

Device installation report for FCC U-NII-1 band (5.15- 5.25GHz) compliance

The Federal Communications Commission (FCC) established new rules for the 5.15 – 5.25 GHz U-NII-1 band in the Report and Order FCC-14-30A1, which would be effective from 2nd June, 2014. With the help of professional installation, all the Proxim devices can be configured to comply with the power requirements set in the rules. For an angle of elevation which is above 30 degrees, the maximum EIRP limit should be set to 125mW (21 dBm). The compliance can be achieved through proper selection of antenna, angle of installation, and Tx power control. The appropriate selection of these parameters avoids the transmission interference between the authorized devices of the users and also in the co-channel NGSO/MSS operations.

- Proxim devices such as BSUs (Base Station Units)/ SUs (Subscriber Units) are installed by professional installers to work in fixed outdoor configurations.
- These devices are in general mounted on a tower, roof, or at a place above the street level; therefore, it implies that all Proxim devices whether they have an external antenna or an integrated antenna support vertical alignment to achieve downward tilt.
- All devices support TPC (Transmit Power Control) configuration with a range of (0 – 21dB*) that allows professional installers to lower the power when necessary.

Note: * Transmit power control varies with the product type and specific modulation.

The antenna/devices located at different altitudes should be tilted at the correct angle to transmit/receive the signals effectively; thus, it optimizes the transmission and reception of signals between the devices in the wireless network. The Figure 1.1 below shows the antenna tilt and its importance when the successive devices are at different elevations above the ground.



Fig 1.1 Typical installation showing device/antenna tilt angle

FCC ID	Device Models
HZB-PROXMB82	MP-8100-BSU MP-8100-SUA MP-8150-SUR MP-8150-SUR-100 QB-8100-EPA/LNK QB-8150-EPR/LNK QB-8150-LNK-100 QB-8151-EPR/LNK MP-8150-CPE QB-8150-LNK-12/50
HZB-XB92WFR HZB-XB92WLE	MP-820-BSU-100 MP-825-BS3-100 MP-820-SUA-50+ MP-820-SUA-100 MP-825-SUR-50+ MP-825-SUR-100 MP-825-CPE-50 MP-825-CPE-100 QB-825-EPR / LNK-50+ QB-825-EPR / LNK-50
HZB-MB83HP5	MP-8200-BSU MP-8250-BS9 MP-8250-BS1 MP-8200-SUA MP-8250-SUR QB-8200-EPA / LNK QB-8250-EPR / LNK

Table 1: FCC IDs for Proxim Products

Maximum EIRP at any elevation angle greater than 30°

1. FCC ID: HZB-PROXMB82

Antenna Model No: MA-WA55-30

Gain: 30dBi

Antenna Type: Panel Antenna, Linear Polarization (Vertical or Horizontal), 5° Bandwidth

Mode	Bandwidth (MHz)	Frequency (MHz)	Setting	Maximum Conducted Output Power (dBm)	Attenuator (dB)	Cable loss (dB)	Elevation angle above 30° Max gain (dBi)	Elevation angle above 30° Max EIRP (dBm)	Limit (dBm)	Complies
Configuration IEEE 802.11a	5	5180	14.5	20.57	20.00	2.00	4.046	2.62	21	Pass
		5210	15	20.52	20.00	2.00	4.046	2.57	21	Pass
		5240	15.5	20.51	20.00	2.00	4.046	2.56	21	Pass
Configuration IEEE 802.11n	5	5180	14.5	20.53	20.00	2.00	4.046	2.58	21	Pass
		5210	15	20.59	20.00	2.00	4.046	2.63	21	Pass
		5240	15.5	20.53	20.00	2.00	4.046	2.58	21	Pass
Configuration IEEE 802.11a	10	5180	17.5	23.14	20.00	2.00	4.046	5.19	21	Pass
		5210	18.5	23.50	20.00	2.00	4.046	5.55	21	Pass
		5240	19	23.55	20.00	2.00	4.046	5.60	21	Pass
Configuration IEEE 802.11n	10	5180	18	23.50	20.00	2.00	4.046	5.55	21	Pass
		5210	18.5	23.47	20.00	2.00	4.046	5.51	21	Pass
		5240	19	23.52	20.00	2.00	4.046	5.57	21	Pass
Configuration IEEE 802.11a	20	5180	17.5	23.14	20.00	2.00	4.046	5.19	21	Pass
		5200	20	25.07	20.00	2.00	4.046	7.12	21	Pass
		5240	20	24.82	20.00	2.00	4.046	6.86	21	Pass
Configuration IEEE 802.11n	20	5180	17.5	23.23	20.00	2.00	4.046	5.27	21	Pass
		5200	20	24.94	20.00	2.00	4.046	6.99	21	Pass
		5240	20	24.76	20.00	2.00	4.046	6.81	21	Pass
Configuration IEEE 802.11n	40	5190	14.5	19.61	20.00	2.00	4.046	1.65	21	Pass
		5230	20	25.08	20.00	2.00	4.046	7.13	21	Pass

Table 2: Maximum EIRP values at an angle greater than 30 deg for the Antenna model "MA-WA55-30" with FCC ID "HZB-PROXMB82"

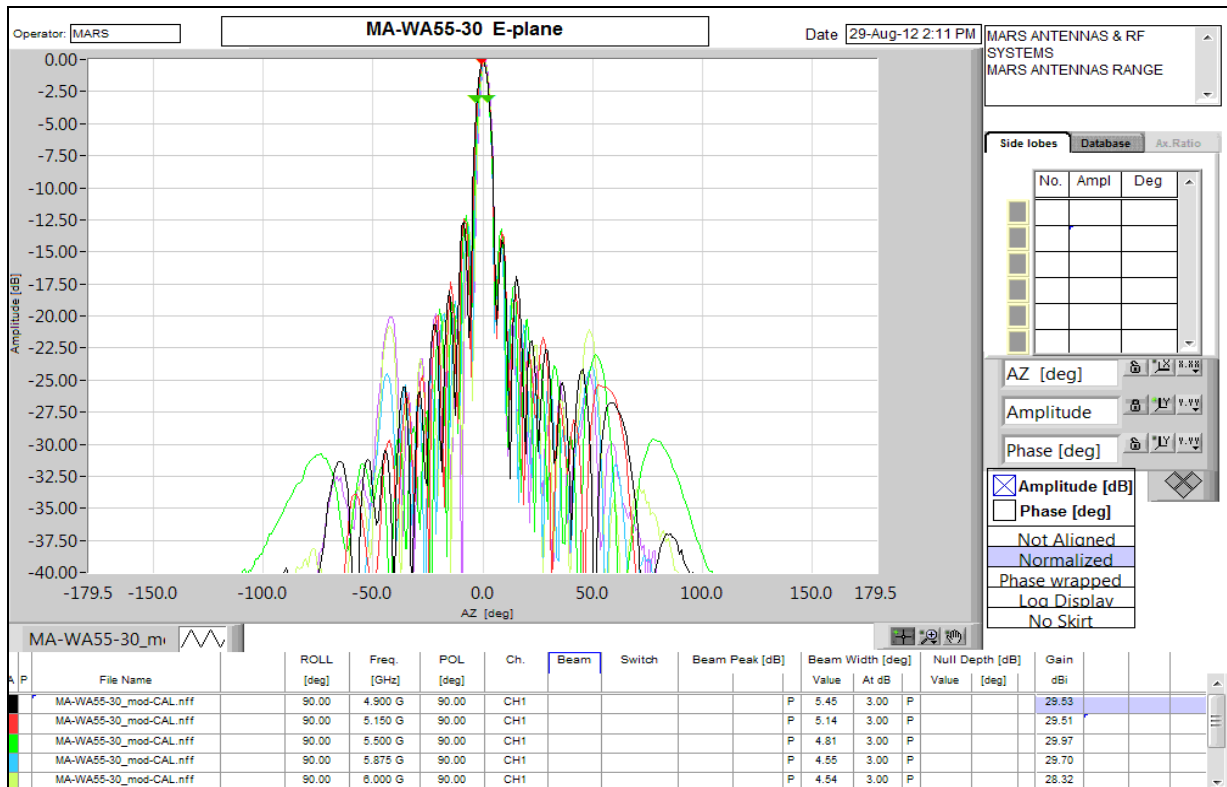


Figure 1: Radiation pattern for the Antenna Model "MA-WA55-30, E-plane"

