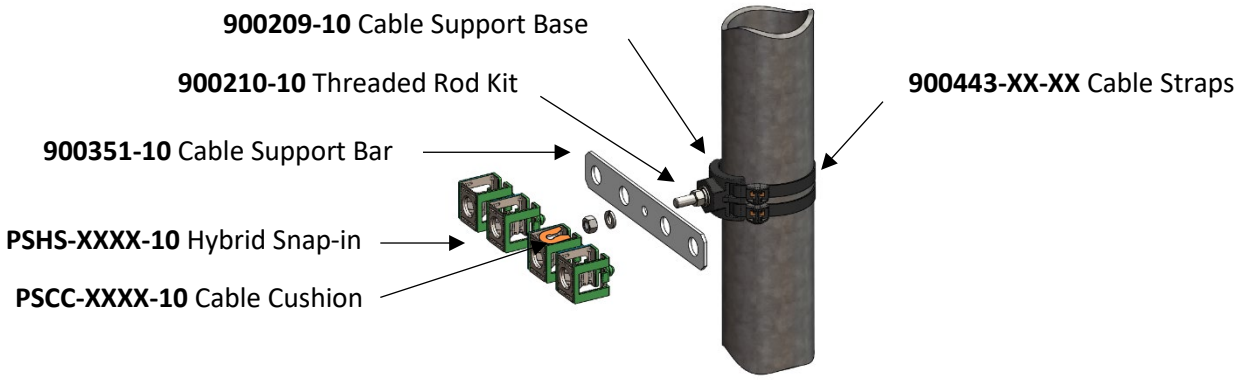
Part number(s): See below

Description: Low PIM cable support mount designed to secure multiple ConcealFab Hybrid snap-in cable clamps to structural members at a cell site. Mount utilizes ConcealFab PIM Shield Cable Straps to secure the Cable Support Base to a site structural member. A stainless-steel Threaded Rod Kit secures the stainless-steel Cable Support Bar to the Cable Support Base. Assembly torque = 10 FT-LB on all fasteners.



Test conditions:

Tested in accordance with proposed IEC 62037-8 specification under the following test conditions:

- Object type: Non-flat
- Test type: Near Field
- Dynamic stimulus: Tap DUT with fiberglass rod while PIM testing
- Test power: 2x 43 dBm test tones
- IM product measured IM3
- Pass/Fail level: -97 dBm (-140 dBc)
- Frequency bands: 700 MHz band (F1 = 728 MHz, F2 = 754 MHz, IM3 = 780 MHz)
  1900 MHz band (F1 = 1930 MHz, F2 = 1990 MHz, IM3 = 1870 MHz)

Test distance calculations:

5.1.4.1.2	Lowest test frequency	(MHz)	728		1930	
	Wavelength	(in)	16.2		6.1	
	Galtronics D5778i	D (in)	13.8		13.8	
5.1.1	Antenna Gain (dBi)	10 dBi ± 3 dB	8.8 dBi		8.6 dBi	
	Antenna beamwidth (deg)		60		60	
				5.1.4.2		5.1.4.2
		Tolerance	Distance (in)	Test zone width (in)	Distance (in)	Test zone width (in)
5.1.4.1.1	FarField min (in)	0.25	19.4	22.4	60.8	70.2
	FarField nom (in)		23.5	27.1	62.3	71.9
	FarField max (in)	0.25	27.5	31.8	63.8	73.7
5.1.4.1.2	NearField min (in)	0.1	14.6	30.6	5.5	20.2
	NearField nom (in)		16.2	32.5	6.1	20.9
	NearField max (in)	0.1	17.8	34.4	6.7	21.6

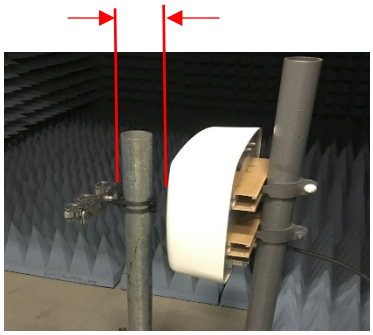
Test Results Summary:

