composite material is incorporated into support members of the frame or structure. In some implementations, the composite material is incorporated into the frame or structure, and also into at least some of the mounting devices, coupling devices, or brackets, providing for the mounting of components to the frame or structure. In some implementations, the frame or structure and the mounting devices, or coupling devices, or brackets, define a tower that provides for the relay of radio signals in a telecommunications network.

**[0005]** In some aspects, the techniques described herein relate to a device, including: a shielding member including a carbon fiber material, the shielding member being configured to be positioned proximate a component so as to shield the component from passive intermodulation (PIM) effects in an installation environment of the component; wherein the shielding member includes: a panel portion configured to be coupled to a corresponding coupling surface of the component; a first arm portion extending from a first lateral side portion of the panel portion, at an angle with respect to the panel portion, so as to shield a corresponding first lateral side portion of the component; and a second arm portion extending from a second lateral side portion of the panel portion, at an angle with respect to the panel portion, so as to shield a corresponding second lateral side portion of the component.

In some aspects, the techniques described herein relate to a device, including: a shielding member including a carbon fiber material, the shielding member being configured to be positioned proximate a component so as to shield the component from passive intermodulation (PIM) effects in an installation environment of the component; wherein the shielding member includes a plurality of shielding members configured to shield a respective plurality of components from PIM effects, each of the plurality of shielding members including: a panel portion configured to be coupled to a coupling surface of a component of the plurality of components; and at least one arm portion extending outward from a lateral side portion of the panel portion, at an angle with respect to the panel portion, so as to be positioned between the component and an adjacent component of the plurality of components.

In some aspects, the techniques described herein relate to a device, including: a shielding member including a carbon fiber material, the shielding member being configured to be positioned proximate a component so as to shield the component from passive intermodulation (PIM) effects in an installation environment of the component; wherein the shielding member includes: a panel portion configured to be coupled to a coupling surface of the component; and at least one portion configured to accommodate a bracket assembly coupling the component to a support structure.

**[0006]**

**[0007]** In some aspects, the techniques described herein relate to a device, wherein a contour of the panel portion, the first arm portion, and the second arm portion is at least partially conformal to a contour of the component, such that the panel portion, the first arm portion, and the second arm portion at least partially surround the component.

**[0008]** In some aspects, the techniques described herein relate to a device, further including: a plurality of openings formed in the panel portion and configured to receive coupling portions of the component therethrough.

**[0009]**

**[0010]** In some aspects, the techniques described herein relate to a device, wherein the at least one arm portion includes: a first arm portion extending outward from a first lateral

side portion of the panel portion, at an angle with respect to the panel portion, so as to be positioned between the component and a first adjacent component of the plurality of components; and a second arm portion extending outward from a second lateral side portion of the panel portion opposite the first lateral side portion thereof, at an angle with respect to the panel portion, so as to be positioned between the component and a second adjacent component of the plurality of components.

**[0011]** In some aspects, the techniques described herein relate to a device, wherein the device further includes: a first end plate; a second end plate; and a rod extending through the first end plate and the second end plate, wherein the plurality of shielding members and the plurality of components are positioned surrounding the rod, between the first end plate and the second end plate, and wherein the plurality of shielding members, the first end plate, and the second end plate define a plurality of receiving spaces respectively receiving the plurality of components.

**[0012]** In some aspects, the techniques described herein relate to a device, wherein the first end plate, the second end plate, and the plurality of shielding members are made of a carbon fiber composite material including a carbon fiber material impregnated in a resin material.

**[0013]**

**[0014]** In some aspects, the techniques described herein relate to a device, wherein the bracket assembly includes: a first bracket configured to be coupled to the coupling surface of the component; and a second bracket coupling the first bracket to a third bracket, wherein the second bracket and the third bracket are configured to couple the component to the support structure.

**[0015]** In some aspects, the techniques described herein relate to a device, wherein the first bracket includes: a first base wall configured to be coupled to the component; and first and second side walls extending outward from opposite end portions of the first base wall, toward the second bracket; and wherein the second bracket includes: a second base wall; first and second side walls extending outward from opposite end portions of the second base wall, toward the first bracket, wherein the first and second side walls of the second bracket are coupled to the first and second side walls of the first bracket; and first and second mating surfaces extending outward from upper and lower end portions of the second base

the bracket assembly includes: a central bracket coupled to the support structure; a first arm rotatably coupled to a first end portion of the central bracket and configured to rotatably couple a first component to the support structure; and a second arm rotatably coupled to a second end portion of the central bracket and configured to rotatably couple a second component to the support structure, the first arm and the second arm each including: a body portion; a slot extending in a longitudinal direction of the body portion, the slot being configured to receive at least one fastener therethrough for coupling the body portion to respective component; and leg portions extending outward from upper and lower side portions of the body portion and configured to contact the respective component.

**[0020]** In some aspects, the techniques described herein relate to a device, wherein the component is a telecommunications component including at least one antenna configured to be mounted on a telecommunications tower, a telecommunications pole, or a mounting surface of a building.

