

BANDEDGE TEST DATA

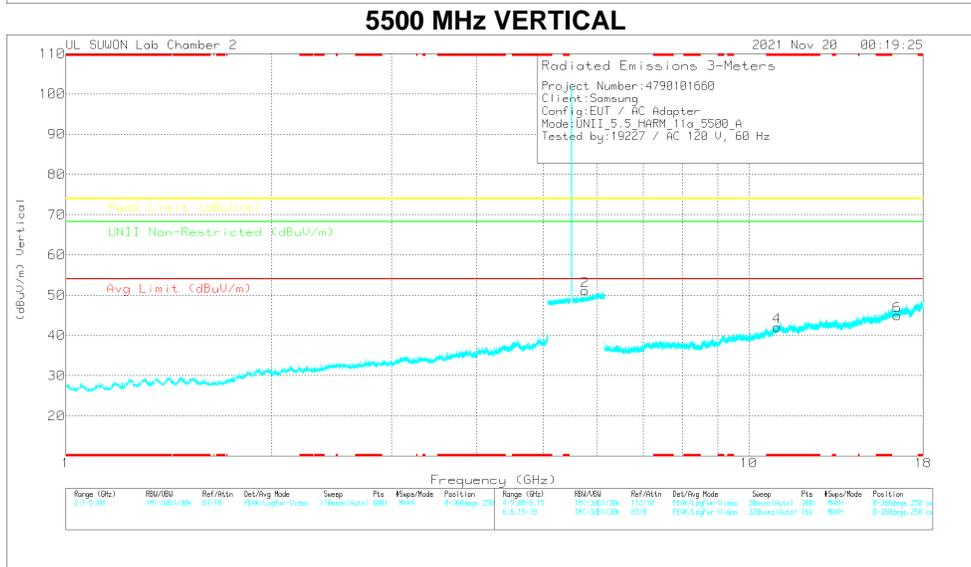
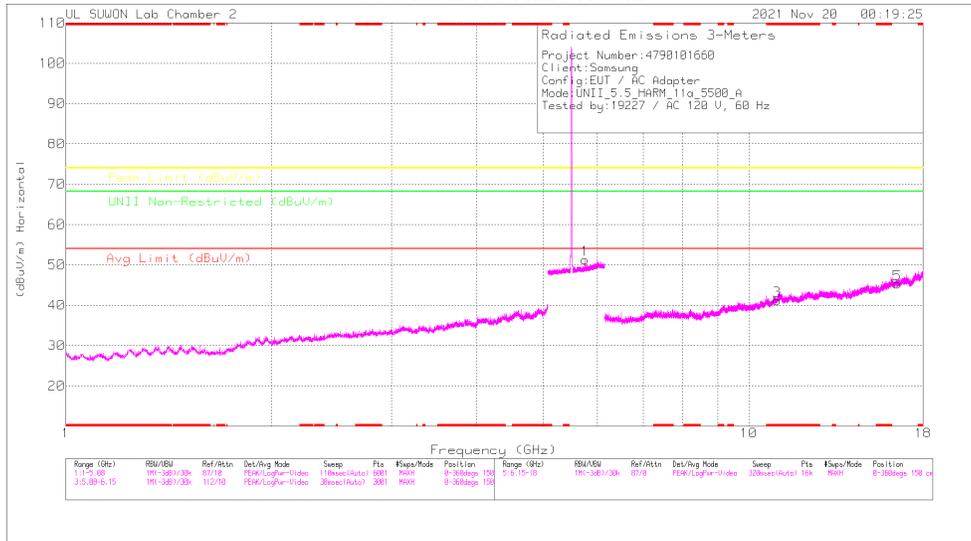
Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity			
802.11a	5500	MIMO	* 5.45998	37.79	Pk	35.30	-20.60	0.00	52.49	-	-	74.00	-21.51	106	113	H			
			* 5.43815	40.49	Pk	35.30	-20.50	0.00	55.29	-	-	74.00	-18.71	106	113	H			
			5.46998	38.56	Pk	35.30	-20.60	0.00	53.26	-	-	68.20	-14.94	106	113	H			
			5.46685	42.34	Pk	35.30	-20.60	0.00	57.04	-	-	68.20	-11.16	106	113	H			
			* 5.45998	27.48	RMS	35.30	-20.60	0.15	42.33	54.00	-11.67	-	-	-	-	106	113	H	
			* 5.35346	29.41	RMS	35.10	-20.70	0.15	43.96	54.00	-10.04	-	-	-	-	106	113	H	
			5.46998	27.76	RMS	35.30	-20.60	0.15	42.61	-	-	-	-	-	-	106	113	H	
			5.46678	29.08	RMS	35.30	-20.60	0.15	43.93	-	-	-	-	-	-	106	113	H	
			* 5.45998	38.65	Pk	35.30	-20.60	0.00	53.35	-	-	74.00	-20.65	86	100	V			
			* 5.37842	40.59	Pk	35.20	-20.80	0.00	54.99	-	-	74.00	-19.01	86	100	V			
			5.46998	38.00	Pk	35.30	-20.60	0.00	52.70	-	-	68.20	-15.50	86	100	V			
			5.46989	41.92	Pk	35.30	-20.60	0.00	56.62	-	-	68.20	-11.58	86	100	V			
			* 5.45998	27.50	RMS	35.30	-20.60	0.15	42.35	54.00	-11.65	-	-	-	-	86	100	V	
			* 5.35042	28.91	RMS	35.10	-20.70	0.15	43.46	54.00	-10.54	-	-	-	-	86	100	V	
			5.46998	27.81	RMS	35.30	-20.60	0.15	42.66	-	-	-	-	-	-	86	100	V	
			5.46899	28.85	RMS	35.30	-20.60	0.15	43.70	-	-	-	-	-	-	86	100	V	
			5.72500	43.36	Pk	35.70	-20.00	0.00	59.06	-	-	68.20	-9.14	107	155	H			
			5.72510	44.65	Pk	35.70	-20.00	0.00	60.35	-	-	68.20	-7.85	107	155	H			
			5.72500	41.86	Pk	35.70	-20.00	0.00	57.56	-	-	68.20	-10.64	85	100	V			
			5.72747	45.69	Pk	35.70	-20.00	0.00	61.39	-	-	68.20	-6.81	85	100	V			
			802.11n (HT20)	5500	MIMO	* 5.45998	37.57	Pk	35.30	-20.60	0.00	52.27	-	-	74.00	-21.73	107	100	H
						* 5.45456	40.34	Pk	35.30	-20.60	0.00	55.04	-	-	74.00	-18.96	107	100	H
						5.46998	41.40	Pk	35.30	-20.60	0.00	56.10	-	-	68.20	-12.10	107	100	H
						5.46996	41.92	Pk	35.30	-20.60	0.00	56.62	-	-	68.20	-11.58	107	100	H
* 5.45998	26.70	RMS				35.30	-20.60	0.17	41.57	54.00	-12.43	-	-	-	107	100	H		
* 5.35007	29.36	RMS				35.10	-20.70	0.17	43.93	54.00	-10.07	-	-	-	107	100	H		
5.46998	29.18	RMS				35.30	-20.60	0.17	44.05	-	-	-	-	-	-	107	100	H	
5.46967	29.66	RMS				35.30	-20.60	0.17	44.53	-	-	-	-	-	-	107	100	H	
* 5.45998	37.52	Pk				35.30	-20.60	0.00	52.22	-	-	74.00	-21.78	89	139	V			
* 5.39557	40.37	Pk				35.20	-20.60	0.00	54.97	-	-	74.00	-19.03	89	139	V			
5.46998	39.30	Pk				35.30	-20.60	0.00	54.00	-	-	68.20	-14.20	89	139	V			
5.46983	41.37	Pk				35.30	-20.60	0.00	56.07	-	-	68.20	-12.13	89	139	V			
* 5.45998	27.87	RMS				35.30	-20.60	0.17	42.74	54.00	-11.26	-	-	-	-	89	139	V	
* 5.45974	28.53	RMS				35.30	-20.60	0.17	43.40	54.00	-10.60	-	-	-	-	89	139	V	
5.46998	28.83	RMS				35.30	-20.60	0.17	43.70	-	-	-	-	-	-	89	139	V	
5.46886	29.21	RMS				35.30	-20.60	0.17	44.08	-	-	-	-	-	-	89	139	V	
5.72500	42.76	Pk				35.70	-20.00	0.00	58.46	-	-	68.20	-9.74	105	155	H			
5.72849	45.59	Pk				35.70	-20.00	0.00	61.29	-	-	68.20	-6.91	105	155	H			
5.72500	41.45	Pk				35.70	-20.00	0.00	57.15	-	-	68.20	-11.05	86	116	V			
