

a8 simulations for FCC 25.218

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FCC 25.218(i) Digital earth station operation in the conventional Ka-band.

(i) *Digital earth station operation in the conventional Ka-band.*

(1) For co-polarized transmissions in the plane tangent to the GSO arc:

32.5-25log(θ)	dBW/MHz	for	$2.0^\circ \leq \theta \leq 7^\circ$.
11.5	dBW/MHz	for	$7^\circ \leq \theta \leq 9.2^\circ$.
35.5-25log(θ)	dBW/MHz	for	$9.2^\circ \leq \theta \leq 19.1^\circ$.
3.5	dBW/MHz	for	$19.1^\circ < \theta \leq 180^\circ$.

where θ is as defined in [paragraph \(c\)\(1\)](#) of this section.

(2) For co-polarized transmissions in the plane perpendicular to the GSO arc:

35.5-25log(θ)	dBW/MHz	for	$3.5^\circ \leq \theta \leq 7^\circ$.
14.4	dBW/MHz	for	$7^\circ < \theta \leq 9.2^\circ$.
38.5-25log(θ)	dBW/MHz	for	$9.2^\circ < \theta \leq 19.1^\circ$.
6.5	dBW/MHz	for	$19.1^\circ < \theta \leq 180^\circ$.

where θ is as defined in [paragraph \(c\)\(1\)](#) of this section.

(3) The EIRP density levels specified in paragraphs (i)(1) and (2) of this section may be exceeded by up to 3 dB, for values of $\theta > 7^\circ$, over 10% of the range of theta (θ) angles from 7-180° on each side of the line from the [earth station](#) to the target satellite.

(4) For cross-polarized transmissions in the plane tangent to the GSO arc and in the plane perpendicular to the GSO arc:

22.5-25log(θ)	dBW/MHz	for	$2.0^\circ < \theta \leq 7.0^\circ$.
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where θ is as defined in [paragraph \(c\)\(1\)](#) of this section.

(5) A license application for [earth station operation](#) in a network using variable power density control of [earth stations](#) transmitting simultaneously in shared frequencies to the same target satellite receiving beam may be routinely processed if the applicant certifies that the aggregate off-axis EIRP density from all co-frequency [earth stations](#) transmitting simultaneously to the same target satellite receiving beam, not resulting from colliding data bursts transmitted pursuant to a contention protocol, will not exceed the off-axis EIRP density limits permissible for a single [earth station](#), as specified in paragraphs (i)(1) through (4) of this section.

- Assumes strict interpretation of mask
 - 3 dB relaxation per (i)(3) is not included in this representation

Overall PSD Performance, Freq = 28.35 GHz

(i)(1) Co-polarized, tangent plane

		Skew																		
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
Theta	0	47.7	47.8	48.1	47.6	47.5	47.8	47.7	47.3	47.7	47.8	47.7	47.4	47.9	47.7	48.1	47.6	48.1	47.6	47.5
	45	47.6	47.6	47.2	47.0	46.8	46.7	46.2	46.1	46.0	45.8	45.8	44.5	43.5	43.1	42.8	42.4	42.4	41.6	42.1
	60	46.2	46.5	46.5	46.5	46.7	46.5	45.9	45.4	44.9	43.0	42.6	42.0	41.8	41.2	40.4	39.8	39.3	39.0	38.8

(i)(2) Co-polarized, perpendicular plane

		Skew																		
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
Theta	0	52.5	52.6	52.6	52.6	52.5	52.3	52.6	52.2	52.7	52.7	52.8	52.2	52.7	52.3	52.3	52.2	52.3	52.2	51.8
	45	47.5	47.6	47.6	48.0	48.3	48.6	48.9	49.2	49.3	49.6	50.1	50.6	51.3	51.3	51.3	51.6	51.9	51.5	51.5
	60	43.6	43.7	44.0	44.7	45.4	46.0	46.9	46.9	48.2	48.4	48.6	49.4	49.2	50.1	51.1	51.5	51.4	51.3	51.4

(i)(4) Cross-polarized

		Skew																		
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
Theta	0	84.5	83.1	84.2	82.4	82.8	82.6	82.2	83.0	85.4	86.0	85.6	85.5	87.3	86.1	84.1	83.5	83.5	84.2	85.7
	45	64.9	64.9	64.7	64.6	64.5	64.2	63.9	63.8	63.5	62.6	62.5	63.2	62.3	61.5	61.0	61.2	60.5	60.1	60.1
	60	60.2	59.9	60.0	59.6	59.2	59.2	58.1	57.4	58.0	57.5	56.8	56.5	55.3	54.4	53.9	52.1	52.0	51.2	51.0

