

February 17th, 2015

Subject: Antenna Kitting
FCC ID: 2ADWW-CMB215

The antenna options for Sugarland Holdings Group LLC signal booster FCC model FCC ID: 2ADWW-CMB215 were tested for (11) Internal antenna kitting options and (12) External antenna kitting options for sale with this booster.

The kitting options for interior and exterior antennas are listed below

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Mobile External Antenna Kitting Configurations

1. EMM- 6321 Magnetic Mount w/12ft RG58 Cable
2. ELPN - 5822 Low Profile w/ 12 ft RG 174U Cable
3. EWM - 4323 Window Mount w/10ft RG 58 Cable
4. E4MM - 6324 Magnetic Mount V2 w/12 ft cable
5. EHPMM - 5856 HP Low Profile w/12 ft RG174U Cable
6. ETA - 3162 Trucker w/ 10ft RG58 Cable
7. ESTA - 3122 Trucker V2 W/15ft RG58 Cable

Fixed External Antenna Kitting Configurations

1. FY9E - 7230 Yagi w/ 25ft RG 58 cable
2. FY14E - 7231 Yagi V2 w/ 25ft RG 58 cable
3. O32A - 8882 Omni Directional w/ 25ft RG 58 cable
4. O18A - 8889 Omni Directional V2 w/ 25ftRG 58 cable
5. O8A - 8883 Omni Directional V3 w/ 25ft RG 58 cable

Mobile Internal Antenna Kitting Configurations

1. IBA - 0321 Blade w/ 10ft RG 174 Cable
2. IPA - 0544 Patch w/10 ft RG 174 Cable
3. ILPOA - 1954 Low Profile Omni w/25ft RG 58 Cable
4. IDC -7972 Direct Connect (no cable)
5. IDA - 9953 Dome Omni w/25ft RG 58 Cable
6. IDA2 - 9969 Dome v2 Omni w/25ft RG 58 Cable

Fixed Internal Antenna Kitting Configurations

1. IPA - 8734 Panel Directional w/ 50ft RG 58
2. IPA- 0544 Panel V2 Directional w/ 50ft RG 58
3. IDA - 9953 Dome Omni w/ 25ft RG58
4. IDA2 - 9969 Dome V2 Omni w/ 25ft RG58
5. IDC -7972 Direct Connect (no cable)

Conducted Output & Gain Power

	698-716	776-787	824-849	1710-1755	1850-1915
Uplink / Downlink Frequency (MHz)					
Downlink Output Power (dBm)	14.90	15.24	15.44	16.01	11.65
Uplink Output Power (dBm)	26.51	25.51	25.25	25.64	25.32
Measured Up-Link Gain (dB)	49.11	49.27	49.15	49.04	48.82

Up-Link Frequency Band (MHz)	698-716	777-787	824-849	1710-1755	1850-1915
Measured Up-Link Gain (dB)	49.11	49.27	49.15	49.04	48.82
Measured RSSI Shut-Off (dBm/MHz)	-53.00	-53.00	-50.00	-46.00	-50.00
MSCL Minimum (dB)	29.68	30.56	31.14	37.47	38.19
1.5' Separation Distance Path Loss (dB)	22.68	23.56	24.14	30.47	31.19
Polarity Loss	3.00	3.00	3.00	3.00	3.00
Max Antenna Gain Less Cable Loss (dB)	0.88	0.73	0.75	0.96	1.18

Up-Link Frequency Band (MHz)	698-716	777-787	824-849	1710-1755	1850-1915
Measured Up-Link Gain (dB)	49.11	49.27	49.15	49.04	48.82
Measured RSSI Shut-Off (dBm/MHz)	-53.00	-53.00	-50.00	-46.00	-50.00
MSCL Minimum (dB)	41.70	42.57	43.15	49.48	50.20
6.0' Separation Distance Path Loss (dB)	34.70	35.57	36.15	42.48	43.20
Polarity Loss	3.00	3.00	3.00	3.00	3.00
Max Antenna Gain Less Cable Loss (dB)	0.88	0.73	0.75	0.96	1.18