5.72653	44.05	Pk				35.70	-20.00	0.00	59.75	-	-	68.20	-8.45	86	116	V			
802.11n (HT40)	5510	MIMO				* 5.45998	42.04	Pk	35.30	-20.60	0.00	56.74	-	-	74.00	-17.26	106	100	H
						* 5.45976	42.19	Pk	35.30	-20.60	0.00	56.89	-	-	74.00	-17.11	106	100	H
						5.46998	49.98	Pk	35.30	-20.60	0.00	64.68	-	-	68.20	-3.52	106	100	H
						5.46959	50.72	Pk	35.30	-20.60	0.00	65.42	-	-	68.20	-2.78	106	100	H
			* 5.45998	30.15	RMS	35.30	-20.60	0.17	45.02	54.00	-8.98	-	-	-	106	100	H		
			* 5.45985	30.87	RMS	35.30	-20.60	0.17	45.74	54.00	-8.26	-	-	-	106	100	H		
			5.46998	36.24	RMS	35.30	-20.60	0.17	51.11	-	-	-	-	-	-	106	100	H	
			5.46967	37.58	RMS	35.30	-20.60	0.17	52.45	-	-	-	-	-	-	106	100	H	
			* 5.45998	41.12	Pk	35.30	-20.60	0.00	55.82	-	-	74.00	-18.18	87	138	V			
			* 5.45972	41.72	Pk	35.30	-20.60	0.00	56.42	-	-	74.00	-17.59	87	138	V			
			5.46998	47.08	Pk	35.30	-20.60	0.00	61.78	-	-	68.20	-6.42	87	138	V			
			5.46974	49.36	Pk	35.30	-20.60	0.00	64.06	-	-	68.20	-4.14	87	138	V			
			* 5.45998	29.34	RMS	35.30	-20.60	0.17	44.21	54.00	-9.79	-	-	-	-	87	138	V	
			* 5.45967	30.24	RMS	35.30	-20.60	0.17	45.11	54.00	-8.89	-	-	-	-	87	138	V	
			5.46998	34.71	RMS	35.30	-20.60	0.17	49.58	-	-	-	-	-	-	87	138	V	
			5.46950	35.84	RMS	35.30	-20.60	0.17	50.71	-	-	-	-	-	-	87	138	V	
			5.72500	39.07	Pk	35.70	-20.00	0.00	54.77	-	-	68.20	-13.43	106	146	H			
			5.72675	41.67	Pk	35.70	-20.00	0.00	57.37	-	-	68.20	-10.83	106	146	H			
			5.72500	40.28	Pk	35.70	-20.00	0.00	55.98	-	-	68.20	-12.22	84	100	V			
			5.72752	42.18	Pk	35.70	-20.00	0.00	57.88	-	-	68.20	-10.32	84	100	V			
			802.11ac (VHT80)	5530	MIMO	* 5.45998	46.64	Pk	35.30	-20.60	0.00	61.34	-	-	74.00	-12.66	106	121	H
						* 5.45488	48.68	Pk	35.30	-20.60	0.00	63.38	-	-	74.00	-10.62	106	121	H
						5.46998	46.54	Pk	35.30	-20.60	0.00	61.24	-	-	68.20	-6.96	106	121	H
						5.46873	50.13	Pk	35.30	-20.60	0.00	64.83	-	-	68.20	-3.37	106	121	H
* 5.45998	34.43	RMS				35.30	-20.60	0.24	49.37	54.00	-4.63	-	-	-	106	121	H		
* 5.45943	35.61	RMS				35.30	-20.60	0.24	50.55	54.00	-3.45	-	-	-	106	121	H		
5.46998	37.03	RMS				35.30	-20.60	0.24	51.97	-	-	-	-	-	-	106	121	H	
5.46989	37.08	RMS				35.30	-20.60	0.24	52.02	-	-	-	-	-	-	106	121	H	
* 5.45998	45.29	Pk				35.30	-20.60	0.00	59.99	-	-	74.00	-14.01	89	100	V			
* 5.45843	49.24	Pk				35.30	-20.60	0.00	63.94	-	-	74.00	-10.06	89	100	V			
5.46998	48.16	Pk				35.30	-20.60	0.00	62.86	-	-	68.20	-5.34	89	100	V			
5.46738	50.71	Pk				35.30	-20.60	0.00	65.41	-	-	68.20	-2.79	89	100	V			
* 5.45998	32.91	RMS				35.30	-20.60	0.24	47.85	54.00	-6.15	-	-	-	-	89	100	V	
* 5.45937	34.41	RMS				35.30	-20.50	0.24	49.45	54.00	-4.55	-	-	-	-	89	100	V	
5.46998	35.14	RMS				35.30	-20.60	0.24	50.08	-	-	-	-	-	-	89	100	V	
5.46978	35.88	RMS				35.30	-20.60	0.24	50.82	-	-	-	-	-	-	89	100	V	
5.72500	37.58	Pk				35.70	-20.00	0.00	53.28	-	-	68.20	-14.92	105	130	H			
5.82039	39.69	Pk				35.80	-19.80	0.00	55.69	-	-	68.20	-12.51	105	130	H			
5.72500	37.88	Pk				35.70	-20.00	0.00	53.58	-	-	68.20	-14.62	91	101	V			
5.72650	40.47	Pk				35.70	-20.00	0.00	56.17	-	-	68.20	-12.03	91	101	V			