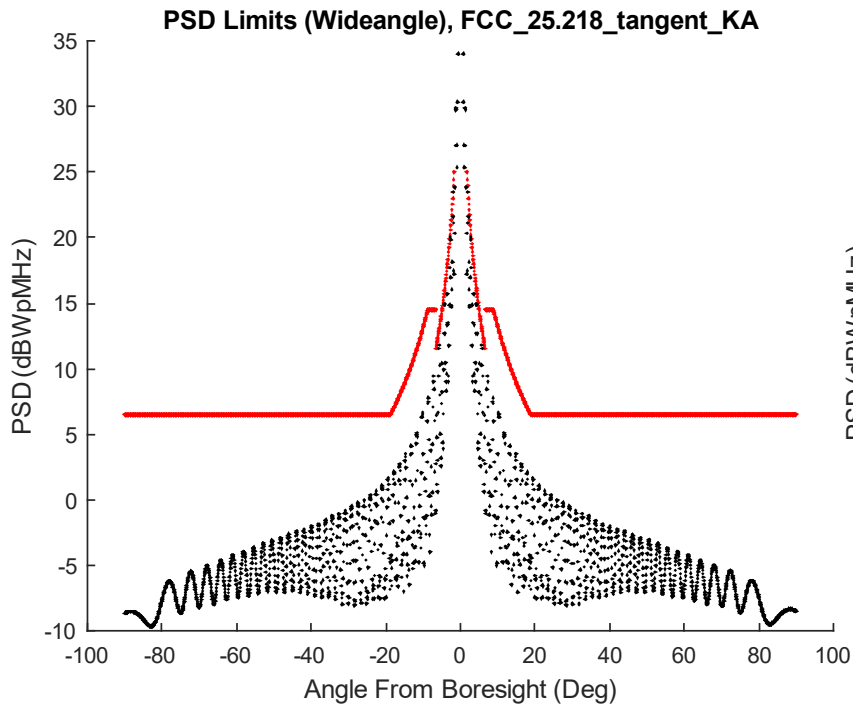
(i) 25.218 Compliant

		Skew																		
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
Theta	0	47.7	47.8	48.1	47.6	47.5	47.8	47.7	47.3	47.7	47.8	47.7	47.4	47.9	47.7	48.1	47.6	48.1	47.6	47.5
	45	47.5	47.6	47.2	47.0	46.8	46.7	46.2	46.1	46.0	45.8	45.8	44.5	43.5	43.1	42.8	42.4	42.4	41.6	42.1
	60	43.6	43.7	44.0	44.7	45.4	46.0	45.9	45.4	44.9	43.0	42.6	42.0	41.8	41.2	40.4	39.8	39.3	39.0	38.8