Conducted Downlink / Uplink Power

	698-716	776-787	824-849	1710-1755	1850-1915
Uplink / Downlink Frequency (MHz)					
Downlink Output Power (dBm)	26.51	25.51	25.25	25.64	25.32
Uplink Output Power (dBm)	14.90	15.24	15.44	16.01	11.65

Mobile External Kitting Configurations

1. EMM- 6321 Magnetic Mount w/12ft RG58 DS Cable

Antenna Gain (dBI)	2.12	1.34	1.47	2.21	3.77
Coax Cable Loss (dB)	2.88	4.31	3.91	3.97	3.54
Final Antenna Gain less Loss (dB)	-0.76	-2.97	-2.44	-1.76	0.23
Downlink Output Power EIRP (dBm)	25.75	22.54	22.81	23.88	25.55
Uplink Output Power EIRP (dBm)	14.14	12.27	13.00	14.25	11.88

2. ELPN - 5822 Low Profile w/12 ft RG 58 DS Cable

Antenna Gain (dBI)	1.23	1.54	1.77	2.56	3.99
Coax Cable Loss (dB)	2.71	4.21	3.77	3.61	3.93
Final Antenna Gain less Loss (dB)	-1.48	-2.67	-2	-1.05	0.06
Downlink Output Power EIRP (dBm)	25.03	22.84	23.25	24.59	25.38
Uplink Output Power EIRP (dBm)	13.42	12.57	13.44	14.96	11.71

3. EWM - 4323 Window Mount w/12ft RG 58 Cable

Antenna Gain (dBI)	2.19	2.72	3.88	3.34	2.47
Coax Cable Loss (dB)	3.71	3.21	2.98	2.87	3.65
Final Antenna Gain less Loss (dB)	-1.52	-0.49	0.9	0.47	-1.18
Downlink Output Power EIRP (dBm)	24.99	25.02	26.15	26.11	24.14
Uplink Output Power EIRP (dBm)	13.38	14.75	16.34	16.48	10.47

4. E4MM - 6324 Magnetic Mount V2 w/12 ft RG 58 Cable

Antenna Gain (dBI)	3.88	3.71	2.88	4.59	5.01
Coax Cable Loss (dB)	2.86	4.32	3.87	4.01	3.61
Final Antenna Gain less Loss (dB)	1.02	-0.61	-0.99	0.58	1.40
Downlink Output Power EIRP (dBm)	27.53	24.9	24.26	26.22	26.72
Uplink Output Power EIRP (dBm)	15.92	14.63	14.45	16.59	13.05

5. EHPMM - 5856 HP Low Profile w/10 ft RG174 DS Cable

Antenna Gain (dBI)	2.21	2.22	2.56	3.87	4.01
Coax Cable Loss (dB)	2.43	2.77	3.24	3.57	3.66
Final Antenna Gain less Loss (dB)	-0.22	-0.55	-0.68	0.30	0.35
Downlink Output Power EIRP (dBm)	26.29	24.96	24.57	25.94	25.67
Uplink Output Power EIRP (dBm)	14.68	14.69	14.76	16.31	12.00

6. ETA - 3162 Trucker Antenna w/ 12ft RG58 DS Cable

Antenna Gain (dBI)	5.93	5.54	4.29	3.60	2.11
Coax Cable Loss (dB)	3.87	3.57	3.34	2.76	2.88
Final Gain less Loss (dB)	2.06	1.97	0.95	0.84	-0.77
Downlink Output Power EIRP (dBm)	28.57	27.48	26.2	26.48	24.55
Uplink Output Power EIRP (dBm)	16.96	17.21	16.39	16.85	10.88

7. ESTA - 3122 Trucker V2 W/12ft RG58 DS Cable

Antenna Gain (dBI)	3.13	3.99	3.92	2.88	3.09
Coax Cable Loss (dB)	3.78	3.32	3.67	4.39	3.34
Final Gain less Loss (dB)	-0.65	0.67	0.25	-1.51	-0.25
Downlink Output Power EIRP (dBm)	25.86	26.18	25.5	24.13	25.07
Uplink Output Power EIRP (dBm)	14.25	15.91	15.69	14.50	11.40