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity	
802.11ac (VHT160)	5570 Lower	MIMO	* 5.45998	44.57	Pk	35.30	-20.60	0.00	59.27	-	-	74.00	-14.73	107	110	H	
			* 5.43616	49.05	Pk	35.30	-20.60	0.00	63.75	-	-	74.00	-10.25	107	110	H	
			5.46998	43.66	Pk	35.30	-20.60	0.00	58.36	-	-	68.20	-9.84	107	110	H	
			5.46455	46.61	Pk	35.30	-20.50	0.00	61.41	-	-	68.20	-6.79	107	110	H	
			* 5.45998	33.02	RMS	35.30	-20.60	0.29	48.01	54.00	-5.99	-	-	-	107	110	H
			* 5.44644	34.72	RMS	35.30	-20.60	0.29	49.71	54.00	-4.29	-	-	-	107	110	H
			5.46998	33.33	RMS	35.30	-20.60	0.29	48.32	-	-	-	-	-	107	110	H
			5.46939	34.70	RMS	35.30	-20.60	0.29	49.69	-	-	-	-	-	107	110	H
			* 5.45998	42.92	Pk	35.30	-20.60	0.00	57.62	-	-	74.00	-16.38	89	100	V	
			* 5.44714	46.94	Pk	35.30	-20.60	0.00	61.64	-	-	74.00	-12.36	89	100	V	
	5.46998	42.82	Pk	35.30	-20.60	0.00	57.52	-	-	68.20	-10.68	89	100	V			
	5.46827	44.71	Pk	35.30	-20.60	0.00	59.41	-	-	68.20	-6.79	89	100	V			
	* 5.45998	31.84	RMS	35.30	-20.60	0.29	46.83	54.00	-7.17	-	-	-	89	100	V		
	* 5.45786	33.13	RMS	35.30	-20.60	0.29	48.12	54.00	-5.88	-	-	-	89	100	V		
	5.46998	32.00	RMS	35.30	-20.60	0.29	46.99	-	-	-	-	-	89	100	V		
	5.46989	33.29	RMS	35.30	-20.60	0.29	48.28	-	-	-	-	-	89	100	V		
	5.72500	38.56	Pk	35.70	-20.00	0.00	54.26	-	-	68.20	-13.94	110	180	H			
	5.77790	39.79	Pk	35.80	-19.80	0.00	55.79	-	-	68.20	-12.41	110	180	H			
	5.72500	36.78	Pk	35.70	-20.00	0.00	52.48	-	-	68.20	-15.72	15	224	V			
	5.78099	39.44	Pk	35.80	-19.80	0.00	55.44	-	-	68.20	-12.76	15	224	V			
802.11ax (HE20)	5500	MIMO	* 5.45998	38.15	Pk	35.30	-20.60	0.00	52.85	-	-	74.00	-21.15	106	118	H	
			* 5.4176	40.42	Pk	35.20	-20.60	0.00	55.02	-	-	74.00	-18.98	106	118	H	
			5.46998	40.00	Pk	35.30	-20.60	0.00	54.70	-	-	68.20	-13.50	106	118	H	
			5.46985	41.74	Pk	35.30	-20.60	0.00	56.44	-	-	68.20	-11.76	106	118	H	
			* 5.45998	27.01	RMS	35.30	-20.60	0.00	41.71	54.00	-12.29	-	-	-	106	118	H
			* 5.35422	28.85	RMS	35.10	-20.70	0.00	43.25	54.00	-10.75	-	-	-	106	118	H
			5.46998	29.42	RMS	35.30	-20.60	0.00	44.12	-	-	-	-	-	106	118	H
			5.46928	29.71	RMS	35.30	-20.60	0.00	44.41	-	-	-	-	-	106	118	H
			* 5.45998	37.47	Pk	35.30	-20.60	0.00	52.17	-	-	74.00	-21.83	92	228	V	
			* 5.4325	39.84	Pk	35.30	-20.60	0.00	54.54	-	-	74.00	-19.46	92	228	V	
	5.46998	39.31	Pk	35.30	-20.60	0.00	54.01	-	-	68.20	-14.19	92	228	V			
	5.46952	41.78	Pk	35.30	-20.60	0.00	56.48	-	-	68.20	-11.72	92	228	V			
	* 5.45998	26.69	RMS	35.30	-20.60	0.00	41.39	54.00	-12.61	-	-	-	92	228	V		
	* 5.45967	28.24	RMS	35.30	-20.50	0.00	43.04	54.00	-10.96	-	-	-	92	228	V		
	5.46998	28.41	RMS	35.30	-20.60	0.00	43.11	-	-	-	-	-	92	228	V		
	5.46878	29.05	RMS	35.30	-20.60	0.00	43.75	-	-	-	-	-	92	228	V		
	5.72500	46.00	Pk	35.70	-20.00	0.00	61.70	-	-	68.20	-6.50	106	126	H			
	5.72566	47.38	Pk	35.70	-20.00	0.00	63.08	-	-	68.20	-5.12	106	126	H			
	5.72500	45.79	Pk	35.70	-20.00	0.00	61.49	-	-	68.20	-6.71	88	100	V			
	5.72524	46.86	Pk	35.70	-20.00	0.00	62.56	-	-	68.20	-5.64	88	100	V			
802.11ax (HE40)	5510	MIMO	* 5.45998	41.17	Pk	35.30	-20.60	0.00	55.87	-	-	74.00	-18.13	108	104	H	
			* 5.45701	41.52	Pk	35.30	-20.60	0.00	56.22	-	-	74.00	-17.78	108	104	H	
			5.46998	46.13	Pk	35.30	-20.60	0.00	60.83	-	-	68.20	-7.37	108	104	H	
			5.46989	47.78	Pk	35.30	-20.60	0.00	62.48	-	-	68.20	-5.72	108	104	H	
			* 5.45998	29.27	RMS	35.30	-20.60	0.00	43.97	54.00	-10.03	-	-	-	108	104	H
			* 5.45972	30.66	RMS	35.30	-20.60	0.00	45.36	54.00	-8.64	-	-	-	108	104	H
			5.46998	33.16	RMS	35.30	-20.60	0.00	47.86	-	-	-	-	-	108	104	H
			5.46934	35.12	RMS	35.30	-20.60	0.00	49.82	-	-	-	-	-	108	104	H
			* 5.45998	40.30	Pk	35.30	-20.60	0.00	55.00	-	-	74.00	-19.00	88	100	V	
			* 5.45847	42.42	Pk	35.30	-20.60	0.00	57.12	-	-	74.00	-16.88	88	100	V	
	5.46998	46.26	Pk	35.30	-20.60	0.00	60.96	-	-	68.20	-7.24	88	100	V			
	5.46814	48.78	Pk	35.30	-20.60	0.00	63.48	-	-	68.20	-4.72	88	100	V			
	* 5.45998	29.55	RMS	35.30	-20.60	0.00	44.25	54.00	-9.75	-	-	-	88	100	V		
	* 5.45932	30.08	RMS	35.30	-20.50	0.00	44.88	54.00	-9.12	-	-	-	88	100	V		
	5.46998	34.08	RMS	35.30	-20.60	0.00	48.79	-	-	-	-	-	88	100	V		
	5.46945	34.78	RMS	35.30	-20.60	0.00	49.48	-	-	-	-	-	88	100	V		
	5.72500	39.17	Pk	35.70	-20.00	0.00	54.87	-	-	68.20	-13.33	105	117	H			
	5.72658	42.44	Pk	35.70	-20.00	0.00	58.14	-	-	68.20	-10.06	105	117	H			
	5.72500	39.04	Pk	35.70	-20.00	0.00	54.74	-	-	68.20	-13.46	89	100	V			
	5.73214	41.25	Pk	35.70	-19.90	0.00	57.05	-	-	68.20	-11.15	89	100	V			
802.11ax (HE80)	5530	MIMO	* 5.45998	45.93	Pk	35.30	-20.60	0.00	60.63	-	-	74.00	-13.37	106	127	H	
			* 5.45245	49.28	Pk	35.30	-20.60	0.00	63.98	-	-	74.00	-10.02	106	127	H	
			5.46998	48.43	Pk	35.30	-20.60	0.00	63.13	-	-	68.20	-5.07	106	127	H	
			5.46930	50.17	Pk	35.30	-20.60	0.00	64.87	-	-	68.20	-3.33	106	127	H	
			* 5.45998	35.24	RMS	35.30	-20.60	0.00	49.94	54.00	-4.06	-	-	-	106	127	H
			* 5.45937	36.53	RMS	35.30	-20.50	0.00	51.33	54.00	-2.67	-	-	-	106	127	H
			5.46998	37.41	RMS	35.30	-20.60	0.00	52.11	-	-	-	-	-	106	127	H
			5.46939	37.98	RMS	35.30	-20.60	0.00	52.68	-	-	-	-	-	106	127	H
			* 5.45998	46.05	Pk	35.30	-20.60	0.00	60.75	-	-	74.00	-13.25	91	100	V	
			* 5.45217	48.80	Pk	35.30	-20.60	0.00	63.50	-	-	74.00	-10.50	91	100	V	
	5.46998	48.12	Pk	35.30	-20.60	0.00	62.82	-	-	68.20	-5.38	91	100	V			
	5.46891	49.98	Pk	35.30	-20.60	0.00	64.68	-	-	68.20	-3.52	91	100	V			
	* 5.45998	33.63	RMS	35.30	-20.60	0.00	48.33	54.00	-5.67	-	-	-	91	100	V		
	* 5.45937	35.13	RMS	35.30	-20.50	0.00	49.93	54.00	-4.07	-	-	-	91	100	V		
	5.46998	36.08	RMS	35.30	-20.60	0.00	50.78	-	-	-	-	-	91	100	V		
	5.46698	36.90	RMS	35.30	-20.60	0.00	51.60	-	-	-	-	-	91	100	V		
	5.72500	37.64	Pk	35.70	-20.00	0.00	53.34	-	-	68.20	-14.86	106	115	H			
	5.80523	40.00	Pk	35.80	-19.90	0.00	55.90	-	-	68.20	-12.30	106	115	H			
	5.72500	37.89	Pk	35.70	-20.00	0.00	53.59	-	-	68.20	-14.61	89	103	V			
	5.76377	40.17	Pk	35.70	-19.90	0.00	55.97	-	-	68.20	-12.23	89	103	V			

