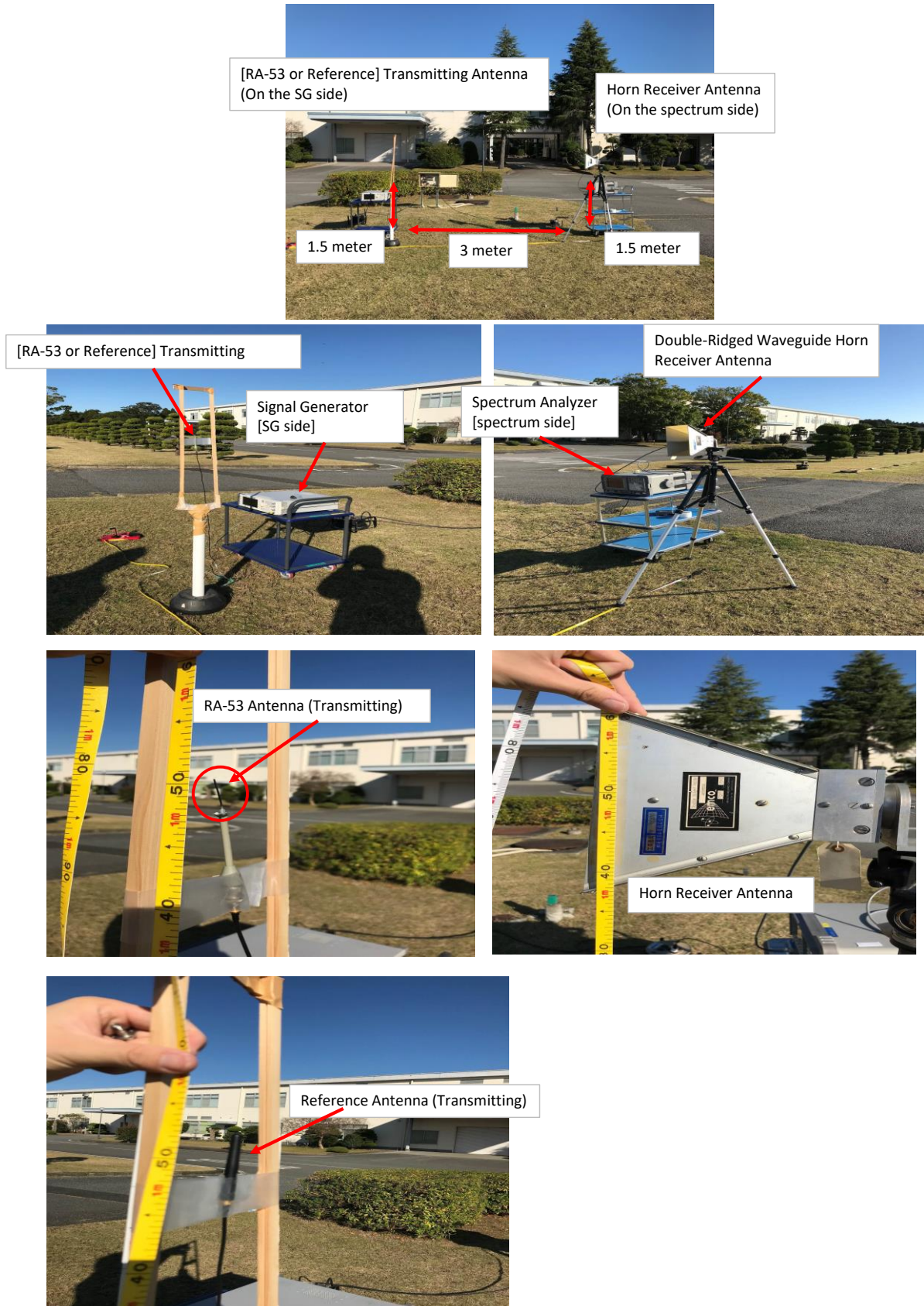
1080 Yabuzuka, Chosei-mura, Chosei-gun, Chiba, Japan



Measuring Instrument List

No	Type	Manufacturer	Model No	Serial No	Calibration Date	Calibration Interval
1	Spectrum Analyzer	Agilent	E4407B	MY50140564	2024.8.27	1 Year
2	Signal Generator	Agilent	E4438C	MY45092152	2024.8.23	1 Year
3	Double-Ridged Waveguide Horn	EMCO	3015	2157	2024.8.25	1 Year
4	Reference Antenna (ANTB24-094AO)	SANSEI	ANTB24	none	2024.1.15	1 Year

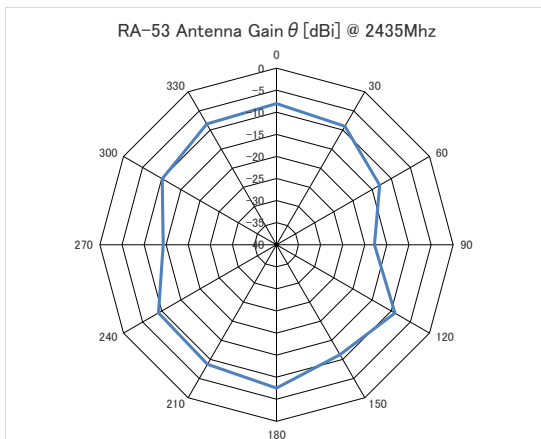
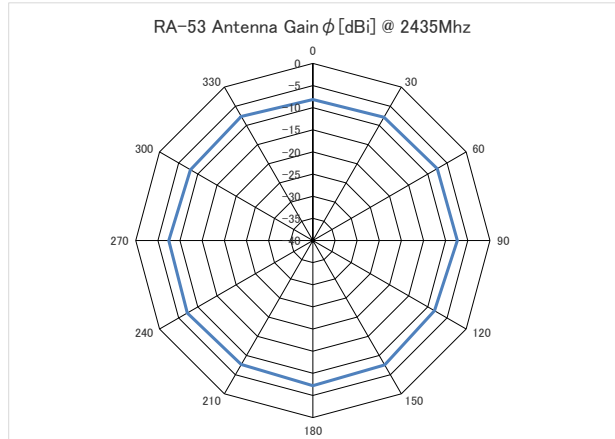
Test Photographs



