

Garmin GMA 245R MKR Environmental Qualification Form

Nomenclature:

Garmin GMA245R MKR Remote Mount Audio Panel and Marker Beacon Receiver

Type/Model/Part Number:

GMA245R MKR GPN 010-01471-1() (Includes 011-03784-1())

PMA:

See 190-02482-01 *G3X Touch EFIS Part 23 AML STC Installation Manual* for PMA authorization.

Manufacturer's Specification And/Or Other Applicable Specification:

004-00688-00

Manufacturer:

Garmin Ltd. or its subsidiaries

Address:

Garmin International Inc.
1200 East 151st Street
Olathe, KS 66062
U.S.A.

Date Tested:

March 2016 – May 2016, August 2016 – December 2016

RTCA DO-160F Conditions	DO-160F Section	Description of Conducted Tests
Temperature and Altitude	4.0	Equipment tested to Category A1F1
In-Flight Loss of Cooling	4.5.5	Cooling Air Is Not Required
Temperature Variation	5.0	Equipment tested to Category C
Humidity	6.0	Equipment tested to Category A
Operational Shocks & Crash Safety	7.0	Equipment tested to Category B
Sustained Crash Safety	7.3.3	Equipment tested to Aircraft Type 4, Test Type R
Vibration	8.0	Equipment tested to Category S, Test Curve M and Test Curve B (See Note 1 and Note 4)
Explosive Atmosphere	9.0	Equipment identified as Category X, no test performed
Waterproofness	10.0	Equipment tested to Category X, no test performed
Fluids Susceptibility	11.0	Equipment tested to Category X, no test performed
Sand and Dust	12.0	Equipment tested to Category X, no test performed
Fungus Resistance	13.0	Equipment tested to Category X, no test performed
Salt Fog	14.0	Equipment tested to Category X, no test performed
Magnetic Effect	15.0	Equipment tested to Category Z
Power Input (DC Equipment)	16.0	Equipment tested to Category BXX. (See Note 8)
Voltage Spike	17.0	Equipment tested to Category A
Audio Frequency Conducted Susceptibility – Power Inputs	18.0	Equipment tested to Category B
Induced Signal Susceptibility	19.0	Equipment tested to Categories AC
Radio Frequency Susceptibility (Radiated and Conducted)	20.0	Equipment tested to Radiated Category T Equipment tested to Conducted Category T (See Note 2 and Note 7)

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RTCA DO-160F Conditions	DO-160F Section	Description of Conducted Tests
Emission of Radio Frequency Energy	21.0	Equipment tested to Category B
Lightning Induced Transient Susceptibility	22.0	Equipment tested to Category XXXXX. No test performed. (See Note 3 and Note 7)
Lightning Direct Effects	23.0	Equipment tested to Category X, no test performed
Icing	24.0	Equipment tested to Category X, no test performed
Electrostatic Discharge (ESD)	25.0	Equipment tested to Category A
Fire, Flammability	26.0	Equipment tested to Category X, no test performed (See Note 9)

Notes and Remarks:

See 005-00329-A6, *Supplemental Qualification Summary, PMA* for substantiating data. Accessories qualified with unit: TBA.

1. Vibration Test Curve M was increased as follows: 0.1 inches pk-pk double amplitude from 15Hz to 17Hz and 1.5g pk from 17Hz to 55Hz
2. Section 20 critical frequencies only at ATE and listening tests at all frequencies.
3. Aircraft Power input pins and hardware failsafe path tested to Category A2XXX
4. For resonant frequency information, see the GMA245 and GMA245R reports archived in 005-00880-16.
5. See additional supporting data in 005-00880-15 for the GMA345 and GMA342 that by design similarity can be applied to the GMA245 and GMA245R.
6. All Marker RX functionality is qualified by similarity to the GMA 342/345 per supporting data in 005-00880-15.
7. Qualification to additional levels and configurations are shown in Garmin Report 005-00329-A6 *Supplemental Qualification Summary, PMA*.
8. While operating below 11 Volts, the Speaker output and USB Jack charge output are disabled.
9. Equipment qualified to RTCA DO-160G, Section 26 (Fire, Flammability), Category C.