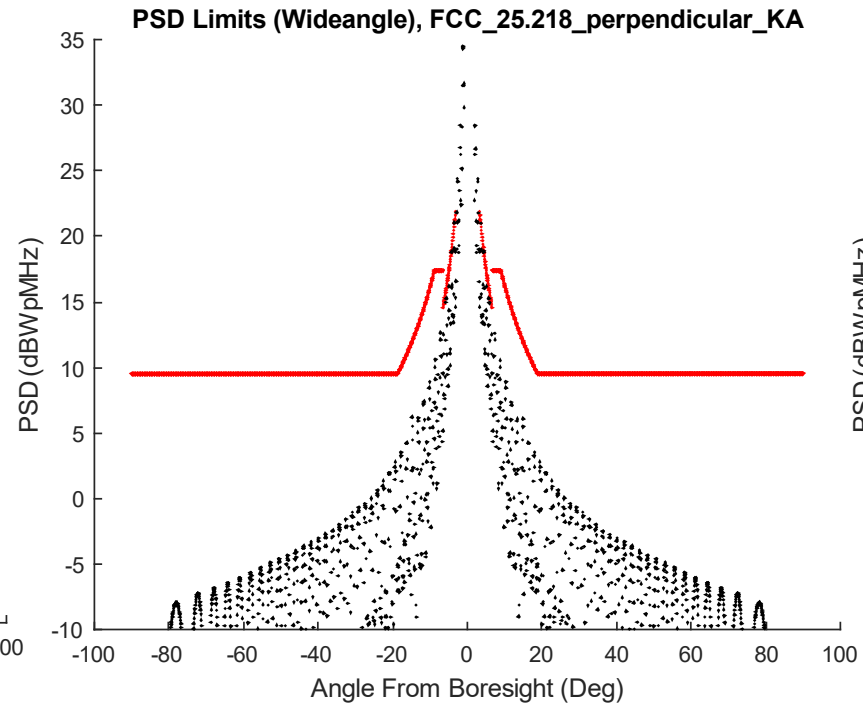
PSD Values are in dBW/MHz

Theta = 0, Skew = 0

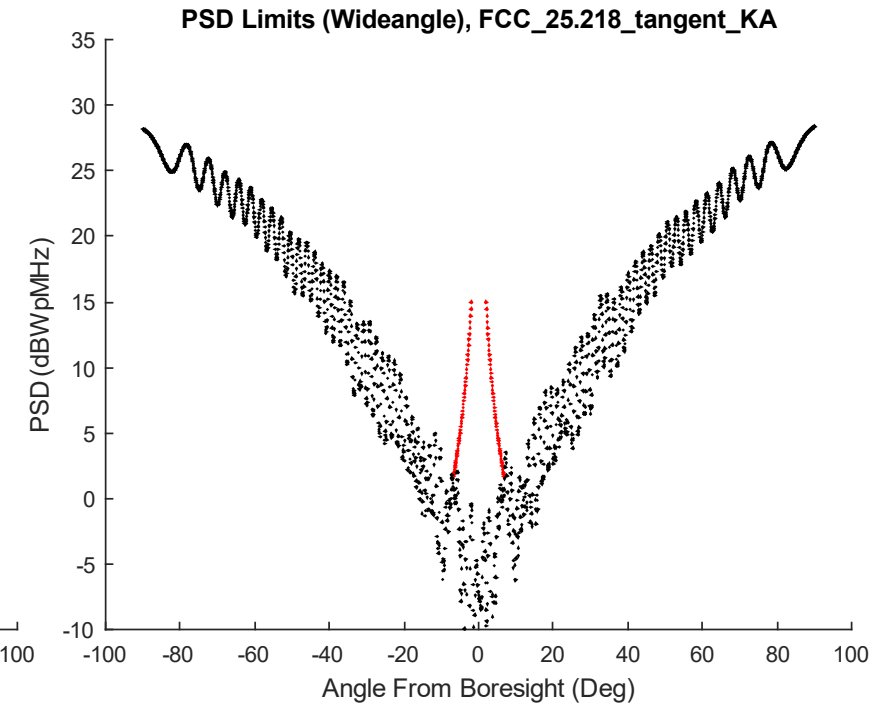
(i)(1) Co-polarized, Tangent Plane