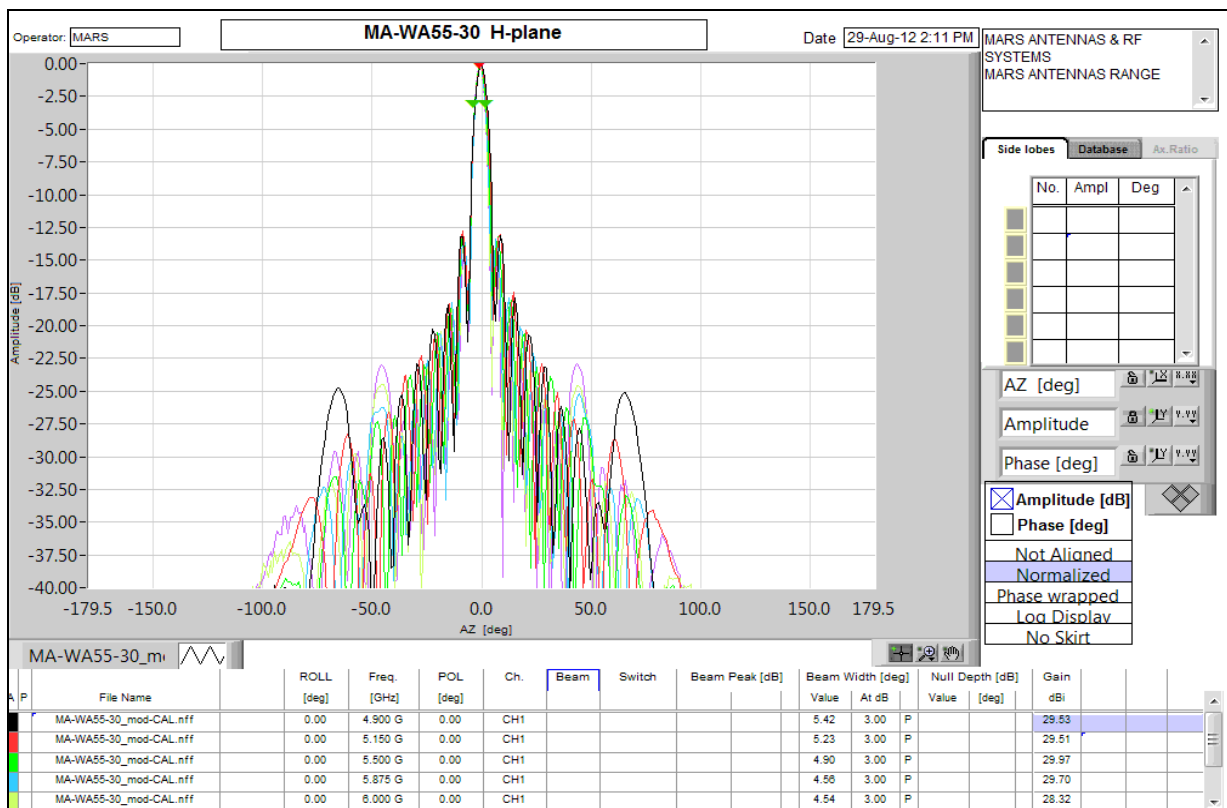


Figure 2: Radiation pattern for the Antenna Model "MA-WA55-30, H-plane"

Antenna Model No: MA-WB55-20

Gain: 20dBi

Antenna Type: Sector Antenna, Linear Polarization (Vertical)

Mode	Bandwidth (MHz)	Frequency (MHz)	Setting	Maximum Conducted Output Power (dBm)	Attenuator (dB)	Cable loss (dB)	Elevation angle above 30° Max gain (dBi)	Elevation angle above 30° Max EIRP (dBm)	Limit (dBm)	Complies
Configuration IEEE 802.11a	5	5180	14.5	20.57	10.00	2.00	-1.589	6.99	21	Pass
		5210	15	20.52	10.00	2.00	-1.589	6.93	21	Pass
		5240	15.5	20.51	10.00	2.00	-1.589	6.92	21	Pass
Configuration IEEE 802.11n	5	5180	14.5	20.53	10.00	2.00	-1.589	6.94	21	Pass
		5210	15	20.59	10.00	2.00	-1.589	7.00	21	Pass
		5240	15.5	20.53	10.00	2.00	-1.589	6.94	21	Pass
Configuration IEEE 802.11a	10	5180	18	23.52	10.00	2.00	-1.589	9.93	21	Pass
		5210	18.5	23.50	10.00	2.00	-1.589	9.91	21	Pass
		5240	19	23.55	10.00	2.00	-1.589	9.96	21	Pass
Configuration IEEE 802.11n	10	5180	18	23.50	10.00	2.00	-1.589	9.91	21	Pass
		5210	18.5	23.47	10.00	2.00	-1.589	9.88	21	Pass
		5240	19	23.52	10.00	2.00	-1.589	9.93	21	Pass
Configuration IEEE 802.11a	20	5180	15	20.80	10.00	2.00	-1.589	7.22	21	Pass
		5200	20	25.07	10.00	2.00	-1.589	11.49	21	Pass
		5240	20	24.82	10.00	2.00	-1.589	11.23	21	Pass
Configuration IEEE 802.11n	20	5180	15	20.25	10.00	2.00	-1.589	6.66	21	Pass
		5200	20	24.94	10.00	2.00	-1.589	11.35	21	Pass
		5240	20	24.76	10.00	2.00	-1.589	11.17	21	Pass
Configuration IEEE 802.11n	40	5190	10	15.07	10.00	2.00	-1.589	1.48	21	Pass
		5230	18.5	23.55	10.00	2.00	-1.589	9.96	21	Pass

Table 3: Maximum EIRP values at an angle greater than 30 deg for the Antenna Model "MA-WB55-20" with FCC ID "HZB-PROXMB82"

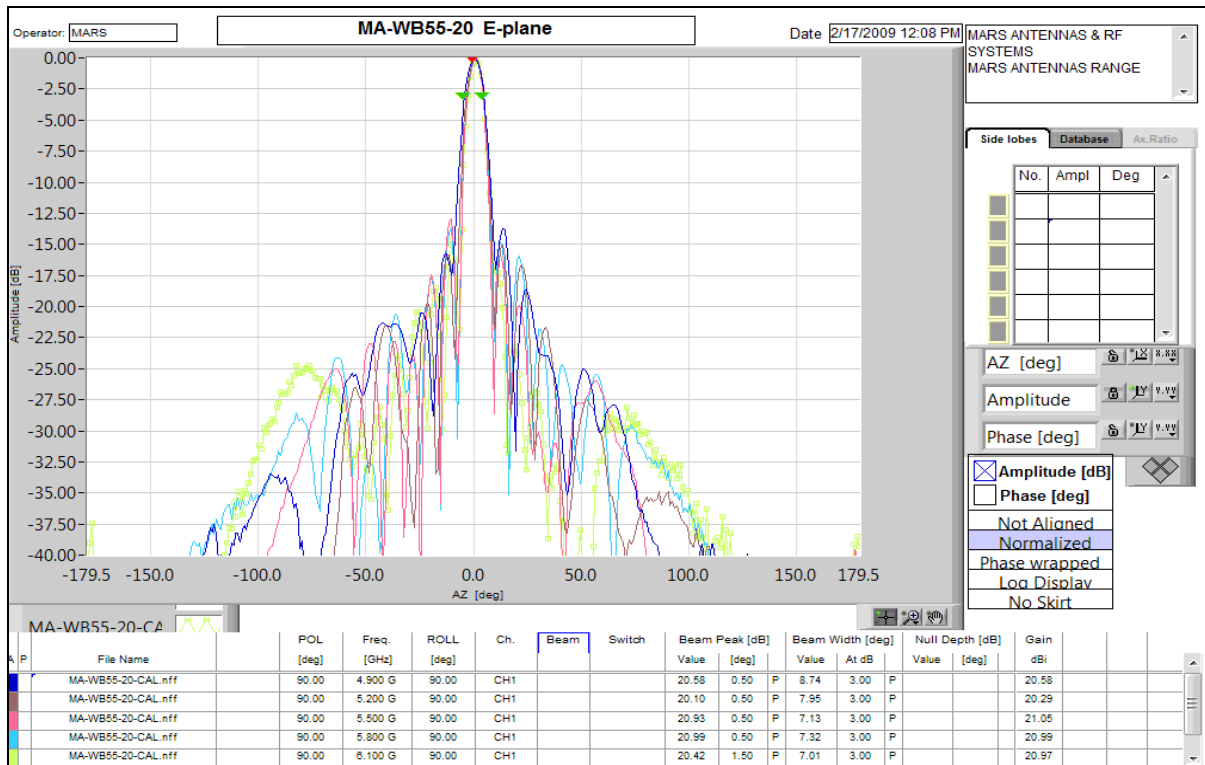


Figure 3: Radiation pattern for the Antenna Model "MA-WB55-30, E-plane"