		IM3 @ 2x +43 dBm Test Power (dBm)					
-97	Port / Band	Residual PIM	Front	R-Side	L-Side	Back	Back 2
PASS	M45 / 700	-122.6	-110.9	-109.3	-113.6	-106.7	-104.7
	P45 / 700	-112.6	-103.0	-113.6	-109.2	-108.3	-112.8
	M45 / 1900	-110.9	-109.1	-106.7	-111.4	-110.1	-109.9
	P45 / 1900	-120.9	-113.2	-111.9	-110.4	-111.3	-112.6

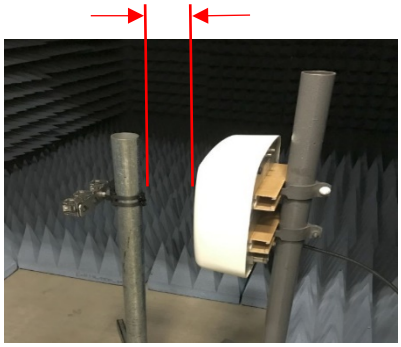
		M45 Return Loss Verification (dB)					
		Frequency	Front	R-Side	L-Side	Back	Back 2
10	F1	728 MHz	18.2	18.8	18.4	18.1	18.6
PASS	F2	754 MHz	16.5	17.1	17.1	17.2	16.3
	IM3	780 MHz	15.8	14.9	14.2	14.6	15.9
	IM3	1870 MHz	23.0	27.8	21.8	16.2	25.6
	F2	1930 MHz	34.3	25.3	29.5	19.8	25.2
	F1	1990 MHz	24.4	27.2	24.4	17.4	27.2

		P45 Return Loss Verification (dB)					
		Frequency	Front	R-Side	L-Side	Back	Back 2
10	F1	728 MHz	18.7	18.0	18.5	18.0	19.3
PASS	F2	754 MHz	18.5	16.0	16.8	18.5	17.0
	IM3	780 MHz	20.2	18.2	18.6	19.0	19.8
	IM3	1870 MHz	27.6	27.3	25.6	25.0	22.6
	F2	1930 MHz	16.2	17.0	16.5	18.3	15.7
	F1	1990 MHz	22.6	22.6	20.5	28.6	19.2

Note 1: Two different "Back" measurements are recorded because at the time of testing, it was not clear whether to use the distance to the Support Bar or the distance to the mounting pipe for the "Back" measurements. After further consideration, the "Back 2" measurements are correct since the Deltec straps are part of the DUT and the straps wrap around the back of the pole.



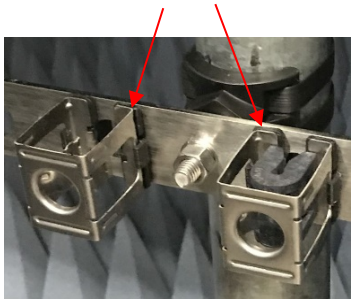
BACK



BACK 2

Plastic insulators

Note 2: The insulators on the Hybrid Snap-ins tested were fabricated using 3D printed plastic technology. They are electrically equivalent to the production design which uses injection molding technology.