(i)(2) Co-polarized, Perpendicular Plane



(i)(3) Cross-polarized

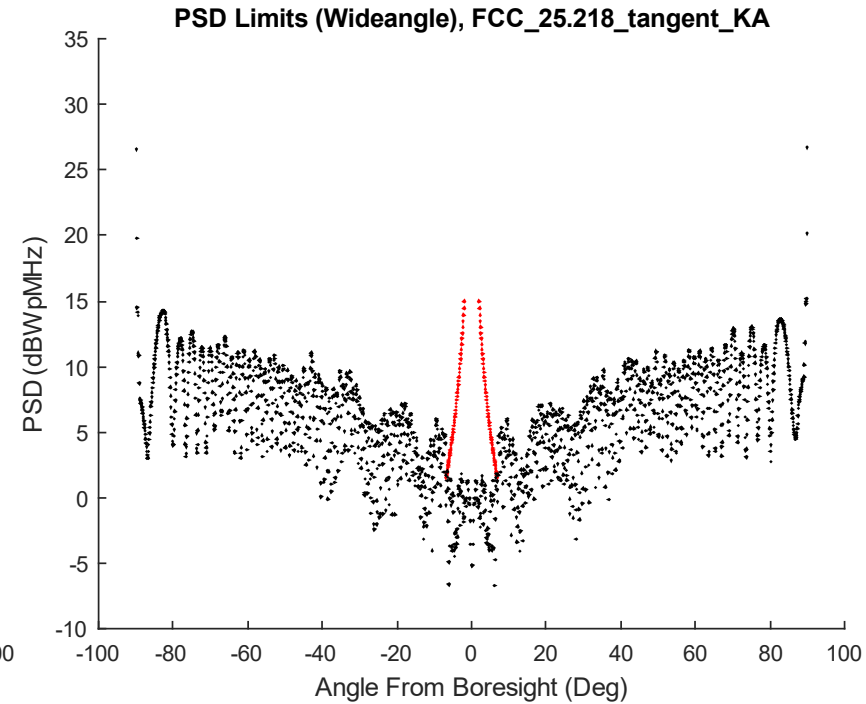
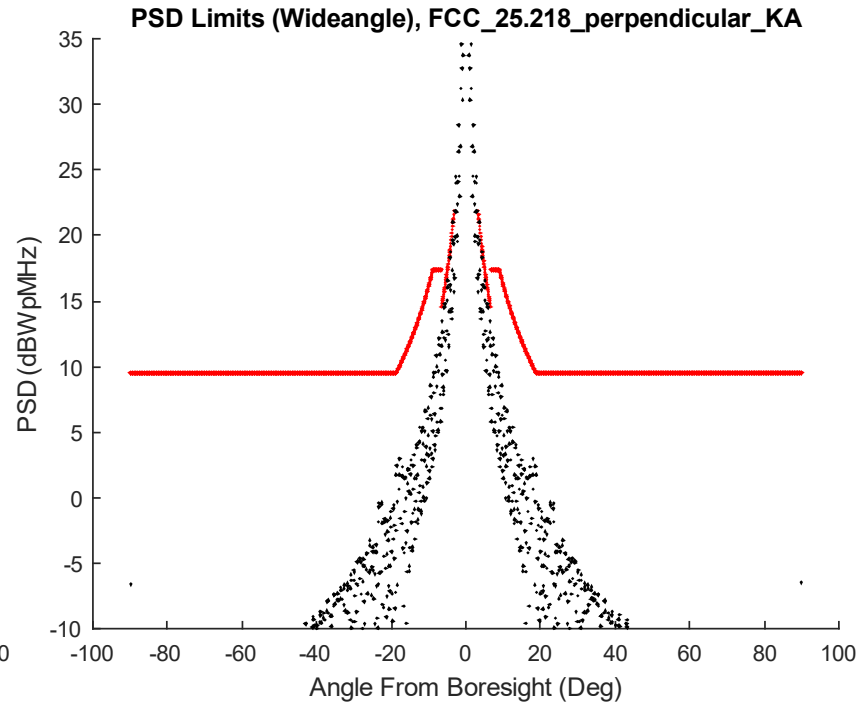
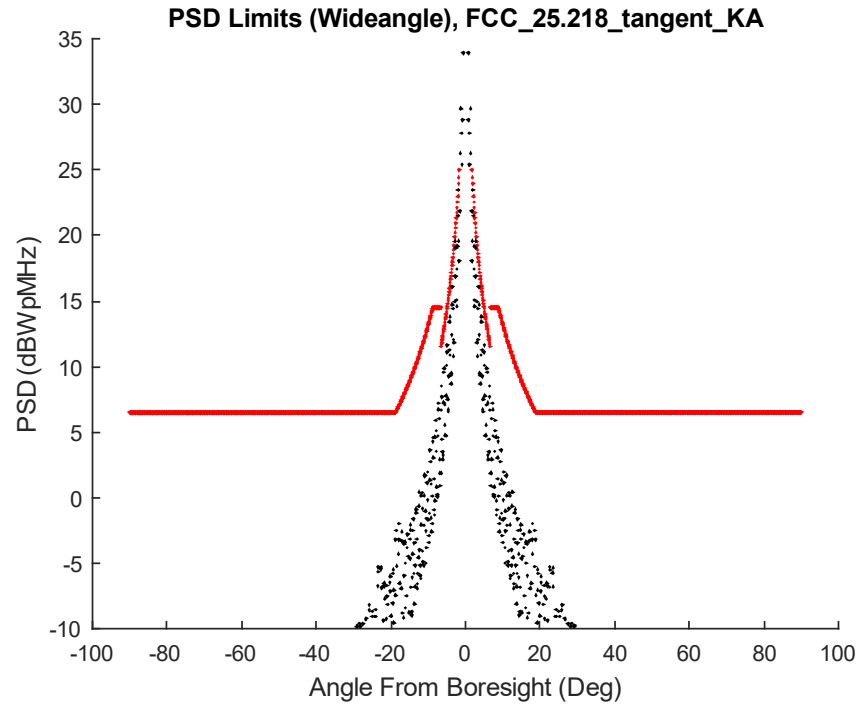