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result dBuV/m	AV Limit dBuV/m	AV Margin [dB]	PK Limit dBuV/m	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity			
802.11ax (HE160)	5570 Lower	MIMO	* 5.45998	43.22	Pk	35.30	-20.60	0.00	57.92	-	-	74.00	-16.08	106	129	H			
			* 5.4369	48.52	Pk	35.30	-20.70	0.00	63.12	-	-	74.00	-10.88	106	129	H			
			5.46998	42.78	Pk	35.30	-20.60	0.00	57.48	-	-	68.20	-10.72	106	129	H			
			5.46753	45.23	Pk	35.30	-20.60	0.00	59.93	-	-	68.20	-8.27	106	129	H			
			* 5.45998	32.51	RMS	35.30	-20.60	0.00	47.21	54.00	-6.79	-	-	-	-	106	129	H	
			* 5.44629	33.20	RMS	35.30	-20.60	0.00	47.90	54.00	-6.10	-	-	-	-	106	129	H	
			5.46998	32.73	RMS	35.30	-20.60	0.00	47.43	-	-	-	-	-	-	106	129	H	
			5.46740	33.77	RMS	35.30	-20.60	0.00	48.47	-	-	-	-	-	-	106	129	H	
			* 5.45998	41.43	Pk	35.30	-20.60	0.00	56.13	-	-	74.00	-17.87	-	-	91	100	V	
			* 5.43797	44.42	Pk	35.30	-20.60	0.00	59.12	-	-	74.00	-14.88	-	-	91	100	V	
			5.46998	41.54	Pk	35.30	-20.60	0.00	56.24	-	-	68.20	-11.96	-	-	91	100	V	
			5.46556	44.88	Pk	35.30	-20.60	0.00	59.58	-	-	68.20	-8.62	-	-	91	100	V	
			* 5.45998	32.05	RMS	35.30	-20.60	0.00	46.75	54.00	-7.25	-	-	-	-	91	100	V	
			* 5.45845	31.74	RMS	35.30	-20.60	0.00	46.44	54.00	-7.56	-	-	-	-	91	100	V	
			5.46998	31.20	RMS	35.30	-20.60	0.00	45.90	-	-	-	-	-	-	91	100	V	
			5.46683	31.97	RMS	35.30	-20.60	0.00	46.67	-	-	-	-	-	-	91	100	V	
			5570 Upper	MIMO	5.72500	42.59	Pk	35.70	-20.00	0.00	58.29	-	-	-	68.20	-9.91	107	139	H
					5.72799	45.37	Pk	35.70	-20.00	0.00	61.07	-	-	-	68.20	-7.13	107	139	H
	5.72500	41.40			Pk	35.70	-20.00	0.00	57.10	-	-	-	68.20	-11.10	88	105	V		
	5.72657	45.80			Pk	35.70	-20.00	0.00	61.50	-	-	-	68.20	-6.70	88	105	V		

Note1. Pk - Peak detector, RMS - RMS detector
 Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11a / 5500 MHz)
5500 MHz HORIZONTAL



Note. Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

5500 MHz DATA

Radiated Emissions

Frequency (Ghz)	Meas Reading (dBuV)	Det	3117_09168724	10dB_ATTN(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Asmth (Degs)	Height (cm)	Polarity
5.7597	44.31	PK-U	34.7	-17.3	0	61.71	-	-	-	-	68.2	-6.49	287	100	H
5.7598	43.76	PK-U	34.7	-17.3	0	61.16	-	-	-	-	68.2	-7.04	272	96	V