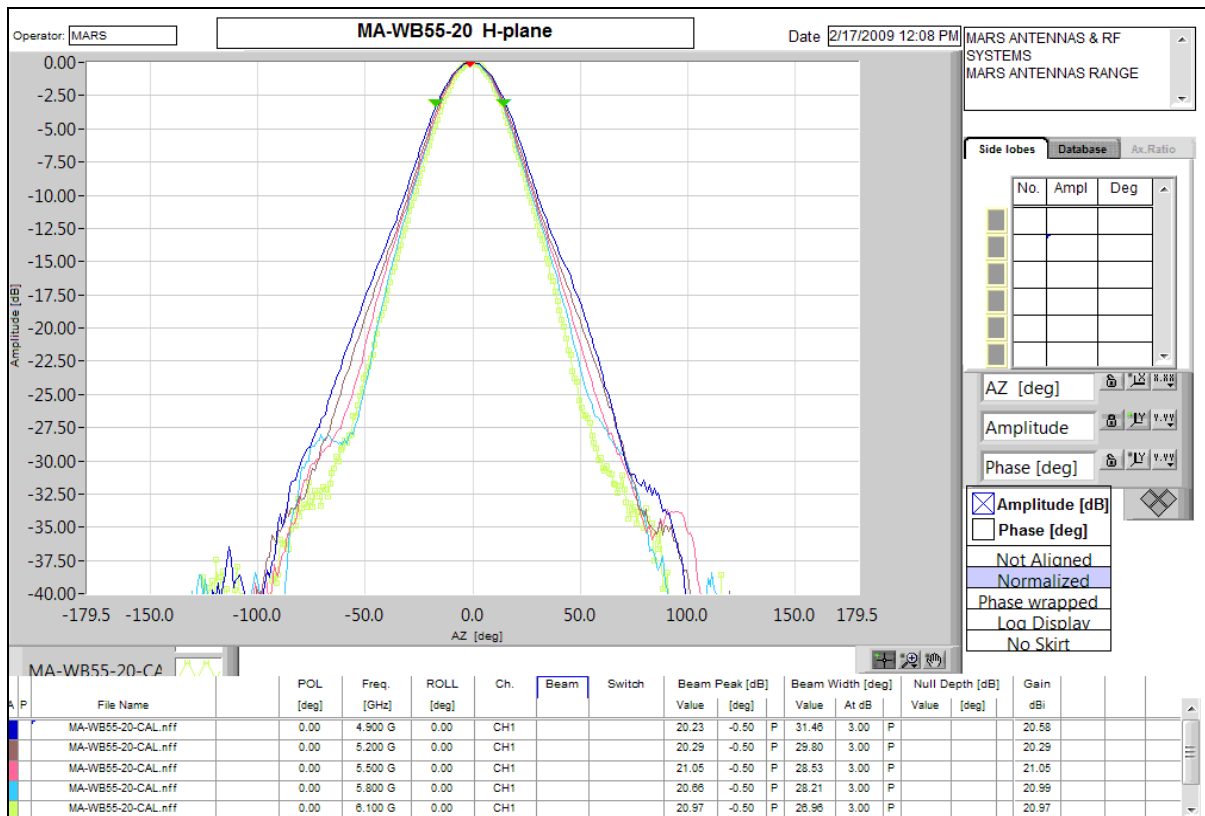


Figure 4: Radiation pattern for the Antenna Model "MA-WB55-20, H-plane"

Antenna Model No: SAA08-220570

Gain: 10dBi

Antenna Type: Omni Antenna

Mode	Bandwidth (MHz)	Frequency (MHz)	Setting	Maximum Conducted Output Power (dBm)	Attenuator (dB)	Cable loss (dB)	Elevation angle above 30° Max gain (dBi)	Elevation angle above 30° Max EIRP (dBm)	Limit (dBm)	Complies
Configuration IEEE 802.11a	5	5180	12	17.53	0.00	2.00	-2.725	12.80	21	Pass
		5210	12.5	17.50	0.00	2.00	-2.725	12.78	21	Pass
		5240	13	17.61	0.00	2.00	-2.725	12.89	21	Pass
Configuration IEEE 802.11n	5	5180	12	17.56	0.00	2.00	-2.725	12.84	21	Pass
		5210	12.5	17.53	0.00	2.00	-2.725	12.80	21	Pass
		5240	13	17.60	0.00	2.00	-2.725	12.88	21	Pass
Configuration IEEE 802.11a	10	5180	15	20.60	0.00	2.00	-2.725	15.88	21	Pass
		5210	15.5	20.55	0.00	2.00	-2.725	15.82	21	Pass
		5240	16	20.64	0.00	2.00	-2.725	15.91	21	Pass
Configuration IEEE 802.11n	10	5180	15	20.60	0.00	2.00	-2.725	15.87	21	Pass
		5210	15.5	20.50	0.00	2.00	-2.725	15.78	21	Pass
		5240	16	20.60	0.00	2.00	-2.725	15.87	21	Pass
Configuration IEEE 802.11a	20	5180	16.5	21.87	0.00	2.00	-2.725	17.14	21	Pass
		5200	18.5	23.51	0.00	2.00	-2.725	18.78	21	Pass
		5240	19	23.52	0.00	2.00	-2.725	18.79	21	Pass
Configuration IEEE 802.11n	20	5180	15.5	20.69	0.00	2.00	-2.725	15.96	21	Pass
		5200	19	23.51	0.00	2.00	-2.725	18.78	21	Pass
		5240	19	23.55	0.00	2.00	-2.725	18.82	21	Pass
Configuration IEEE 802.11n	40	5190	10.5	15.53	0.00	2.00	-2.725	10.81	21	Pass
		5230	19	23.81	0.00	2.00	-2.725	19.08	21	Pass

Table 4: Maximum EIRP values at an angle greater than 30 deg for the Antenna Model "SAA08-220570" with the FCC ID "HZB-PROXMB82"

2. FCC ID: HZB-XB92WFR

Antenna Model No: MA-WA55-30

Gain: 30dBi

Antenna Type: Panel Antenna, Linear Polarization (Vertical or Horizontal), 5° Bandwidth

Mode	Bandwidth (MHz)	Frequency (MHz)	Setting	Maximum Conducted Output Power (dBm)	Attenuator (dB)	Cable loss (dB)	Elevation angle above 30° Max gain (dBi)	Elevation angle above 30° Max EIRP (dBm)	Limit (dBm)	Complies
Configuration IEEE 802.11a	5	5180	9	14.38	20.00	2.00	4.046	-3.57	21	Pass
		5210	9	14.40	20.00	2.00	4.046	-3.55	21	Pass
		5240	9	14.40	20.00	2.00	4.046	-3.56	21	Pass
Configuration IEEE 802.11n	5	5180	9	14.42	20.00	2.00	4.046	-3.53	21	Pass
		5210	9	14.36	20.00	2.00	4.046	-3.59	21	Pass
		5240	9	14.28	20.00	2.00	4.046	-3.67	21	Pass
Configuration IEEE 802.11a	10	5180	11	16.90	20.00	2.00	4.046	-1.05	21	Pass
		5210	11.5	17.14	20.00	2.00	4.046	-0.81	21	Pass
		5240	11	16.41	20.00	2.00	4.046	-1.55	21	Pass
Configuration IEEE 802.11n	10	5180	11	16.79	20.00	2.00	4.046	-1.16	21	Pass
		5210	11.5	17.12	20.00	2.00	4.046	-0.84	21	Pass
		5240	11.5	16.76	20.00	2.00	4.046	-1.19	21	Pass
Configuration IEEE 802.11a	20	5180	11.5	17.22	20.00	2.00	4.046	-0.73	21	Pass
		5200	11.5	17.04	20.00	2.00	4.046	-0.92	21	Pass
		5240	12	17.16	20.00	2.00	4.046	-0.80	21	Pass
Configuration IEEE 802.11n	20	5180	11	16.75	20.00	2.00	4.046	-1.20	21	Pass
		5200	11.5	17.09	20.00	2.00	4.046	-0.87	21	Pass
		5240	12	17.13	20.00	2.00	4.046	-0.83	21	Pass
Configuration IEEE 802.11n	40	5190	8	13.90	20.00	2.00	4.046	-4.05	21	Pass
		5230	10.5	16.93	20.00	2.00	4.046	-1.02	21	Pass

Table 5: Maximum EIRP values at an angle greater than 30 deg for the Antenna Model "MA-WA55-30" with the FCC ID "HZB-XB92WFR"

Antenna Model No: [MA-WB55-20](#)

Gain: [20dBi](#)

Antenna Type: [Sector Antenna, Linear Polarization \(Vertical\)](#)

Mode	Bandwidth (MHz)	Frequency (MHz)	Setting	Maximum Conducted Output Power (dBm)	Attenuator (dB)	Cable loss (dB)	Elevation angle above 30° Max gain (dBi)	Elevation angle above 30° Max EIRP (dBm)	Limit (dBm)	Complies
Configuration IEEE 802.11a	5	5180	15	20.81	10.00	2.00	-1.589	7.22	21	Pass
		5210	15	20.67	10.00	2.00	-1.589	7.08	21	Pass
		5240	16	21.35	10.00	2.00	-1.589	7.76	21	Pass
Configuration IEEE 802.11n	5	5180	14.5	20.38	10.00	2.00	-1.589	6.79	21	Pass
		5210	14.5	20.27	10.00	2.00	-1.589	6.69	21	Pass
		5240	16.5	21.87	10.00	2.00	-1.589	8.28	21	Pass
Configuration IEEE 802.11a	10	5180	16	21.66	10.00	2.00	-1.589	8.07	21	Pass
		5210	16	21.65	10.00	2.00	-1.589	8.06	21	Pass
		5240	16.5	21.64	10.00	2.00	-1.589	8.05	21	Pass
Configuration IEEE 802.11n	10	5180	16	21.56	10.00	2.00	-1.589	7.97	21	Pass
		5210	15.5	20.88	10.00	2.00	-1.589	7.29	21	Pass
		5240	16.5	21.71	10.00	2.00	-1.589	8.12	21	Pass
Configuration IEEE 802.11a	20	5180	13.5	19.11	10.00	2.00	-1.589	5.53	21	Pass
		5200	16	21.31	10.00	2.00	-1.589	7.72	21	Pass
		5240	16.5	21.73	10.00	2.00	-1.589	8.14	21	Pass
Configuration IEEE 802.11n	20	5180	13	18.54	10.00	2.00	-1.589	4.96	21	Pass
		5200	16.5	21.90	10.00	2.00	-1.589	8.31	21	Pass
		5240	16.5	21.73	10.00	2.00	-1.589	8.14	21	Pass
Configuration IEEE 802.11n	40	5190	9	15.12	10.00	2.00	-1.589	1.53	21	Pass
		5230	14.5	21.01	10.00	2.00	-1.589	7.42	21	Pass