Fixed External Kitting Configurations

1. FY9E - 7230 Yagi Antenna w/ 25ft RG 58 cable

Antenna Gain (dBI)	5.61	5.93	6.77	6.97	6.01
Coax Cable Loss (dB)	5.82	6.31	5.72	6.33	4.21
Final Gain less Loss (dB)	-0.21	-0.38	1.05	0.64	1.8
Downlink Output Power EIRP (dBm)	26.3	25.13	26.3	26.28	27.12
Uplink Output Power EIRP (dBm)	14.69	14.86	16.49	16.65	13.45

2. FY14E - 7231 Yagi Antenna V2 w/ 25ft RG 58 cable

Antenna Gain (dBI)	7.22	6.87	8.99	5.84	6.29
Coax Cable Loss (dB)	5.72	6.29	6.00	6.13	4.53
Final Gain less Loss (dB)	1.5	0.58	2.99	-0.29	1.76
Downlink Output Power EIRP (dBm)	28.01	26.09	28.24	25.35	27.08
Uplink Output Power EIRP (dBm)	16.40	15.82	18.43	15.72	13.41

3. O32A - 8882 Omni Antenna w/ 25ft RG 58 cable

Antenna Gain (dBI)	3.88	4.62	3.96	5.04	5.98
Coax Cable Loss (dB)	5.82	6.31	5.72	6.33	4.21
Final Gain less Loss (dB)	-1.94	-1.69	-1.76	-1.29	1.77
Downlink Output Power EIRP (dBm)	24.57	23.82	23.49	24.35	27.09
Uplink Output Power EIRP (dBm)	12.96	13.55	13.68	14.72	13.42

4. O18A - 8889 Omni Directional V2 w/ 25ftRG 58 cable

Antenna Gain (dBI)	4.65	5.21	5.03	3.04	3.92
Coax Cable Loss (dB)	5.71	5.79	4.79	6.01	4.21
Final Gain less Loss (dB)	-1.06	-0.58	0.24	-2.97	-0.29
Downlink Output Power EIRP (dBm)	25.45	24.93	25.49	22.67	25.03
Uplink Output Power EIRP (dBm)	13.84	14.66	15.68	13.04	11.36

5. O8A - 8883 Omn Directional V3 w/ 25ft RG 58 cable

Antenna Gain (dBI)	2.65	3.21	2.89	2.04	3.07
Coax Cable Loss (dB)	4.87	5.89	5.55	6.02	4.33
Final Gain less Loss (dB)	-2.22	-2.68	-2.66	-3.98	-1.26
Downlink Output Power EIRP (dBm)	24.29	22.83	22.59	21.66	24.06
Uplink Output Power EIRP (dBm)	12.68	12.56	12.78	12.03	10.39

Mobile Internal Kitting Configurations

1. IBA-0321 Blade w/ 10ft RG 174 Cable

Antenna Gain (dBI)	2.78	2.91	1.77	1.33	0.94
Coax Cable Loss (dB)	3.73	3.69	4.55	4.09	4.01
Final Gain less Loss (dB)	-0.95	-0.78	-2.78	-2.76	-3.07
Downlink Output Power EIRP (dBm)	25.56	24.73	22.47	22.88	22.25
Uplink Output Power EIRP (dBm)	13.95	14.46	12.66	13.25	8.58

2. IPA-0544 Patch w/10 ft RG 174 Cable

Antenna Gain (dBI)	1.36	1.53	1.01	2.83	3.11
Coax Cable Loss (dB)	3.52	3.62	4.55	4.09	4.65
Final Gain less Loss (dB)	-2.16	-2.09	-3.54	-1.26	-1.54
Downlink Output Power EIRP (dBm)	24.35	23.42	21.71	24.38	23.78
Uplink Output Power EIRP (dBm)	12.74	13.15	11.90	14.75	10.11

3. ILPOA-1954 Low Profile Omni w/25ft RG 58 Cable

Antenna Gain (dBI)	3.21	2.85	1.99	2.54	2.16
Coax Cable Loss (dB)	4.91	3.91	4.30	4.20	4.16
Final Gain less Loss (dB)	-1.70	-1.06	-2.31	-1.66	-2.00
Downlink Output Power EIRP (dBm)	24.81	24.45	22.94	23.98	23.32
Uplink Output Power EIRP (dBm)	13.20	14.80	13.13	14.35	9.65