Theta = 0, Skew = 45

(i)(1) Co-polarized, Tangent Plane

(i)(2) Co-polarized, Perpendicular Plane

(i)(3) Cross-polarized



Theta = 0, Skew = 90

(i)(1) Co-polarized, Tangent Plane

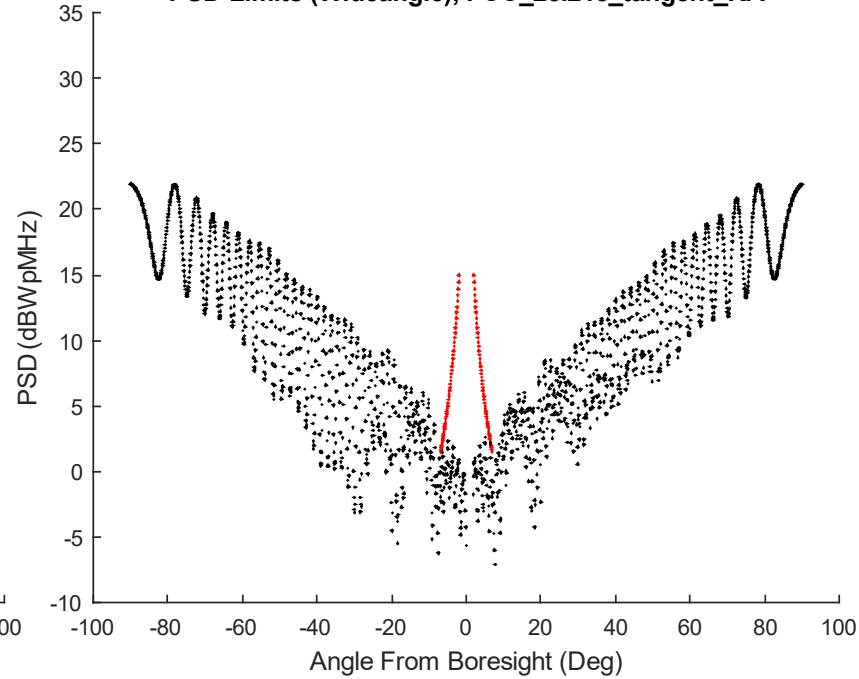
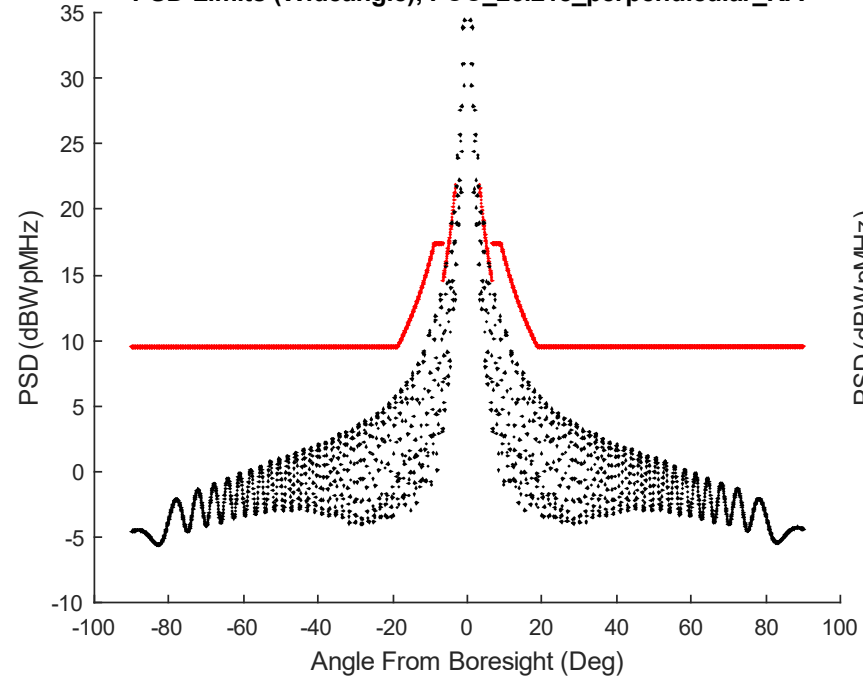
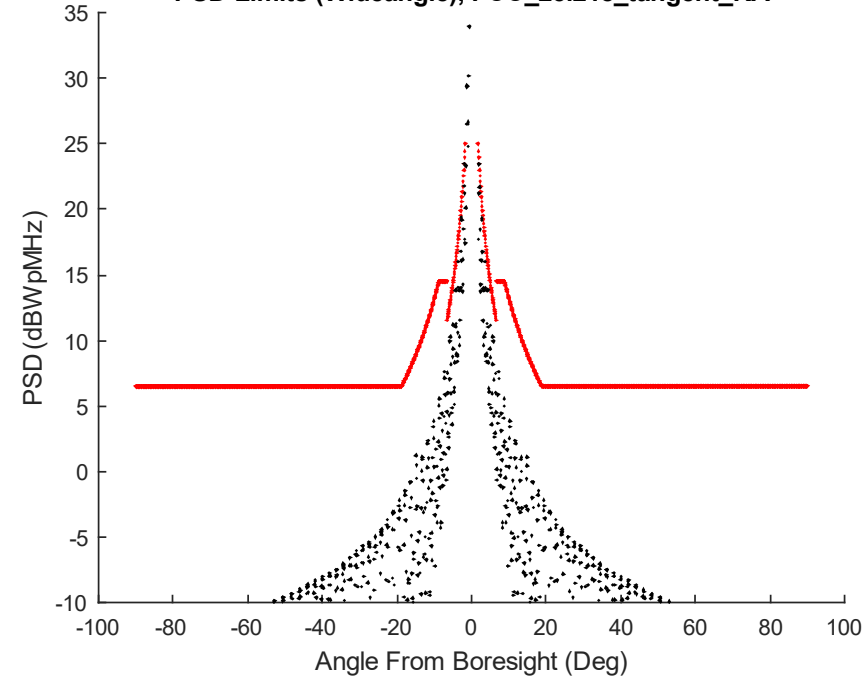
(i)(2) Co-polarized, Perpendicular Plane