Frequency (Ghz)	Meas Reading (dBuV)	Det	3117_09168724	@GHz_HF(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Asmth (Degs)	Height (cm)	Polarity
* 10.99885	34.23	PK-U	38.2	-20.4	0	52.03	-	-	74	-21.97	-	-	360	100	V
* 10.99921	34.57	PK-U	38.2	-20.4	0	52.37	-	-	74	-21.63	-	-	360	100	H
16.49842	34.48	PK-U	40.8	-19.6	0	55.68	-	-	-	-	68.2	-12.52	360	100	H
16.50207	34.95	PK-U	40.8	-19.6	0	56.15	-	-	-	-	68.2	-12.05	360	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK-U - U-NII: Maximum Peak

HARMONICS AND SPURIOUS EMISSIONS TEST DATA

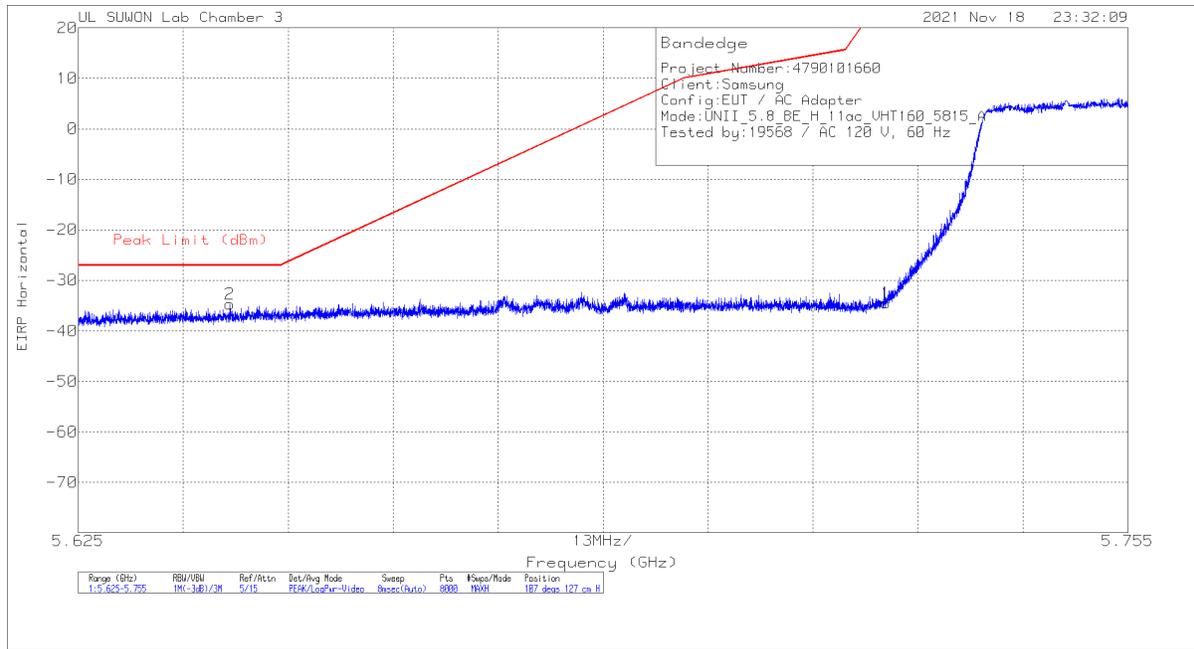
Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Non-Restricted [dBuV/m]	Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity		
802.11a	5500	MIMO	5.760	44.31	PK-U	34.70	-17.30	0.00	61.71	-	-	-	-	68.20	-6.49	287	100	H		
			5.760	43.76	PK-U	34.70	-17.30	0.00	61.16	-	-	-	-	-	68.20	-7.04	272	136	V	
			* 10.99865	34.23	PK-U	38.20	-20.40	0.00	52.03	-	-	-	74.00	-21.97	-	-	-	360	100	V
			* 10.99821	34.57	PK-U	38.20	-20.40	0.00	52.37	-	-	-	74.00	-21.63	-	-	-	360	100	H
			16.498	34.48	PK-U	40.80	-19.60	0.00	56.68	-	-	-	-	-	-	68.20	-12.52	360	100	H
			16.502	34.95	PK-U	40.80	-19.60	0.00	56.15	-	-	-	-	-	-	68.20	-12.05	360	100	V
	5580	MIMO	* 8.36285	37.66	PK-U	36.30	-25.30	0.00	48.66	-	-	-	74.00	-25.34	-	-	-	360	100	H
			* 8.37494	37.94	PK-U	36.30	-25.40	0.00	48.84	-	-	-	74.00	-25.16	-	-	-	360	100	V
			* 11.16297	36.82	PK-U	38.40	-22.30	0.00	52.92	-	-	-	74.00	-21.08	-	-	-	360	100	H
			* 11.16641	37.04	PK-U	38.40	-22.20	0.00	53.24	-	-	-	74.00	-20.76	-	-	-	360	100	V
			16.735	34.22	PK-U	41.50	-17.40	0.00	58.32	-	-	-	-	-	-	68.20	-9.88	360	100	H
			16.748	34.26	PK-U	41.60	-17.40	0.00	58.46	-	-	-	-	-	-	68.20	-9.74	360	100	V
	5700	MIMO	8.548	37.49	PK-U	36.20	-24.50	0.00	49.19	-	-	-	-	-	68.20	-19.01	360	100	H	
			8.547	37.18	PK-U	36.20	-24.50	0.00	48.88	-	-	-	-	-	68.20	-19.32	360	100	V	
			* 11.40221	36.28	PK-U	38.40	-21.90	0.00	52.78	-	-	-	74.00	-21.22	-	-	-	360	100	H
			* 11.39279	35.83	PK-U	38.40	-21.90	0.00	52.33	-	-	-	74.00	-21.67	-	-	-	360	100	V
			17.100	34.74	PK-U	41.50	-17.40	0.00	58.84	-	-	-	-	-	-	68.20	-9.36	360	100	H
			17.101	34.19	PK-U	41.50	-17.40	0.00	58.29	-	-	-	-	-	-	68.20	-9.91	360	100	V
	5720	MIMO	8.571	34.43	PK-U	36.50	-23.30	0.00	47.63	-	-	-	-	-	68.20	-20.57	360	100	H	
			8.571	34.71	PK-U	36.50	-23.30	0.00	47.91	-	-	-	-	-	68.20	-20.29	360	100	V	
			* 11.44439	33.59	PK-U	38.60	-21.70	0.00	50.49	-	-	-	74.00	-23.51	-	-	-	360	100	H
			* 11.44167	33.75	PK-U	38.60	-21.70	0.00	50.65	-	-	-	74.00	-23.35	-	-	-	360	100	V
			17.157	33.09	PK-U	42.20	-18.40	0.00	56.89	-	-	-	-	-	-	68.20	-11.31	360	100	H
			17.154	32.86	PK-U	42.20	-18.50	0.00	56.56	-	-	-	-	-	-	68.20	-11.64	360	100	V
802.11n (HT20) Spot-Check	5500	MIMO	5.760	47.58	PK-U	35.00	-20.90	0.00	61.68	-	-	-	-	68.20	-6.52	102	125	H		
			5.760	46.69	PK-U	35.00	-20.90	0.00	60.79	-	-	-	-	-	68.20	-7.41	85	242	V	
			* 10.99204	35.01	PK-U	38.50	-21.60	0.00	51.91	-	-	-	74.00	-22.09	-	-	-	0	102	H
			* 11.00544	34.25	PK-U	38.50	-21.70	0.00	51.05	-	-	-	74.00	-22.95	-	-	-	0	102	V
			16.511	33.52	PK-U	42.00	-19.60	0.00	56.92	-	-	-	-	-	-	68.20	-12.28	0	102	H
			16.513	33.53	PK-U	42.00	-19.60	0.00	56.93	-	-	-	-	-	-	68.20	-12.27	0	102	V
802.11ax (HE20) 4RU Spot-Check	5500	MIMO	5.769	41.70	PK-U	35.70	-19.80	0.00	57.60	-	-	-	-	68.20	-10.60	0	100	H		
			5.757	41.76	PK-U	35.70	-19.90	0.00	57.56	-	-	-	-	-	68.20	-10.64	0	100	V	
			6.600	38.91	PK-U	36.50	-26.60	0.00	48.81	-	-	-	-	-	68.20	-19.39	71	115	H	
			6.600	38.62	PK-U	36.50	-26.60	0.00	48.52	-	-	-	-	-	68.20	-19.68	95	129	V	
			* 10.99902	33.89	PK-U	38.50	-21.70	0.00	50.69	-	-	-	74.00	-23.31	-	-	-	0	100	H
			* 10.99427	33.60	PK-U	38.50	-21.70	0.00	50.40	-	-	-	74.00	-23.60	-	-	-	0	100	V