Table 6: Maximum EIRP values at an angle greater than 30 deg for the Antenna Model "MA-WB55-20" with the FCC ID "HZB-XB92WFR"

Antenna Model No: SAA08- 220570

Gain: 10dBi

Antenna Type: Omni Antenna

Mode	Bandwidth (MHz)	Frequency (MHz)	Setting	Maximum Conducted Output Power (dBm)	Attenuator (dB)	Cable loss (dB)	Elevation angle above 30° Max gain (dBi)	Elevation angle above 30° Max EIRP (dBm)	Limit (dBm)	Complies
Configuration IEEE 802.11a	5	5180	13.5	19.33	0.00	2.00	-2.725	14.60	21	Pass
		5210	13.5	19.27	0.00	2.00	-2.725	14.55	21	Pass
		5240	14	19.21	0.00	2.00	-2.725	14.48	21	Pass
Configuration IEEE 802.11n	5	5180	13.5	19.25	0.00	2.00	-2.725	14.52	21	Pass
		5210	13.5	19.31	0.00	2.00	-2.725	14.59	21	Pass
		5240	14	19.20	0.00	2.00	-2.725	14.48	21	Pass
Configuration IEEE 802.11a	10	5180	16	21.66	0.00	2.00	-2.725	16.93	21	Pass
		5210	15	20.57	0.00	2.00	-2.725	15.84	21	Pass
		5240	16	21.30	0.00	2.00	-2.725	16.58	21	Pass
Configuration IEEE 802.11n	10	5180	16.5	22.23	0.00	2.00	-2.725	17.50	21	Pass
		5210	14.5	19.96	0.00	2.00	-2.725	15.24	21	Pass
		5240	17	22.17	0.00	2.00	-2.725	17.44	21	Pass
Configuration IEEE 802.11a	20	5180	15.5	21.09	0.00	2.00	-2.725	16.36	21	Pass
		5200	15.5	20.97	0.00	2.00	-2.725	16.24	21	Pass
		5240	18.5	22.95	0.00	2.00	-2.725	18.23	21	Pass
Configuration IEEE 802.11n	20	5180	13.5	18.95	0.00	2.00	-2.725	14.23	21	Pass
		5200	16.5	21.90	0.00	2.00	-2.725	17.18	21	Pass
		5240	18.5	22.91	0.00	2.00	-2.725	18.19	21	Pass
Configuration IEEE 802.11n	40	5190	9.5	15.77	0.00	2.00	-2.725	11.04	21	Pass
		5230	15	21.47	0.00	2.00	-2.725	16.74	21	Pass

Table 7: Maximum EIRP values at an angle greater than 30 deg for the Antenna Model "SAA08-220570" with the FCC ID "HZB-XB92WFR"

Antenna Model No: GTT-AC-05-001

Gain: 16dBi

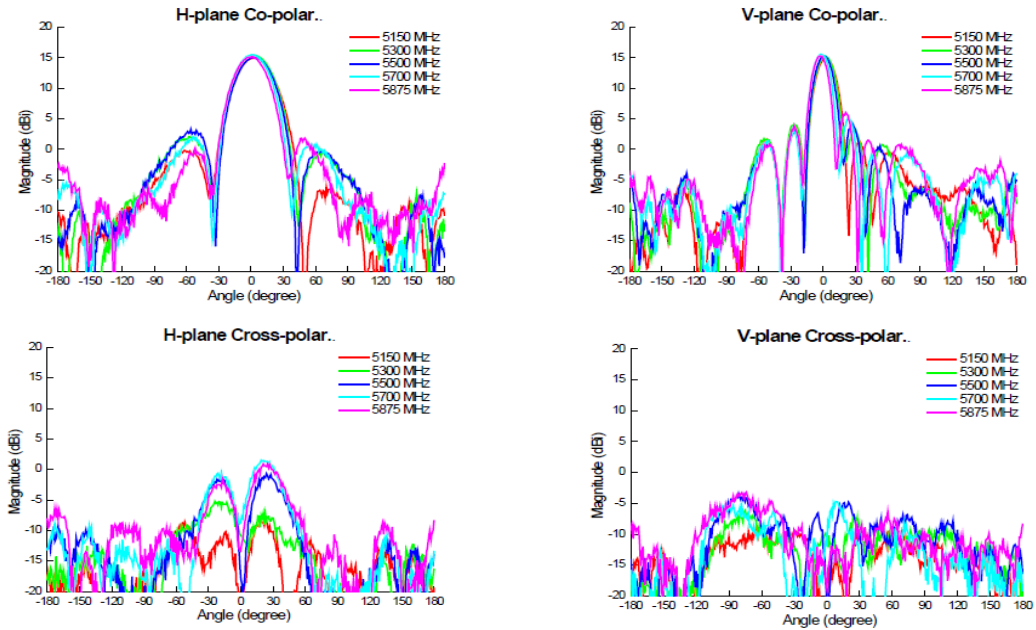
Antenna Type: Panel Antenna

Mode	Bandwidth (MHz)	Frequency (MHz)	Setting	Maximum Conducted Output Power (dBm)	Attenuator (dB)	Cable loss (dB)	Elevation angle above 30° Max gain (dBi)	Elevation angle above 30° Max EIRP (dBm)	Limit (dBm)	Complies
Configuration IEEE 802.11a	5	5180	9	14.38	0.00	0.00	2.146	16.53	21	Pass
		5210	9	14.40	0.00	0.00	2.146	16.55	21	Pass
		5240	9	14.40	0.00	0.00	2.146	16.54	21	Pass
Configuration IEEE 802.11n	5	5180	9	14.42	0.00	0.00	2.146	16.57	21	Pass
		5210	9	14.36	0.00	0.00	2.146	16.51	21	Pass
		5240	9	14.28	0.00	0.00	2.146	16.43	21	Pass
Configuration IEEE 802.11a	10	5180	11	16.90	0.00	0.00	2.146	19.05	21	Pass
		5210	11.5	17.14	0.00	0.00	2.146	19.29	21	Pass
		5240	11	16.41	0.00	0.00	2.146	18.55	21	Pass
Configuration IEEE 802.11n	10	5180	11	16.79	0.00	0.00	2.146	18.94	21	Pass
		5210	11.5	17.12	0.00	0.00	2.146	19.26	21	Pass
		5240	11.5	16.76	0.00	0.00	2.146	18.91	21	Pass
Configuration IEEE 802.11a	20	5180	11.5	17.22	0.00	0.00	2.146	19.37	21	Pass
		5200	11.5	17.04	0.00	0.00	2.146	19.18	21	Pass
		5240	12	17.16	0.00	0.00	2.146	19.30	21	Pass
Configuration IEEE 802.11n	20	5180	11	16.75	0.00	0.00	2.146	18.90	21	Pass
		5200	11.5	17.09	0.00	0.00	2.146	19.23	21	Pass
		5240	12	17.13	0.00	0.00	2.146	19.27	21	Pass
Configuration IEEE 802.11n	40	5190	8	13.90	0.00	0.00	2.146	16.05	21	Pass
		5230	10.5	16.93	0.00	0.00	2.146	19.08	21	Pass

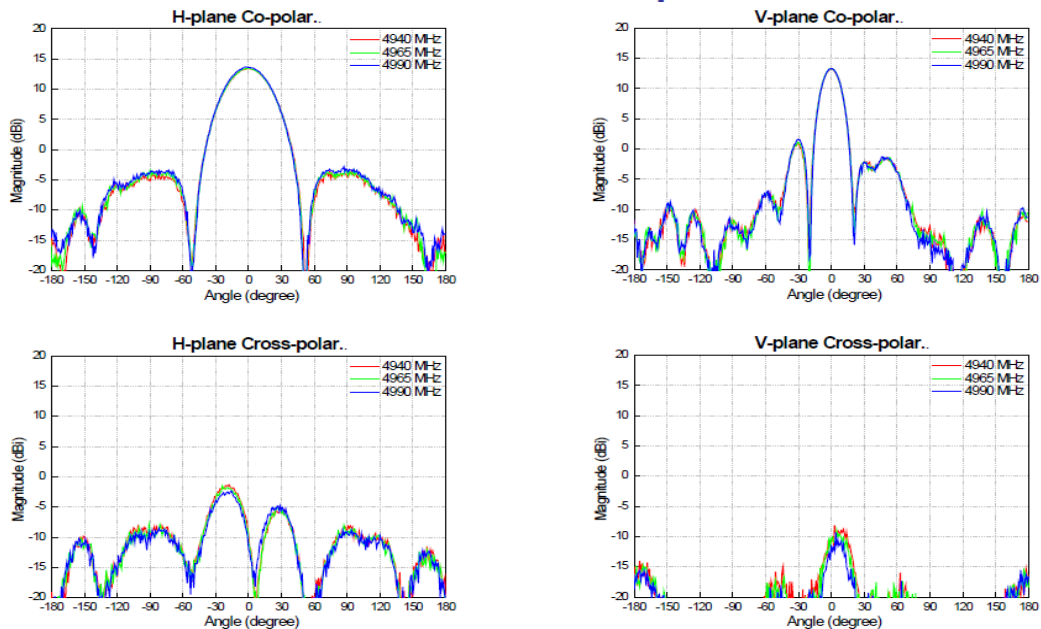
Table 8: Maximum EIRP values at an angle greater than 30 deg for the Antenna Model "GTT-AC-05-001" with the FCC ID "HZB-XB92WFR"