**[0021]** In some aspects, the techniques described herein relate to a mounting system, including: a mounting device configured to mount a telecommunications component on a support structure; and a shielding member coupled to a coupling portion of the component, positioned between the component and the mounting device, wherein the shielding member is configured to shield the component from passive intermodulation (PIM) effects in an installation environment of the mounting device.

**[0022]** In some aspects, the techniques described herein relate to a mounting system, wherein the shielding member includes: a panel portion configured to be coupled to a corresponding coupling surface of the component; a first arm portion extending from a first lateral side portion of the panel portion, at an angle with respect to the panel portion, so as to shield a corresponding first lateral side portion of the component; and a second arm portion extending from a second lateral side portion of the panel portion, at an angle with respect to the panel portion, such that a contour of the panel portion, the first arm portion, and the second arm portion is at least partially conformal to a contour of the component, and the first arm portion, and the second arm portion at least partially surround the component.

**[0023]** In some aspects, the techniques described herein relate to a mounting system, wherein the mounting device and the shielding member are made of a carbon fiber composite material including a carbon fiber material impregnated in a resin material.

**[0024]** In some aspects, the techniques described herein relate to a mounting system, wherein the mounting device includes a bracket assembly, including: a first bracket configured to be coupled to the component; a second bracket configured to be coupled

between the first bracket and the support structure, wherein the first bracket includes a first side wall and a second side wall each including a first opening and a second opening, and the second bracket includes a first side wall and a second side wall each including a first opening and a second opening formed as an arcuate slot, and wherein fasteners are coupled in the first openings formed in the first and second side walls of the first and second brackets to couple the first and second side walls of the first and second brackets, and wherein fasteners are slidably received in the second openings in the first and second side walls of the second bracket, and coupled into the second openings in the first and second side walls of the first bracket, such that an angular orientation of the component relative to the support structure is adjustable based on a position of the fastener in the second openings in the first and second side walls of the second bracket.

**[0025]** In some aspects, the techniques described herein relate to a mounting system, wherein the mounting device includes a bracket assembly, including: a first bracket configured to be coupled to the component; a second bracket coupling the first bracket to a third bracket, wherein the support structure is received between the second bracket and the third bracket, wherein the second bracket includes first and second mating surfaces extending outward from upper and lower end portions of a base wall, toward the third bracket and wherein the third bracket includes first and second mating surfaces extending outward from upper and lower end portions of a base wall, toward the second bracket, with the support structure received between the respective mating surfaces of the first and second brackets, and wherein fasteners coupling the base wall of the third bracket and the base wall of the second bracket provide for adjustable coupling of the second and third brackets on the support structure.

**[0026]** The techniques described herein relate to a method, including: positioning a shielding member proximate a telecommunications component, the shielding member including a carbon fiber material; and shielding the component from effects of passive intermodulation (PIM) in an installation environment of the telecommunications component based on a placement position of the shielding member relative to a source of the PIM.

**[0027]** The techniques described herein relate to a method, wherein positioning the shielding member comprises attaching the shielding member to a surface of the telecommunications component such that PIM is prevented from interfering with signals processed by the telecommunications component.

**[0028]** The techniques described herein relate to a method, further

comprising coupling the telecommunications component to a support structure with a bracket assembly, the bracket assembly including at least one bracket made of a carbon fiber composite material.

**[0029]** The techniques described herein relate to a method, wherein positioning the shielding member includes positioning the shielding member made of a carbon fiber composite material including a carbon fiber material impregnated in a resin material proximate the telecommunications component.

**[0030]** The details of one or more implementations are set forth in the accompanying drawings and the description below. Other features will be apparent from the description and drawings, and from the claims.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0031]** FIG. 1 is a perspective view of an example frame.

**[0032]** FIGs. 2A-2D are top views illustrating mounting of an example component to an example support structure, with example shielding devices mounted relative to the example component.

**[0033]** FIGs. 3A-3E illustrate an example shielding device.

**[0034]** FIGs. 4A-4C illustrate an example shielding device.

**[0035]** FIGs. 5A-5E illustrate an example shielding device.

**[0036]** FIGs. 6A-6C illustrate an example shielding device.

**[0037]** FIG. 7 illustrates a section of an example lattice telecommunications tower including an example mounting system.

**[0038]** FIGs. 8A and 8B illustrate a section of an example slim line telecommunications pole including an example mounting system.

**[0039]** FIG. 9 illustrates an example rooftop installation environment including example shielding members.

**[0040]** FIG. 10A is a first isometric view, and FIG. 10B is a second isometric view, of an example component mounting assembly including an example shielding device.

**[0041]** FIG. 10C is a first side view, and FIG. 10D is a second side view, of the example component mounting assembly and shielding device shown in FIGs. 10A and 10B.

**[0042]** FIG. 10E is a top view, and FIG. 10F is a bottom view, of the example component mounting assembly and shielding device shown in shown in FIGs. 10A-10D.

**[0043]** FIG. 11Ais a first isometric view, FIG. 11B is a second isometric view, and FIG. 11C is a third isometric view, of the example component mounting assembly and