(i)(3) Cross-polarized

PSD Limits (Wideangle), FCC_25.218_tangent_KA

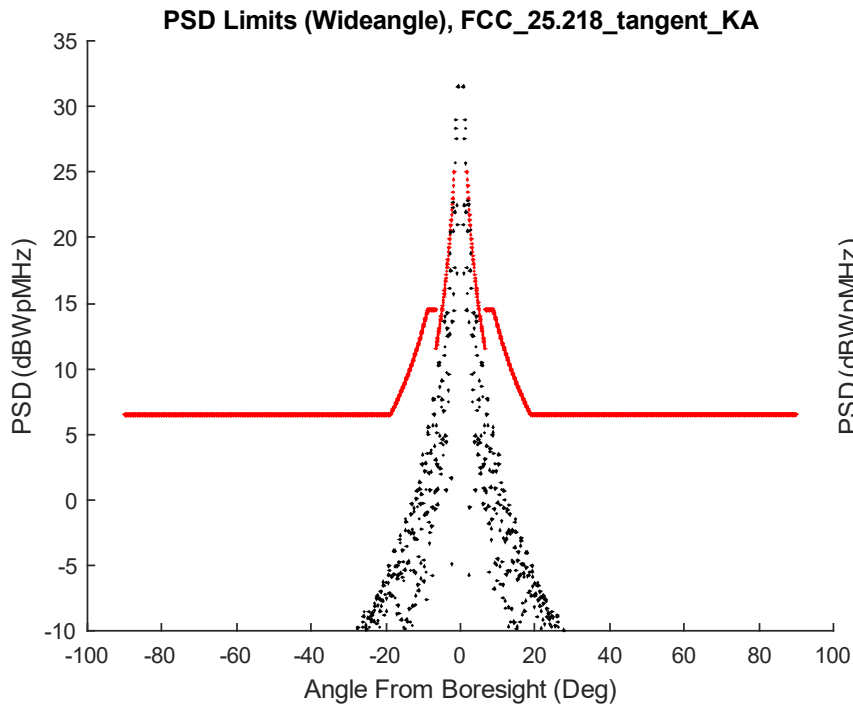
PSD Limits (Wideangle), FCC_25.218_perpendicular_KA