Note1. PK-U - U-NII: Maximum Peak / ADR - U-NII AD primary method, RMS average
 Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

11.4. TX ABOVE 1GHz 2Tx MODE IN THE 5.8 GHz BAND

BANDEDGE (WORST CASE: 802.11ac VHT160 LOWER SIDE / 5815 MHz)

HORIZONTAL PEAK DATA



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117_00218957	10dB_ATT[dB]	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-61.88	Pk	35.6	-20	11.8	0	-34.48	27	-61.48	107	127	H
2	5.64379	-61.73	Pk	35.5	-20.3	11.8	0	-34.73	-27	-7.73	107	127	H

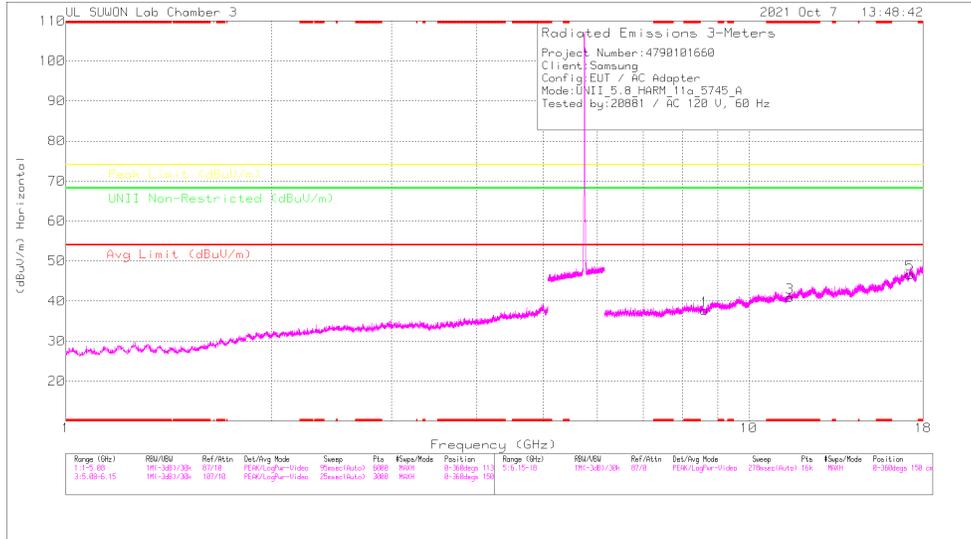
Pk - Peak detector

BANDEDGE TEST DATA

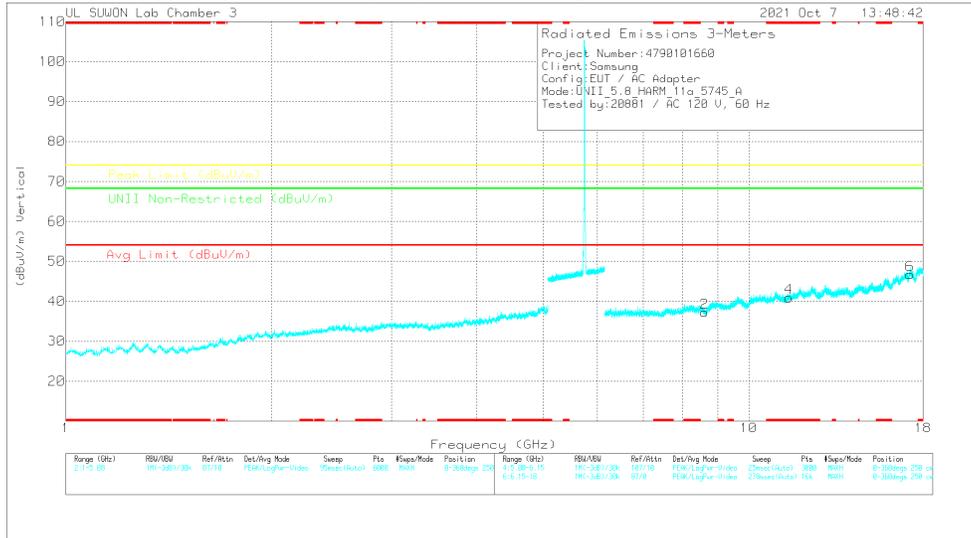
Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBm]	Detector Mode	ANT Factor	Loss [dB]	Conv. F [dB]	DC Corr [dB]	Result [dBm]	PK Limit [dBm]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity	
802.11a	5745	MIMO	5.72500	-54.86	Pk	35.60	-20.00	11.80	0.00	-27.46	27.00	-54.46	106	110	H	
			5.64473	-63.87	Pk	35.50	-20.30	11.80	0.00	-36.87	-27.00	-9.87	106	110	H	
			5.72500	-52.94	Pk	35.60	-20.00	11.80	0.00	0.00	-25.54	27.00	-52.54	87	100	V
			5.63753	-62.93	Pk	35.50	-20.30	11.80	0.00	0.00	-35.93	-27.00	-8.93	87	100	V
			5.85003	-64.52	Pk	34.90	-17.30	11.80	0.00	0.00	-35.12	26.94	-62.06	105	125	H
	5825	MIMO	5.98248	-67.11	Pk	35.10	-17.20	11.80	0.00	-37.41	-27.00	-10.41	105	125	H	
			5.85003	-63.31	Pk	34.90	-17.30	11.80	0.00	-33.91	26.94	-60.85	88	241	V	
			5.96483	-67.13	Pk	35.10	-17.20	11.80	0.00	-37.43	-27.00	-10.43	88	241	V	
			5.72500	-57.71	Pk	35.60	-20.00	11.80	0.00	0.00	-30.31	27.00	-57.31	107	173	H
			5.63654	-63.46	Pk	35.50	-20.30	11.80	0.00	0.00	-36.46	-27.00	-9.46	107	173	H
802.11n (HT20)	5745	MIMO	5.72500	-58.05	Pk	35.60	-20.00	11.80	0.00	-30.65	27.00	-57.65	91	136	V	
			5.64327	-63.64	Pk	35.50	-20.30	11.80	0.00	-36.64	-27.00	-9.64	91	136	V	
			5.85003	-63.45	Pk	34.90	-17.30	11.80	0.00	-34.05	26.94	-60.99	70	177	H	
			5.99515	-66.85	Pk	35.20	-17.10	11.80	0.00	-36.95	-27.00	-9.95	70	177	H	
			5.85003	-67.34	Pk	34.90	-17.30	11.80	0.00	-37.94	26.94	-64.88	90	192	V	
	5825	MIMO	5.93943	-67.38	Pk	35.10	-17.20	11.80	0.00	-37.68	-27.00	-10.68	90	192	V	
			5.72500	-52.98	Pk	35.60	-20.00	11.80	0.00	-25.58	27.00	-52.58	105	173	H	
			5.62931	-63.38	Pk	35.50	-20.30	11.80	0.00	-36.38	-27.00	-9.38	105	173	H	
			5.72500	-53.47	Pk	35.60	-20.00	11.80	0.00	-26.07	27.00	-53.07	85	127	V	
			5.64665	-63.44	Pk	35.50	-20.30	11.80	0.00	-36.44	-27.00	-9.44	85	127	V	
802.11n (HT40)	5795	MIMO	5.85001	-66.07	Pk	35.90	-19.80	11.80	0.00	-38.17	26.99	-65.16	105	165	H	
			5.98567	-63.40	Pk	36.00	-19.70	11.80	0.00	-35.30	-27.00	-8.30	105	165	H	
			5.85001	-64.92	Pk	35.90	-19.80	11.80	0.00	-37.02	26.99	-64.01	91	203	V	
			5.95832	-63.76	Pk	36.00	-19.80	11.80	0.00	-35.76	-27.00	-8.76	91	203	V	
			5.72500	-58.51	Pk	35.60	-20.00	11.80	0.00	-31.11	27.00	-58.11	107	134	H	
	5775 Lower	MIMO	5.64481	-62.90	Pk	35.50	-20.30	11.80	0.00	-35.90	-27.00	-8.90	107	134	H	