Antenna Gain (dBI)	1.41	1.36	1.57	2.47	2.88
Coax Cable Loss (dB)	0.24	0.39	0.40	0.43	0.39
Final Gain less Loss (dB)	1.17	0.97	1.17	2.04	2.49
Downlink Output Power EIRP (dBm)	27.68	26.48	26.42	27.68	27.81
Uplink Output Power EIRP (dBm)	16.07	16.21	16.61	18.05	14.14

5. IDA - 9953 Dome Omni w/25ft RG 58 Cable

Antenna Gain (dBI)	3.33	3.74	5.01	6.14	5.79
Coax Cable Loss (dB)	4.58	5.01	5.43	7.1	7.45
Final Antenna Gain less Loss (dB)	-1.25	-1.27	-0.42	-0.96	-1.66
Downlink Output Power EIRP (dBm)	25.26	24.24	24.83	24.68	23.66
Uplink Output Power EIRP (dBm)	13.65	13.97	15.02	15.05	9.99

6. IDA2 - 9969 Dome v2 Omni w/25ft RG 58 Cable

Antenna Gain (dBI)	4.38	3.99	3.76	3.98	4.79
Coax Cable Loss (dB)	5.21	5.67	4.89	6.32	6.31
Final Antenna Gain less Loss (dB)	-0.83	-1.68	-1.13	-2.34	-1.52
Downlink Output Power EIRP (dBm)	25.68	23.83	24.12	23.30	23.80
Uplink Output Power EIRP (dBm)	14.07	13.56	14.31	13.67	10.13

Fixed Internal Kitting Configurations

1. IPA - 8734 Panel Directional Antenna w/ 50ft RG 58

Antenna Gain (dBI)	5.37	6.52	7.58	6.67	6.89
Coax Cable Loss (dB)	6.35	6.87	8.21	7.94	8.31
Final Gain less Loss (dB)	-0.98	-0.35	-0.63	-1.27	-1.42
Downlink Output Power EIRP (dBm)	25.53	25.16	24.62	24.37	23.90
Uplink Output Power EIRP (dBm)	13.92	14.89	14.81	14.74	10.23

2. IPA- 0544 Panel Directional Antenna w/ 50ft RG 58

Antenna Gain (dBI)	4.37	4.51	6.58	6.46	6.67
Coax Cable Loss (dB)	6.29	6.81	7.77	7.91	8.18
Final Gain less Loss (dB)	-1.92	-2.30	-1.19	-1.45	-1.51
Downlink Output Power EIRP (dBm)	24.59	23.21	24.06	24.19	23.81
Uplink Output Power EIRP (dBm)	12.98	12.94	14.25	14.56	10.14

3. IDA - 9953 Dome Omni Antenna w/ 25ft RG58

Antenna Gain (dBI)	3.33	3.74	5.01	6.14	5.79
Coax Cable Loss (dB)	4.58	5.01	5.43	7.02	7.19
Final Antenna Gain less Loss (dB)	-1.25	-1.27	-0.42	-0.88	-1.40
Downlink Output Power EIRP (dBm)	25.26	24.24	24.83	24.76	23.92
Uplink Output Power EIRP (dBm)	13.65	13.97	15.02	15.13	10.25

4. IDA2 - 9969 Dome V2 Omni Antenna w/ 25ft RG58

Antenna Gain (dBI)	4.38	3.99	3.76	3.98	4.79
Coax Cable Loss (dB)	4.78	5.03	5.40	7.10	7.45
Final Antenna Gain less Loss (dB)	-0.40	-1.04	-1.64	-3.12	-2.66
Downlink Output Power EIRP (dBm)	26.11	24.47	23.61	22.52	22.66
Uplink Output Power EIRP (dBm)	14.50	14.20	13.80	12.89	8.99

5. IDC -7972 Direct Connect

Antenna Gain (dBI)	1.41	1.36	1.57	2.47	2.88
Coax Cable Loss (dB)	0.24	0.39	0.40	0.43	0.39
Final Gain less Loss (dB)	1.17	0.97	1.17	2.04	2.49
Downlink Output Power EIRP (dBm)	27.03	27.15	26.67	26.17	27.56
Uplink Output Power EIRP (dBm)	15.42	16.88	16.86	16.54	13.89