Radiation Patterns for GTT-AC-05-001 Model Antenna

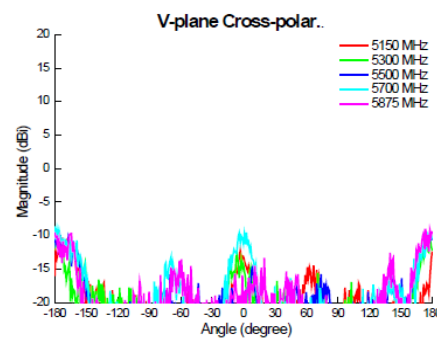
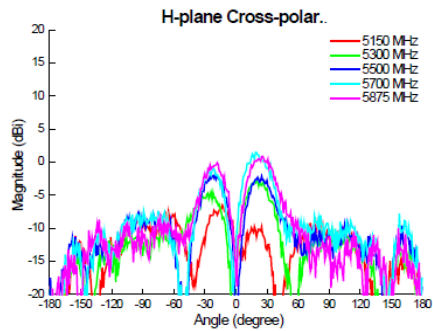
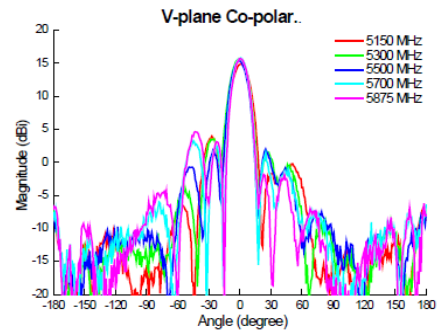
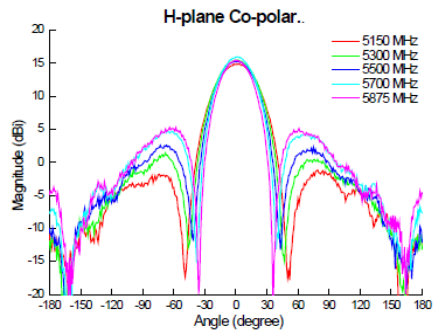
Radiation Pattern – H polar. Port



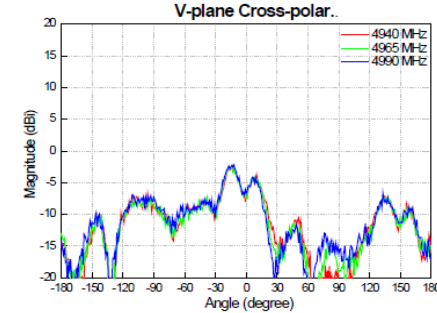
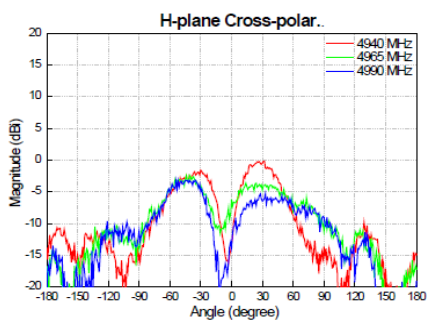
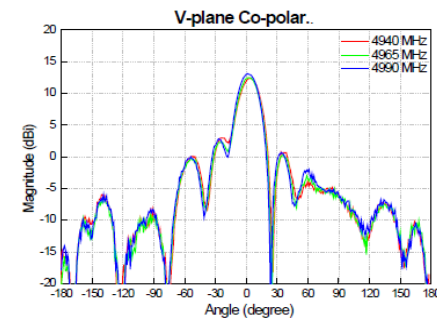
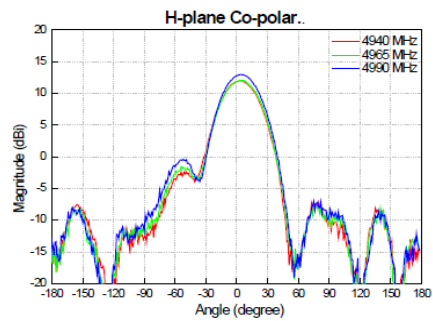
Radiation Pattern – H polar. Port



Radiation Pattern – V polar. Port



Radiation Pattern – H polar. Port



3. FCC ID: HZB-XB92WLE

Antenna Model No: MA-WA55-30

Gain: 30dBi

Antenna Type: Panel Antenna, Linear Polarization (Vertical or Horizontal), 5° Bandwidth

Mode	Bandwidth (MHz)	Frequency (MHz)	Setting	Maximum Conducted Output Power (dBm)	Attenuator (dB)	Cable loss (dB)	Elevation angle above 30° Max gain (dBi)	Elevation angle above 30° Max EIRP (dBm)	Limit (dBm)	Complies
Configuration IEEE 802.11a	5	5180	9	14.38	20.00	2.00	4.046	-3.57	21	Pass
		5210	9	14.40	20.00	2.00	4.046	-3.55	21	Pass
		5240	9	14.40	20.00	2.00	4.046	-3.56	21	Pass
Configuration IEEE 802.11n	5	5180	9	14.42	20.00	2.00	4.046	-3.53	21	Pass
		5210	9	14.36	20.00	2.00	4.046	-3.59	21	Pass
		5240	9	14.28	20.00	2.00	4.046	-3.67	21	Pass
Configuration IEEE 802.11a	10	5180	11	16.90	20.00	2.00	4.046	-1.05	21	Pass
		5210	11.5	17.14	20.00	2.00	4.046	-0.81	21	Pass
		5240	11	16.41	20.00	2.00	4.046	-1.55	21	Pass
Configuration IEEE 802.11n	10	5180	11	16.79	20.00	2.00	4.046	-1.16	21	Pass
		5210	11.5	17.12	20.00	2.00	4.046	-0.84	21	Pass
		5240	11.5	16.76	20.00	2.00	4.046	-1.19	21	Pass
Configuration IEEE 802.11a	20	5180	11.5	17.22	20.00	2.00	4.046	-0.73	21	Pass
		5200	11.5	17.04	20.00	2.00	4.046	-0.92	21	Pass
		5240	12	17.16	20.00	2.00	4.046	-0.80	21	Pass
Configuration IEEE 802.11n	20	5180	11	16.75	20.00	2.00	4.046	-1.20	21	Pass
		5200	11.5	17.09	20.00	2.00	4.046	-0.87	21	Pass
		5240	12	17.13	20.00	2.00	4.046	-0.83	21	Pass
Configuration IEEE 802.11n	40	5190	8	13.90	20.00	2.00	4.046	-4.05	21	Pass
		5230	10.5	16.93	20.00	2.00	4.046	-1.02	21	Pass

Table 9: Maximum EIRP values at an angle greater than 30 deg for the Antenna Model "MA-WA55-30" with the FCC ID "HZB-XB92WLE"

Antenna Model No: MA-WB55-20

Gain: 20dBi

Antenna Type: Sector Antenna, Linear Polarization (Vertical)

Mode	Bandwidth (MHz)	Frequency (MHz)	Setting	Maximum Conducted Output Power (dBm)	Attenuator (dB)	Cable loss (dB)	Elevation angle above 30° Max gain (dBi)	Elevation angle above 30° Max EIRP (dBm)	Limit (dBm)	Complies
Configuration IEEE 802.11a	5	5180	15	20.81	10.00	2.00	-1.589	7.22	21	Pass
		5210	15	20.67	10.00	2.00	-1.589	7.08	21	Pass
		5240	16	21.35	10.00	2.00	-1.589	7.76	21	Pass
Configuration IEEE 802.11n	5	5180	14.5	20.38	10.00	2.00	-1.589	6.79	21	Pass
		5210	14.5	20.27	10.00	2.00	-1.589	6.69	21	Pass
		5240	16.5	21.87	10.00	2.00	-1.589	8.28	21	Pass
Configuration IEEE 802.11a	10	5180	16	21.66	10.00	2.00	-1.589	8.07	21	Pass
		5210	16	21.65	10.00	2.00	-1.589	8.06	21	Pass
		5240	16.5	21.64	10.00	2.00	-1.589	8.05	21	Pass
Configuration IEEE 802.11n	10	5180	16	21.56	10.00	2.00	-1.589	7.97	21	Pass
		5210	15.5	20.88	10.00	2.00	-1.589	7.29	21	Pass
		5240	16.5	21.71	10.00	2.00	-1.589	8.12	21	Pass
Configuration IEEE 802.11a	20	5180	13.5	19.11	10.00	2.00	-1.589	5.53	21	Pass
		5200	16	21.31	10.00	2.00	-1.589	7.72	21	Pass
		5240	16.5	21.73	10.00	2.00	-1.589	8.14	21	Pass
Configuration IEEE 802.11n	20	5180	13	18.54	10.00	2.00	-1.589	4.96	21	Pass
		5200	16.5	21.90	10.00	2.00	-1.589	8.31	21	Pass
		5240	16.5	21.73	10.00	2.00	-1.589	8.14	21	Pass
Configuration IEEE 802.11n	40	5190	9	15.12	10.00	2.00	-1.589	1.53	21	Pass
		5230	14.5	21.01	10.00	2.00	-1.589	7.42	21	Pass