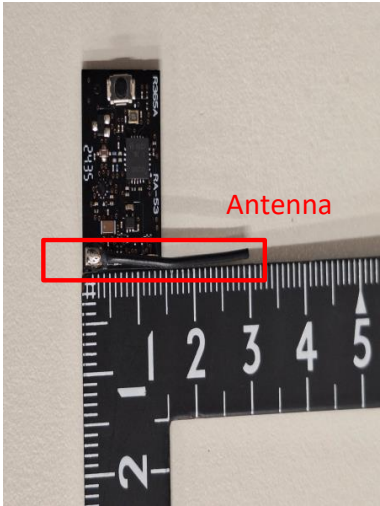
Test Method Standard Antenna Method
Test Site Open Site(Futaba Corporation outdoor site)
Futaba Corporation Address Robotics Solution Business Center, Futaba Corporation 1080 Yabuzuka, Chosei-mura, Chosei-gun, Chiba, Japan
Distance between antennas 3[m]
(Transmitting Antenna - Receiving Antenna)
Antenna Height 1.5[m]
Signal generator Output Level 10 [dBm]
Cable Loss 1[dB]
Measuring equipment details Refer to the test scene page
Measurement Methods details Please refer to the content of "Method/source of antenna gain information."

Angle[°]	Reference Antena mesesument[dBm] ※step1	RA-53 Antena mesesument[dBm] ※step2	Difference[dB]	Reference Antena gain[dBi]	RA-53 Antenna Gain ϕ [dBi]
0	-29.00	-38.63	-9.63	1.47	-8.16
30	-28.99	-38.33	-9.34	1.48	-7.86
60	-29.05	-38.03	-8.98	1.42	-7.56
90	-29.06	-37.83	-8.77	1.41	-7.36
120	-29.08	-38.73	-9.65	1.39	-8.26
150	-29.03	-38.03	-9.00	1.44	-7.56
180	-29.02	-37.67	-8.65	1.45	-7.20
210	-29.02	-38.13	-9.11	1.45	-7.66
240	-29.06	-37.73	-8.67	1.41	-7.26
270	-29.04	-37.93	-8.89	1.43	-7.46
300	-29.02	-38.53	-9.51	1.45	-8.06
330	-29.05	-38.13	-9.08	1.42	-7.66

Angle[°]	Reference Antena mesesument[dBm] ※step1	RA-53 Antena mesesument[dBm] ※step2	Difference[dB]	Reference Antena gain[dBi]	RA-53 Antenna Gain θ [dBi]
0	-28.70	-38.20	-9.50	1.47	-8.03
30	-29.30	-39.20	-9.90	0.87	-9.03
60	-33.20	-43.20	-10.00	-3.03	-13.03
90	-41.50	-48.00	-6.50	-11.33	-17.83
120	-32.30	-39.20	-6.90	-2.13	-9.03
150	-30.10	-41.40	-11.30	0.07	-11.23
180	-28.95	-37.70	-8.75	1.22	-7.53
210	-30.50	-38.90	-8.40	-0.33	-8.73
240	-32.60	-39.30	-6.70	-2.43	-9.13
270	-40.40	-44.50	-4.10	-10.23	-14.33
300	-31.30	-40.30	-9.00	-1.13	-10.13
330	-30.30	-38.60	-8.30	-0.13	-8.43



Full electrical and mechanical specifications



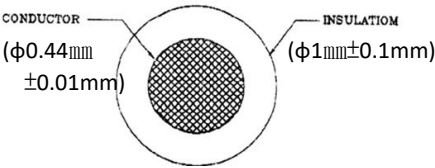
antenna Monopole Antenna

mechanical specifications

length 30mm (ϕ 1mm)

weight 0.07g

material copper wire



electrical specification

operating temperature range -20~60°C

storage condition -20~60°C

humidity 85% max

characteristic impedance 50 Ω

Contact Resistance 102m Ω max

VSWR 2.0 or below

American Wire Gauge (AWG) 25

Method/source of antenna gain information

Standard Antenna Method

1. Use a reference antenna to measure the transmit power (360°)
 2. Use Antenna Adopted in RA-53 to measure the transmit power (360°)
 3. Compare the values measured in the step 1 & step 2.
- And Calculate how much the difference in the output value is relative to the reference antenna.
- (1 and 2 are measured by the power transmitted from the SG side and received by the Horn Antenna on the spectrum side.)

$$\text{Difference[dB]} = \text{Reference Antenna measurement[dBm]} - \text{RA-53 Antenna measurement[dBm]}$$
$$\text{RA-53 Antenna Gain[dBi]} = \text{Difference[dB]} + \text{Reference Antenna gain[dBi]}$$

Max gain, polarization, θ , ϕ and radiation plots for max gain plane.

RA-53 Antenna

antenna	Monopole Antenna
Polarization	Vertical polarization
height	1.5m
angle(θ)	180° (-7.53dBi)
ϕ	180° (-7.2dBi)

Reference Antenna information

antenna	Dipole antenna
Polarization	Vertical polarization
height	1.5m
Angle between reference antenna and receiving antenna(θ)	0°
ϕ	30° (1.48dBi)