PSD Limits (Wideangle), FCC_25.218_tangent_KA

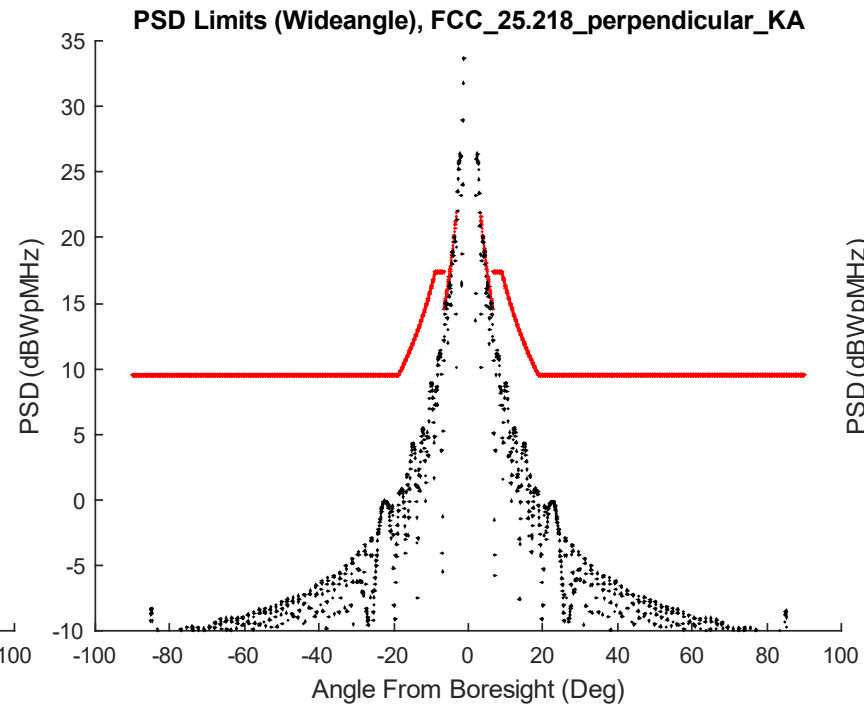


Theta = 60, Skew = 0

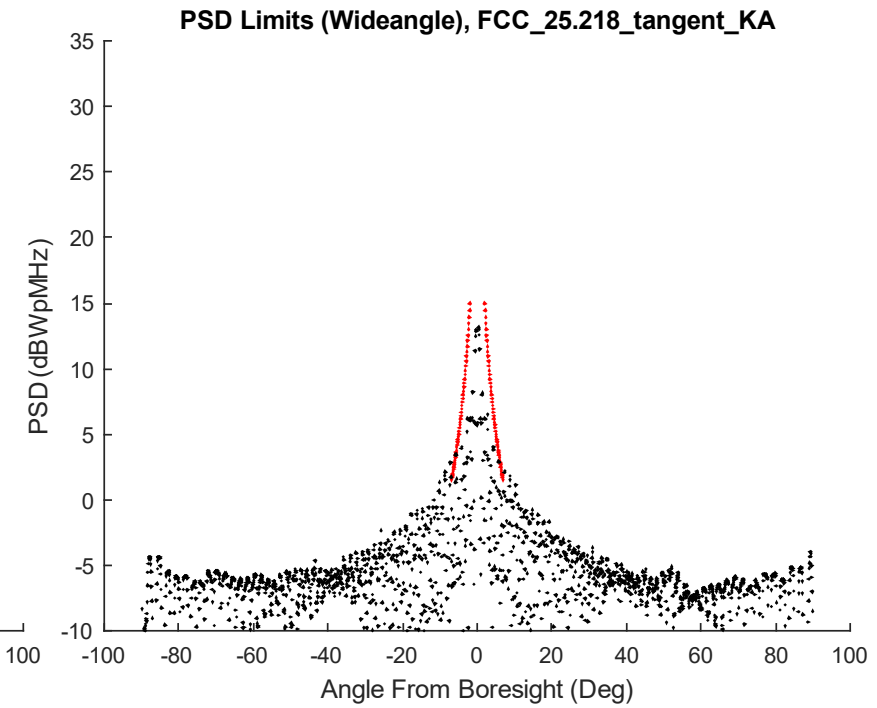
(i)(1) Co-polarized, Tangent Plane



(i)(2) Co-polarized, Perpendicular Plane

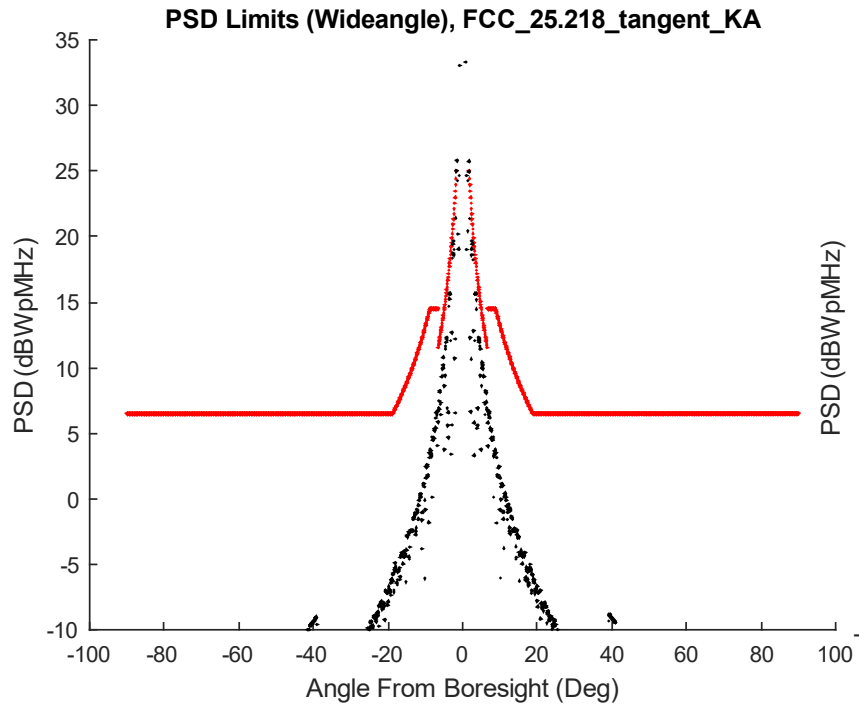


(i)(3) Cross-polarized