Table 10: Maximum EIRP values at an angle greater than 30 deg for the Antenna Model "MA-WB55-20" with the FCC ID "HZB-XB92WLE"

Antenna Model No: [SAA08-220570](#)

Gain: 10dBi

Antenna Type: Omni Antenna

Mode	Bandwidth (MHz)	Frequency (MHz)	Setting	Maximum Conducted Output Power (dBm)	Attenuator (dB)	Cable loss (dB)	Elevation angle above 30° Max gain (dBi)	Elevation angle above 30° Max EIRP (dBm)	Limit (dBm)	Complies
Configuration IEEE 802.11a	5	5180	13.5	19.33	0.00	2.00	-2.725	14.60	21	Pass
		5210	13.5	19.27	0.00	2.00	-2.725	14.55	21	Pass
		5240	14	19.21	0.00	2.00	-2.725	14.48	21	Pass
Configuration IEEE 802.11n	5	5180	13.5	19.25	0.00	2.00	-2.725	14.52	21	Pass
		5210	13.5	19.31	0.00	2.00	-2.725	14.59	21	Pass
		5240	14	19.20	0.00	2.00	-2.725	14.48	21	Pass
Configuration IEEE 802.11a	10	5180	16	21.66	0.00	2.00	-2.725	16.93	21	Pass
		5210	15	20.57	0.00	2.00	-2.725	15.84	21	Pass
		5240	16	21.30	0.00	2.00	-2.725	16.58	21	Pass
Configuration IEEE 802.11n	10	5180	16.5	22.23	0.00	2.00	-2.725	17.50	21	Pass
		5210	14.5	19.96	0.00	2.00	-2.725	15.24	21	Pass
		5240	17	22.17	0.00	2.00	-2.725	17.44	21	Pass
Configuration IEEE 802.11a	20	5180	15.5	21.09	0.00	2.00	-2.725	16.36	21	Pass
		5200	15.5	20.97	0.00	2.00	-2.725	16.24	21	Pass
		5240	18.5	22.95	0.00	2.00	-2.725	18.23	21	Pass
Configuration IEEE 802.11n	20	5180	13.5	18.95	0.00	2.00	-2.725	14.23	21	Pass
		5200	16.5	21.90	0.00	2.00	-2.725	17.18	21	Pass
		5240	18.5	22.91	0.00	2.00	-2.725	18.19	21	Pass
Configuration IEEE 802.11n	40	5190	9.5	15.77	0.00	2.00	-2.725	11.04	21	Pass
		5230	15	21.47	0.00	2.00	-2.725	16.74	21	Pass

Table 11: Maximum EIRP values at an angle greater than 30 deg for the Antenna Model "SAA08-220570" with the FCC ID "HZB-XB92WLE"

Antenna Model No: GTT-AC-05-001

Gain: 16dBi

Antenna Type: Panel Antenna

Mode	Bandwidth (MHz)	Frequency (MHz)	Setting	Maximum Conducted Output Power (dBm)	Attenuator (dB)	Cable loss (dB)	Elevation angle above 30° Max gain (dBi)	Elevation angle above 30° Max EIRP (dBm)	Limit (dBm)	Complies
Configuration IEEE 802.11a	5	5180	9	14.38	0.00	0.00	2.146	16.53	21	Pass
		5210	9	14.40	0.00	0.00	2.146	16.55	21	Pass
		5240	9	14.40	0.00	0.00	2.146	16.54	21	Pass
Configuration IEEE 802.11n	5	5180	9	14.42	0.00	0.00	2.146	16.57	21	Pass
		5210	9	14.36	0.00	0.00	2.146	16.51	21	Pass
		5240	9	14.28	0.00	0.00	2.146	16.43	21	Pass
Configuration IEEE 802.11a	10	5180	11	16.90	0.00	0.00	2.146	19.05	21	Pass
		5210	11.5	17.14	0.00	0.00	2.146	19.29	21	Pass
		5240	11	16.41	0.00	0.00	2.146	18.55	21	Pass
Configuration IEEE 802.11n	10	5180	11	16.79	0.00	0.00	2.146	18.94	21	Pass
		5210	11.5	17.12	0.00	0.00	2.146	19.26	21	Pass
		5240	11.5	16.76	0.00	0.00	2.146	18.91	21	Pass
Configuration IEEE 802.11a	20	5180	11.5	17.22	0.00	0.00	2.146	19.37	21	Pass
		5200	11.5	17.04	0.00	0.00	2.146	19.18	21	Pass
		5240	12	17.16	0.00	0.00	2.146	19.30	21	Pass
Configuration IEEE 802.11n	20	5180	11	16.75	0.00	0.00	2.146	18.90	21	Pass
		5200	11.5	17.09	0.00	0.00	2.146	19.23	21	Pass
		5240	12	17.13	0.00	0.00	2.146	19.27	21	Pass
Configuration IEEE 802.11n	40	5190	8	13.90	0.00	0.00	2.146	16.05	21	Pass
		5230	10.5	16.93	0.00	0.00	2.146	19.08	21	Pass

Table 12: Maximum EIRP values at an angle greater than 30 deg for the Antenna Model "GTT-AC-05-001" with the FCC ID "HZB-XB92WLE"

4. FCC ID: HZB-MB83HP5

Antenna Model No: MA-WA55-30

Gain: 30dBi

Antenna Type: Panel Antenna, Linear Polarization (Vertical or Horizontal), 5° Bandwidth

Mode	Bandwidth (MHz)	Frequency (MHz)	Setting	Maximum Conducted Output Power (dBm)	Attenuator (dB)	Cable loss (dB)	Elevation angle above 30° Max gain (dBi)	Elevation angle above 30° Max EIRP (dBm)	Limit (dBm)	Complies
Configuration IEEE 802.11a	5	5180	15.5	22.11	20.00	2.00	4.046	4.16	21	Pass
		5210	15.5	22.02	20.00	2.00	4.046	4.06	21	Pass
		5240	15	21.57	20.00	2.00	4.046	3.62	21	Pass
Configuration IEEE 802.11n	5	5180	15.5	21.98	20.00	2.00	4.046	4.02	21	Pass
		5210	15.5	21.91	20.00	2.00	4.046	3.95	21	Pass
		5240	15.5	22.31	20.00	2.00	4.046	4.35	21	Pass
Configuration IEEE 802.11a	10	5180	17	22.97	20.00	2.00	4.046	5.02	21	Pass
		5210	18.5	24.52	20.00	2.00	4.046	6.56	21	Pass
		5240	18	24.19	20.00	2.00	4.046	6.23	21	Pass
Configuration IEEE 802.11n	10	5180	17.5	23.44	20.00	2.00	4.046	5.48	21	Pass
		5210	18	23.73	20.00	2.00	4.046	5.77	21	Pass
		5240	18	24.12	20.00	2.00	4.046	6.17	21	Pass
Configuration IEEE 802.11a	20	5180	17.5	23.17	20.00	2.00	4.046	5.21	21	Pass
		5200	19	24.69	20.00	2.00	4.046	6.74	21	Pass
		5240	20	26.04	20.00	2.00	4.046	8.09	21	Pass
Configuration IEEE 802.11n	20	5180	16.5	22.36	20.00	2.00	4.046	4.41	21	Pass
		5200	19	24.77	20.00	2.00	4.046	6.81	21	Pass
		5240	20	26.13	20.00	2.00	4.046	8.18	21	Pass
Configuration IEEE 802.11n	40	5190	13.5	17.46	20.00	2.00	4.046	-0.49	21	Pass
		5230	19	25.05	20.00	2.00	4.046	7.10	21	Pass

Table 13: Maximum EIRP values at an angle greater than 30 deg for the Antenna Model "MA-WA55-30" with the FCC ID "HZB-MB83HP5"

Antenna Model No: MA-WB55-20

Gain: 20dBi

Antenna Type: Sector Antenna, Linear Polarization (Vertical)