PIM Test Data: 700 MHz

SITE DETAILS

Site	Sector	Feeder	Operator
900351	NA	NA	T BELL

TEST PARAMETERS

Tone 1 Frequency	Tone 2 Frequency	IM3 Frequency
728.0 MHz	754.0 MHz	780.0 MHz

TEST RESULTS

Test Point	Time	P1 P2	PIM Threshold	PIM	Peak PIM	Result
700 RES M45	2019-01-23 23:11	43.0 dBm 43.0 dBm	-100.0 dBm	-122.7 dBm	-122.6 dBm	Pass
700 FRONT M45	2019-01-23 23:16	43.0 dBm 43.0 dBm	-100.0 dBm	-111.1 dBm	-110.9 dBm	Pass
700 R SIDE M45	2019-01-23 23:17	43.0 dBm 43.0 dBm	-100.0 dBm	-109.4 dBm	-109.3 dBm	Pass
700 L SIDE M45	2019-01-23 23:19	43.0 dBm 43.0 dBm	-100.0 dBm	-114.1 dBm	-113.6 dBm	Pass
700 BACK M45	2019-01-23 23:21	43.0 dBm 43.0 dBm	-100.0 dBm	-109.4 dBm	-106.7 dBm	Pass
700 BACK M45 2	2019-01-23 23:22	43.0 dBm 43.0 dBm	-100.0 dBm	-104.8 dBm	-104.7 dBm	Pass
700 RES P45	2019-01-23 23:28	43.0 dBm 43.0 dBm	-100.0 dBm	-112.9 dBm	-112.6 dBm	Pass
700 FRONT P45	2019-01-23 23:31	43.0 dBm 43.0 dBm	-100.0 dBm	-104.6 dBm	-103.0 dBm	Pass
700 R SIDE P45	2019-01-23 23:33	43.0 dBm 43.0 dBm	-100.0 dBm	-113.8 dBm	-113.6 dBm	Pass
700 L SIDE P45	2019-01-23 23:34	43.0 dBm 43.0 dBm	-100.0 dBm	-109.5 dBm	-109.2 dBm	Pass
700 BACK P45	2019-01-23 23:36	43.0 dBm 43.0 dBm	-100.0 dBm	-109.2 dBm	-108.3 dBm	Pass
700 BACK P45 2	2019-01-23 23:37	43.0 dBm 43.0 dBm	-100.0 dBm	-112.9 dBm	-112.8 dBm	Pass

Model	Serial Number	Calibration Due	SW/FW Versions
iQA-0700HC	TX2132100208	04 May 2019	2.10.0/2.2.0

PIM Test Data: 1900 MHz

SITE DETAILS

Site	Sector	Feeder	Operator
900351	NA	NA	T BELL

TEST PARAMETERS

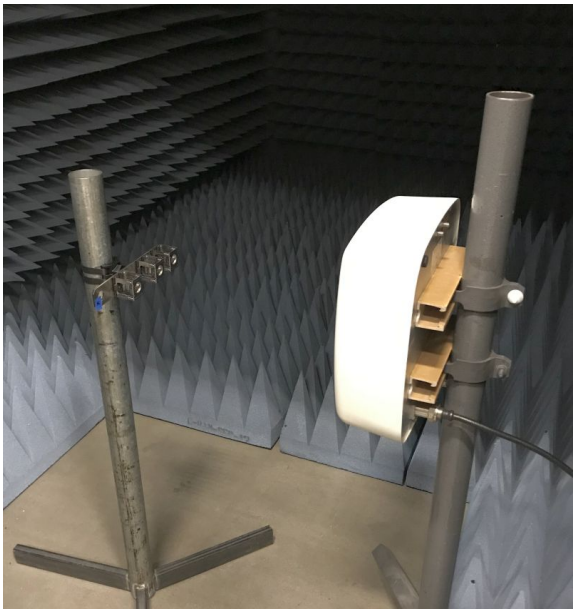
Tone 1 Frequency	Tone 2 Frequency	IM3 Frequency
1930.0 MHz	1990.0 MHz	1870.0 MHz