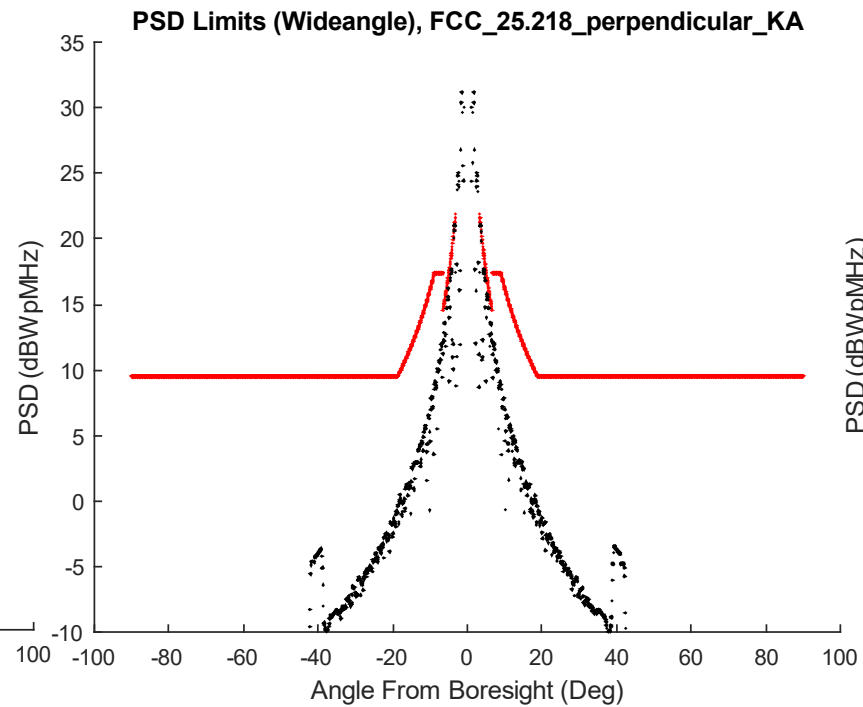


Theta = 60, Skew = 45

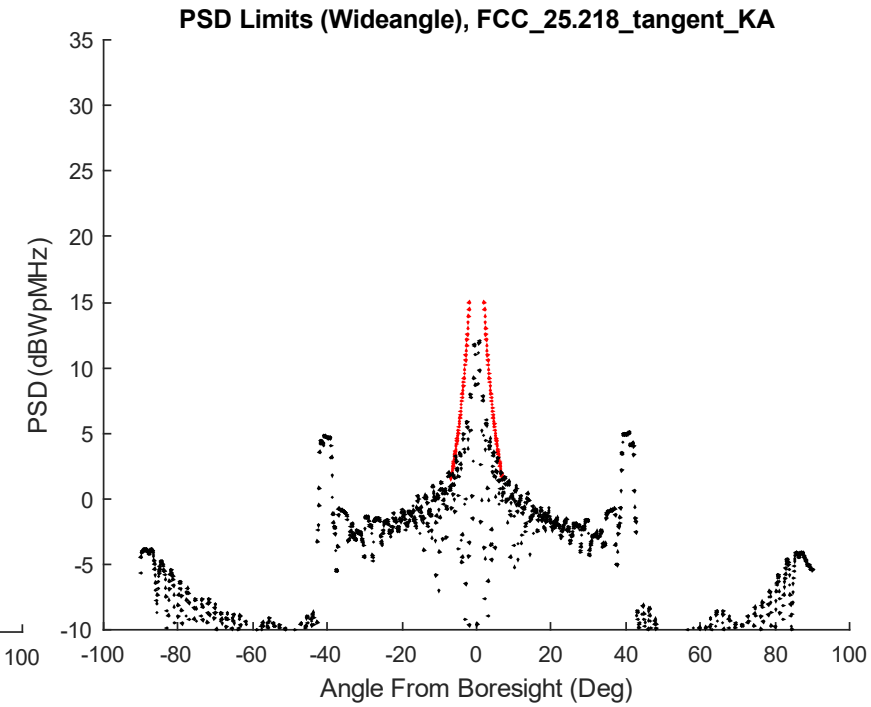
(i)(1) Co-polarized, Tangent Plane



(i)(2) Co-polarized, Perpendicular Plane



(i)(3) Cross-polarized



Theta = 60, Skew = 90

(i)(1) Co-polarized, Tangent Plane

(i)(2) Co-polarized, Perpendicular Plane

(i)(3) Cross-polarized