Mode	Bandwidth (MHz)	Frequency (MHz)	Setting	Maximum Conducted Output Power (dBm)	Attenuator (dB)	Cable loss (dB)	Elevation angle above 30° Max gain (dBi)	Elevation angle above 30° Max EIRP (dBm)	Limit (dBm)	Complies
Configuration IEEE 802.11a	5	5180	15.5	22.11	10.00	2.00	-1.589	8.52	21	Pass
		5210	15.5	22.02	10.00	2.00	-1.589	8.43	21	Pass
		5240	15	21.57	10.00	2.00	-1.589	7.98	21	Pass
Configuration IEEE 802.11n	5	5180	15.5	21.98	10.00	2.00	-1.589	8.39	21	Pass
		5210	15.5	21.91	10.00	2.00	-1.589	8.32	21	Pass
		5240	15.5	22.31	10.00	2.00	-1.589	8.72	21	Pass
Configuration IEEE 802.11a	10	5180	18.5	24.39	10.00	2.00	-1.589	10.80	21	Pass
		5210	18.5	24.52	10.00	2.00	-1.589	10.93	21	Pass
		5240	18	24.19	10.00	2.00	-1.589	10.60	21	Pass
Configuration IEEE 802.11n	10	5180	19	24.80	10.00	2.00	-1.589	11.22	21	Pass
		5210	19	24.99	10.00	2.00	-1.589	11.40	21	Pass
		5240	18	24.12	10.00	2.00	-1.589	10.54	21	Pass
Configuration IEEE 802.11a	20	5180	14.5	19.13	10.00	2.00	-1.589	5.54	21	Pass
		5200	19.5	25.41	10.00	2.00	-1.589	11.82	21	Pass
		5240	19.5	25.79	10.00	2.00	-1.589	12.20	21	Pass
Configuration IEEE 802.11n	20	5180	14.5	19.11	10.00	2.00	-1.589	5.52	21	Pass
		5200	20	26.01	10.00	2.00	-1.589	12.42	21	Pass
		5240	20	26.13	10.00	2.00	-1.589	12.54	21	Pass
Configuration IEEE 802.11n	40	5190	7.5	14.05	10.00	2.00	-1.589	0.46	21	Pass
		5230	18	24.01	10.00	2.00	-1.589	10.42	21	Pass

Table 14: Maximum EIRP values at an angle greater than 30 deg for the Antenna Model "MA-WB55-20" with the FCC ID "HZB-MB83HP5"

Antenna Model No: SAA08-220570

Gain: 10dBi

Antenna Type: Omni Antenna

Mode	Bandwidth (MHz)	Frequency (MHz)	Setting	Maximum Conducted Output Power (dBm)	Attenuator (dB)	Cable loss (dB)	Elevation angle above 30° Max gain (dBi)	Elevation angle above 30° Max EIRP (dBm)	Limit (dBm)	Complies
Configuration IEEE 802.11a	5	5180	14	19.21	0.00	2.00	-2.725	14.48	21	Pass
		5210	13.5	18.25	0.00	2.00	-2.725	13.53	21	Pass
		5240	13.5	18.29	0.00	2.00	-2.725	13.57	21	Pass
Configuration IEEE 802.11n	5	5180	14	19.10	0.00	2.00	-2.725	14.38	21	Pass
		5210	14	19.02	0.00	2.00	-2.725	14.29	21	Pass
		5240	14	19.24	0.00	2.00	-2.725	14.52	21	Pass
Configuration IEEE 802.11a	10	5180	15.5	21.70	0.00	2.00	-2.725	16.97	21	Pass
		5210	15.5	21.65	0.00	2.00	-2.725	16.93	21	Pass
		5240	15	21.43	0.00	2.00	-2.725	16.70	21	Pass
Configuration IEEE 802.11n	10	5180	15.5	21.60	0.00	2.00	-2.725	16.87	21	Pass
		5210	15.5	21.78	0.00	2.00	-2.725	17.06	21	Pass
		5240	15	21.31	0.00	2.00	-2.725	16.59	21	Pass
Configuration IEEE 802.11a	20	5180	16	22.11	0.00	2.00	-2.725	17.39	21	Pass
		5200	18	23.21	0.00	2.00	-2.725	18.49	21	Pass
		5240	17.5	23.13	0.00	2.00	-2.725	18.40	21	Pass
Configuration IEEE 802.11n	20	5180	15.5	21.66	0.00	2.00	-2.725	16.94	21	Pass
		5200	18	23.16	0.00	2.00	-2.725	18.43	21	Pass
		5240	18	23.42	0.00	2.00	-2.725	18.70	21	Pass
Configuration IEEE 802.11n	40	5190	7.5	14.05	0.00	2.00	-2.725	9.32	21	Pass
		5230	18.5	24.89	0.00	2.00	-2.725	20.17	21	Pass

Table 15: Maximum EIRP values at an angle greater than 30 deg for the Antenna Model "SAA08-220570" with the FCC ID "HZB-MB83HP5"

Antenna Model No: PX3F-52-N7A

Gain: 34dBi

Antenna Type: Dish Antenna

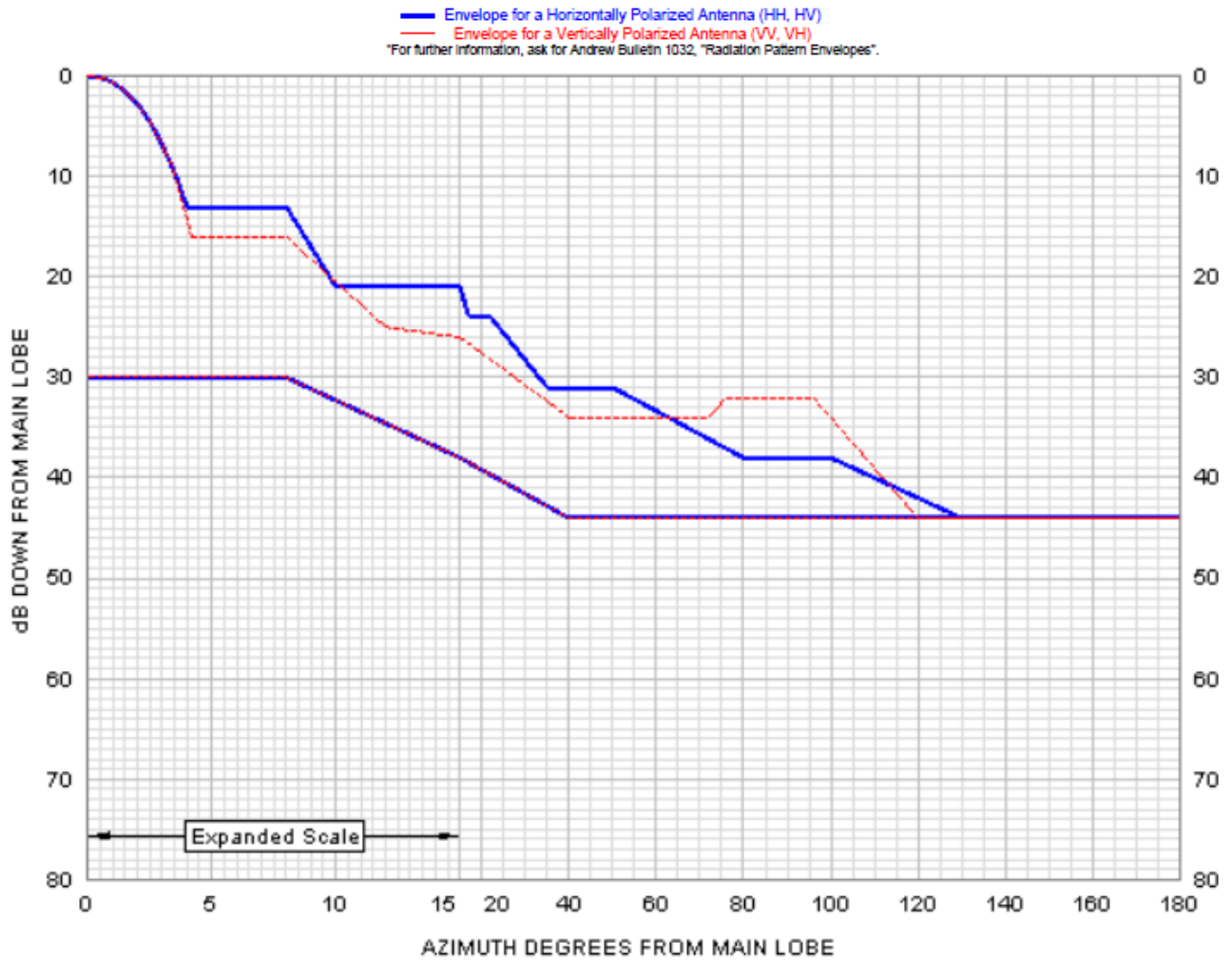


Figure 5: Radiation pattern for the Antenna Model "PX3F-52-N7A"