			5.72500	-59.00	Pk	35.60	-20.00	11.80	0.00	-31.60	27.00	-58.60	87	100	V	
			5.62950	-63.14	Pk	35.50	-20.30	11.80	0.00	-36.14	-27.00	-9.14	87	100	V	
			5.85001	-61.60	Pk	35.90	-19.80	11.80	0.00	-33.70	26.99	-60.69	106	135	H	
			5.99700	-63.46	Pk	36.00	-19.70	11.80	0.00	-35.36	-27.00	-8.36	106	135	H	
5775 Upper	MIMO	5.85001	-63.31	Pk	35.90	-19.80	11.80	0.00	-35.41	26.99	-62.40	87	212	V		
		5.96197	-63.60	Pk	36.00	-19.70	11.80	0.00	-35.50	-27.00	-8.50	87	212	V		
		5.72500	-61.88	Pk	35.60	-20.00	11.80	0.00	-34.48	27.00	-61.48	107	127	H		
		5.64379	-61.73	Pk	35.50	-20.30	11.80	0.00	-34.73	-27.00	-7.73	107	127	H		
		5.72500	-62.22	Pk	35.60	-20.00	11.80	0.00	-34.82	27.00	-61.82	89	103	V		
802.11ac (VHT80)	5815 Lower	MIMO	5.64634	-62.42	Pk	35.50	-20.30	11.80	0.00	-35.42	-27.00	-8.42	89	103	V	
			5.72500	-51.15	Pk	35.60	-20.00	11.80	0.00	-23.75	27.00	-50.75	106	128	H	
			5.64879	-63.75	Pk	35.50	-20.30	11.80	0.00	-36.75	-27.00	-9.75	106	128	H	
			5.72500	-50.08	Pk	35.60	-20.00	11.80	0.00	-22.68	27.00	-49.68	91	100	V	
			5.65029	-63.28	Pk	35.50	-20.20	11.80	0.00	-36.18	-26.79	-9.39	91	100	V	
	5745	MIMO	5.85003	-68.71	Pk	34.90	-17.30	11.80	0.00	-39.31	26.94	-66.25	69	126	H	
			5.98080	-67.10	Pk	35.10	-17.20	11.80	0.00	-37.40	-27.00	-10.40	69	126	H	
			5.85003	-67.76	Pk	34.90	-17.30	11.80	0.00	-38.36	26.94	-65.30	85	101	V	
			5.94248	-66.71	Pk	35.10	-17.20	11.80	0.00	-37.01	-27.00	-10.01	85	101	V	
			5.72500	-50.18	Pk	35.60	-20.00	11.80	0.00	-22.78	27.00	-49.78	109	136	H	
802.11ax (HE20)	5825	MIMO	5.63815	-63.45	Pk	35.50	-20.30	11.80	0.00	-36.45	-27.00	-9.45	109	136	H	
			5.72500	-48.83	Pk	35.60	-20.00	11.80	0.00	-21.43	27.00	-48.43	89	100	V	
			5.62663	-63.39	Pk	35.50	-20.30	11.80	0.00	-36.39	-27.00	-9.39	89	100	V	
			5.85003	-69.62	Pk	34.90	-17.30	11.80	0.00	-40.22	26.94	-67.16	105	137	H	
			5.95860	-67.57	Pk	35.10	-17.20	11.80	0.00	-37.87	-27.00	-10.87	105	137	H	
	5795	MIMO	5.85003	-68.75	Pk	34.90	-17.30	11.80	0.00	-39.35	26.94	-66.29	92	101	V	
			5.95970	-67.29	Pk	35.10	-17.20	11.80	0.00	-37.59	-27.00	-10.59	92	101	V	
			5.72500	-54.68	Pk	35.60	-20.00	11.80	0.00	-27.28	27.00	-54.28	109	135	H	
			5.62658	-63.23	Pk	35.50	-20.30	11.80	0.00	-36.23	-27.00	-9.23	109	135	H	
			5.72500	-53.17	Pk	35.60	-20.00	11.80	0.00	-25.77	27.00	-52.77	89	100	V	
802.11ax (HE40)	5775 Lower	MIMO	5.63168	-63.14	Pk	35.50	-20.30	11.80	0.00	-36.14	-27.00	-9.14	89	100	V	
			5.85003	-69.62	Pk	34.90	-17.30	11.80	0.00	-40.22	26.94	-67.16	105	137	H	
			5.95860	-67.57	Pk	35.10	-17.20	11.80	0.00	-37.87	-27.00	-10.87	105	137	H	
			5.72500	-62.32	Pk	35.60	-20.00	11.80	0.00	-34.92	27.00	-61.92	108	136	H	
			5.65050	-61.52	Pk	35.50	-20.20	11.80	0.00	-34.42	-26.63	-7.79	108	136	H	
	5775 Upper	MIMO	5.72500	-62.06	Pk	35.60	-20.00	11.80	0.00	-34.66	27.00	-61.66	92	100	V	
			5.64086	-62.42	Pk	35.50	-20.40	11.80	0.00	-35.52	-27.00	-8.52	92	100	V	