TEST RESULTS

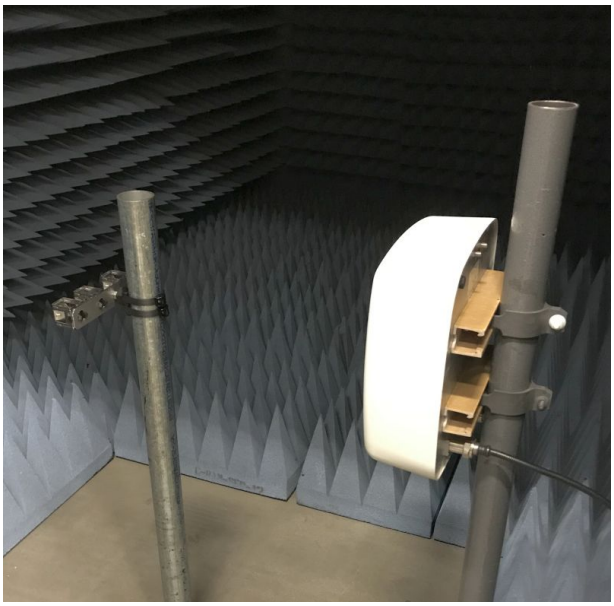
Test Point	Time	P1 P2	PIM Threshold	PIM	Peak PIM	Result
1900 RES P45	2019-01-25 05:22	43.0 dBm 43.0 dBm	-100.0 dBm	-121.3 dBm	-120.9 dBm	Pass
1900 FRONT P45	2019-01-25 05:25	43.0 dBm 43.0 dBm	-100.0 dBm	-118.9 dBm	-113.2 dBm	Pass
1900 R SIDE P45	2019-01-25 05:28	43.0 dBm 43.0 dBm	-100.0 dBm	-114.9 dBm	-111.9 dBm	Pass
1900 L SIDE P45	2019-01-25 05:30	43.0 dBm 43.0 dBm	-100.0 dBm	-110.9 dBm	-110.4 dBm	Pass
1900 BACK P45	2019-01-25 05:31	43.0 dBm 43.0 dBm	-100.0 dBm	-115.4 dBm	-111.3 dBm	Pass
1900 BACK P45 2	2019-01-25 05:34	43.0 dBm 43.0 dBm	-100.0 dBm	-117.3 dBm	-112.6 dBm	Pass
1900 RES M45	2019-01-25 05:36	43.0 dBm 43.0 dBm	-100.0 dBm	-111.6 dBm	-110.9 dBm	Pass
1900 FRONT M45	2019-01-25 05:38	43.0 dBm 43.0 dBm	-100.0 dBm	-109.9 dBm	-109.1 dBm	Pass
1900 R SIDE M45	2019-01-25 05:44	43.0 dBm 43.0 dBm	-100.0 dBm	-108.1 dBm	-106.7 dBm	Pass
1900 L SIDE M45	2019-01-25 05:46	43.0 dBm 43.0 dBm	-100.0 dBm	-111.8 dBm	-111.4 dBm	Pass
1900 BACK M45	2019-01-25 05:48	43.0 dBm 43.0 dBm	-100.0 dBm	-110.2 dBm	-110.1 dBm	Pass
1900 BACK M45 2	2019-01-25 05:49	43.0 dBm 43.0 dBm	-100.0 dBm	-110.5 dBm	-109.9 dBm	Pass

Model	Serial Number	Calibration Due	SW/FW Versions
iQA-1921B	TX2112700053	24 May 2019	2.10.0/2.2.0

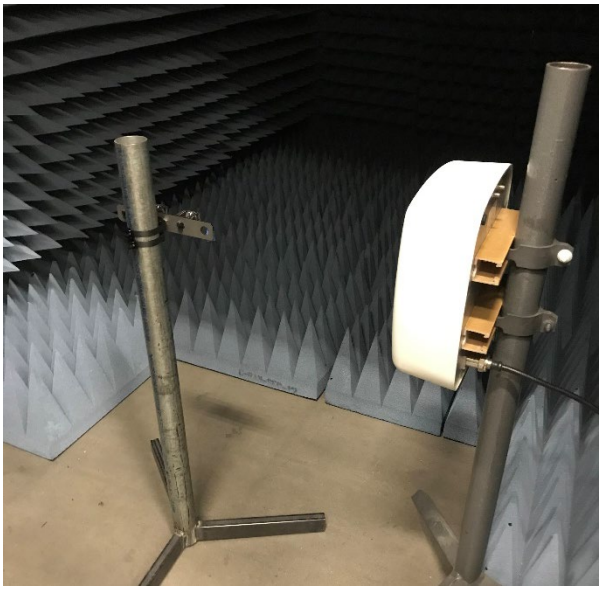
Test set-up photos 700 MHz:



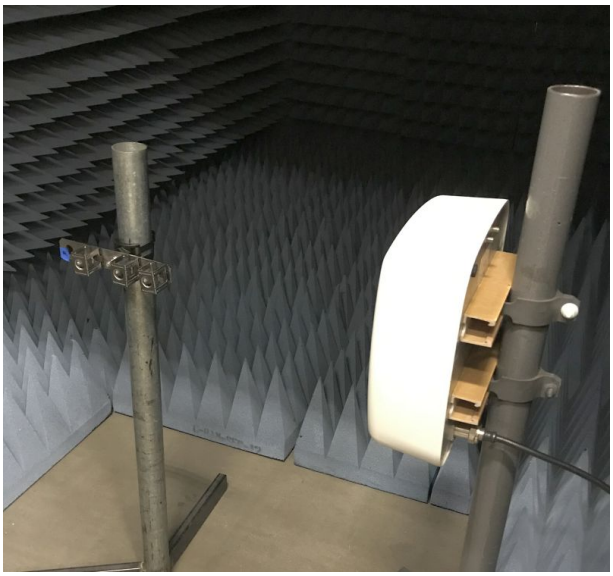
FRONT



BACK



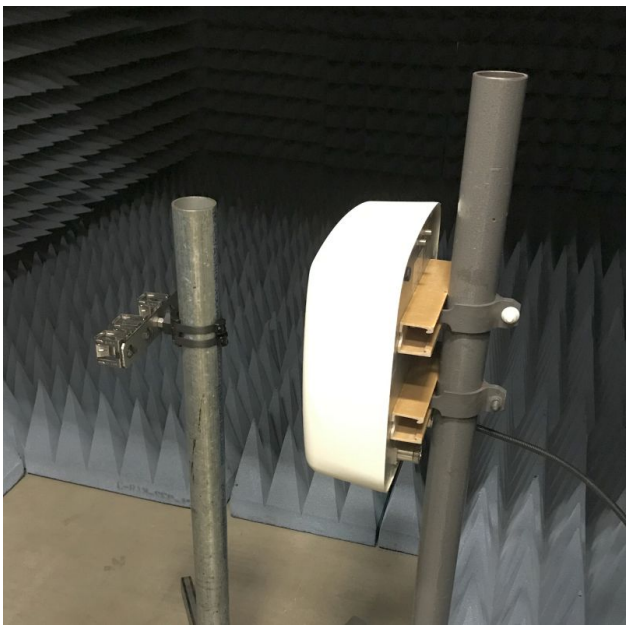
RIGHT SIDE



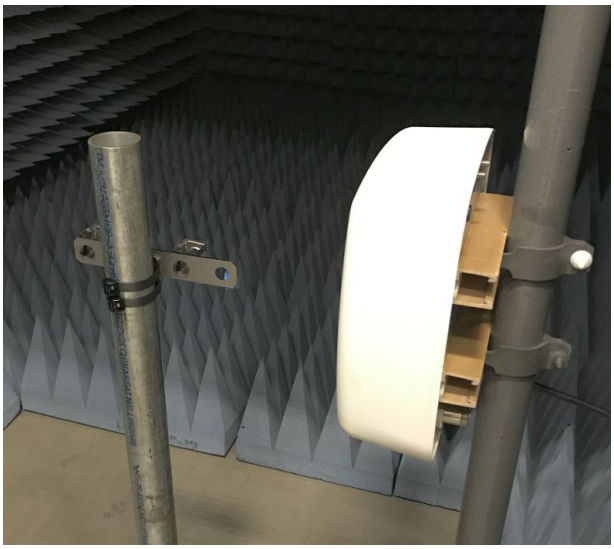
LEFT SIDE

Test set-up photos 1900 MHz:

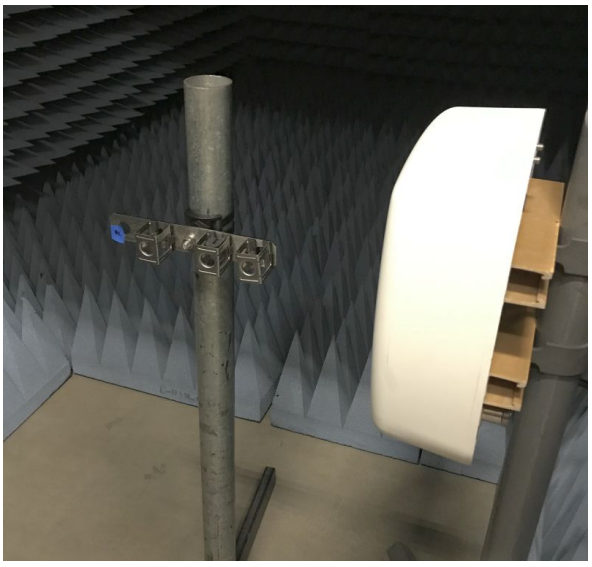
FRONT



BACK



RIGHT SIDE



LEFT SIDE