Antenna Model No: MA-WA56-DP25N

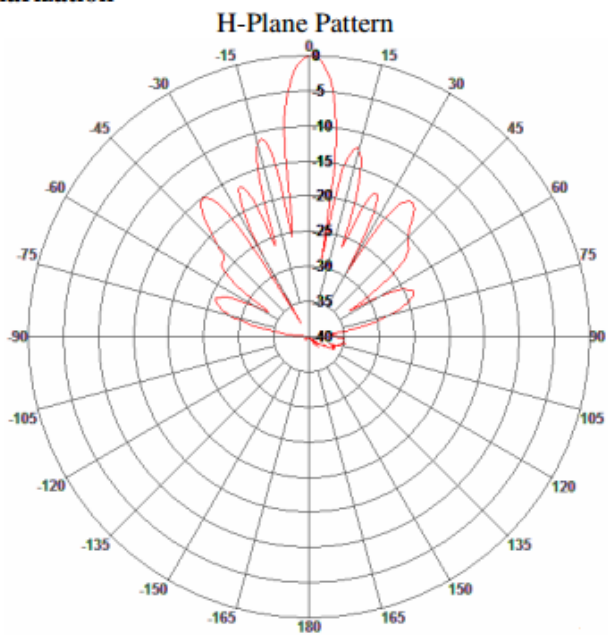
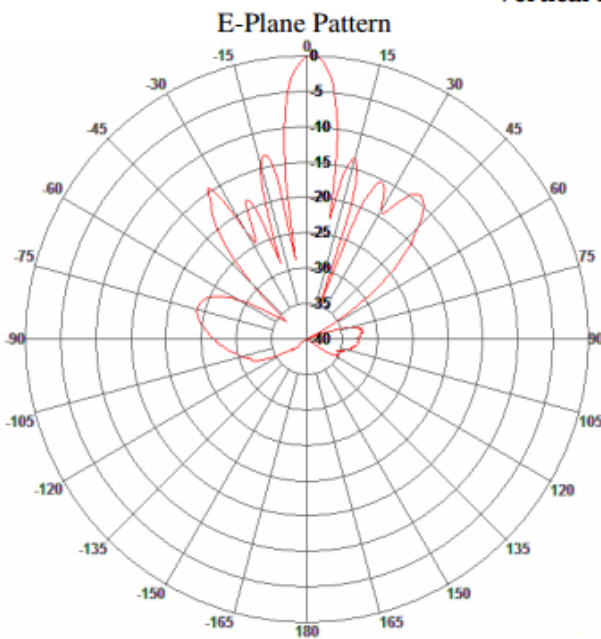
Gain: 23.5dBi

Antenna Type: Panel Antenna

Radiations Patterns

Frequency 5300 MHz
 Gain, typ. VPol - 23.5 ± 1 dBi
 HPol - 24.5 ± 1 dBi

Vertical Polarization



Horizontal Polarization

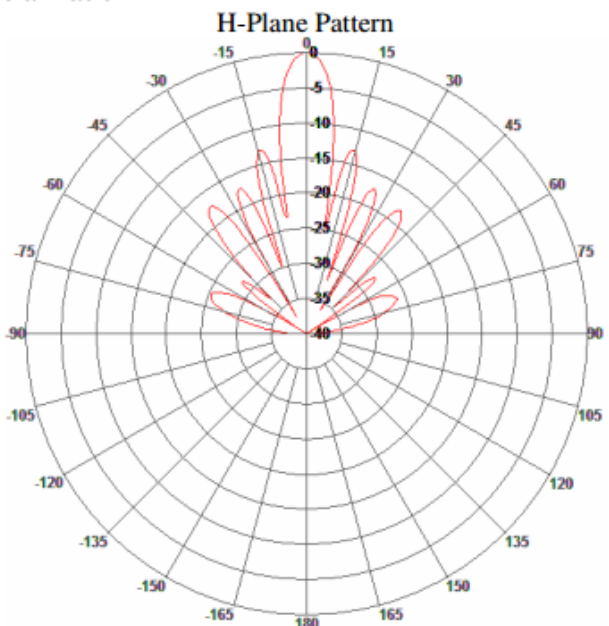
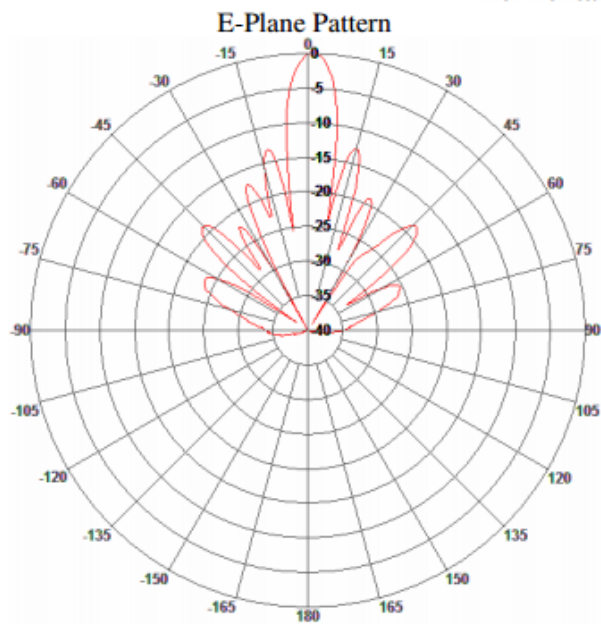


Figure 6: Radiation patterns for the Antenna Model "MA-WA56-DP25N"

Antenna Model No: MA-WD56-DP16

Gain: 16dBi

Antenna Type: Sector Antenna

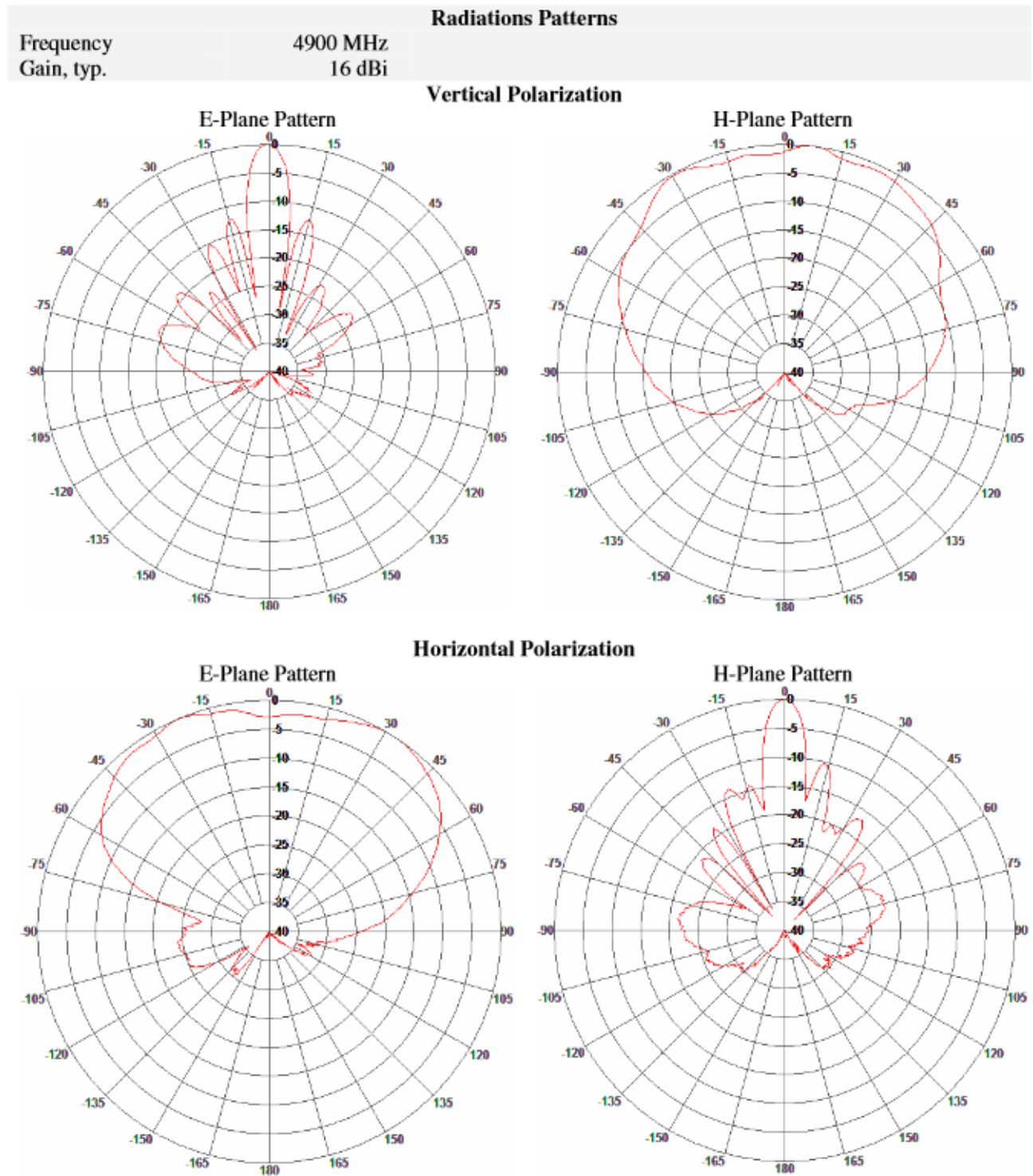


Figure 7: Radiation patterns for the Antenna Model "MA-WD56-DP16"