Note. Pk - Peak detector

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11a / 5745 MHz)
5745 MHz HORIZONTAL



5745 MHz VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

5745 MHz DATA

Radiated Emissions

Frequency (GHz)	Max Reading (dBuV)	Det	317_0021867	6GHz_HFdB	OC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (m)	Polarity
8.61263	35.17	PK-U	36.5	-23.4	0	48.27	-	-	-	-	68.2	-19.93	0	100	H
8.60358	34.99	PK-U	36.5	-23.4	0	48.08	-	-	-	-	68.2	-20.12	0	100	V
* 11.49228	34.48	PK-U	38.7	-21.7	0	51.48	-	-	74	-22.52	-	-	0	100	H
* 11.44048	33.36	PK-U	38.6	-21.8	0	50.16	-	-	74	-23.84	-	-	0	100	V
17.22693	32.76	PK-U	42.1	-17.8	0	57.06	-	-	-	-	68.2	-11.14	0	100	H
17.21945	33.03	PK-U	42.1	-17.9	0	57.23	-	-	-	-	68.2	-10.97	0	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK-U - U-NII: Maximum Peak

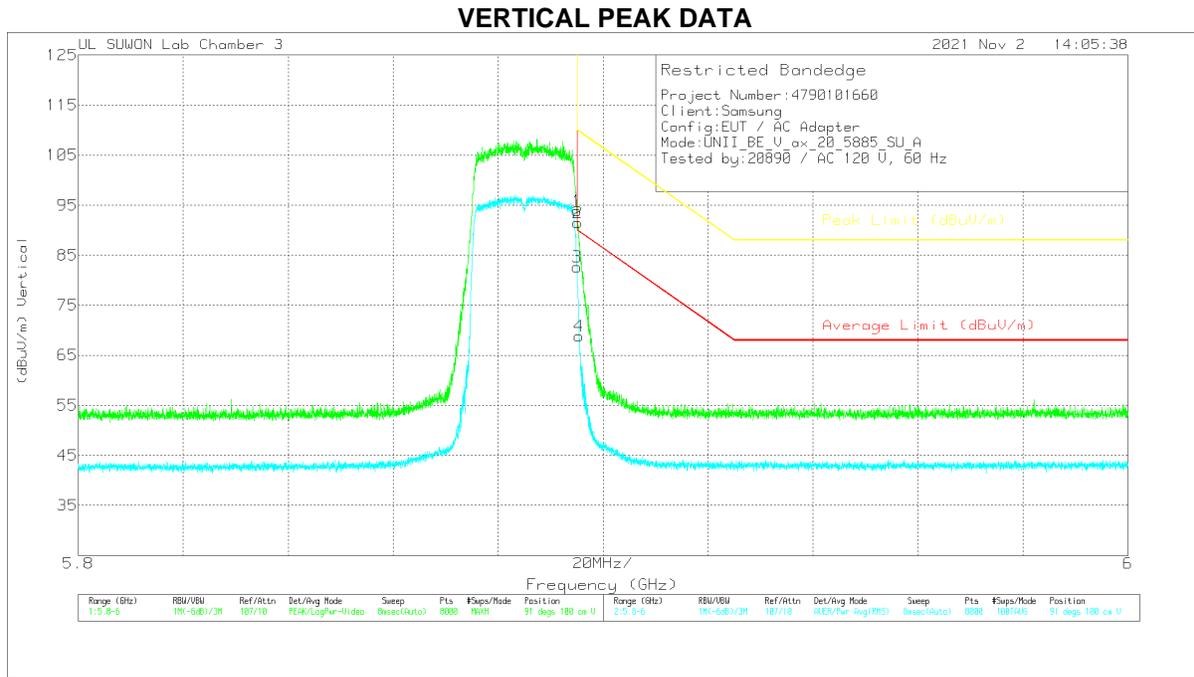
HARMONICS AND SPURIOUS EMISSIONS TEST DATA

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Non-Restricted [dBuV/m]	Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity		
802.11a	5745	MIMO	8.613	35.17	PK-U	36.50	-23.40	0.00	48.27	-	-	-	-	68.20	-19.93	0	100	H		
			8.604	34.98	PK-U	36.50	-23.40	0.00	48.08	-	-	-	-	-	68.20	-20.12	0	100	V	
			* 11.49228	34.48	PK-U	38.70	-21.70	0.00	51.48	-	-	74.00	-22.52	-	-	-	0	100	H	
			* 11.44048	33.36	PK-U	38.60	-21.80	0.00	50.16	-	-	74.00	-23.84	-	-	-	0	100	V	
			17.227	32.76	PK-U	42.10	-17.80	0.00	57.06	-	-	-	-	-	-	68.20	-11.14	0	100	H
			17.219	33.03	PK-U	42.10	-17.90	0.00	57.23	-	-	-	-	-	-	68.20	-10.97	0	100	V
	5785	MIMO	8.681	35.40	PK-U	36.50	-23.30	0.00	48.60	-	-	-	-	-	68.20	-19.60	0	100	H	
			8.678	34.96	PK-U	36.50	-23.30	0.00	48.16	-	-	-	-	-	68.20	-20.04	0	100	V	
			* 11.5745	34.64	PK-U	38.80	-21.90	0.00	51.54	-	-	74.00	-22.46	-	-	-	0	100	H	
			* 11.57248	35.36	PK-U	38.80	-21.90	0.00	52.26	-	-	74.00	-21.74	-	-	-	0	100	V	
			17.360	32.28	PK-U	42.00	-17.70	0.00	56.58	-	-	-	-	-	-	68.20	-11.62	0	100	H
			17.365	32.19	PK-U	42.00	-17.70	0.00	56.49	-	-	-	-	-	-	68.20	-11.71	0	100	V
	5825	MIMO	7.767	39.79	PK-U	36.30	-25.00	0.00	51.09	-	-	-	-	-	68.20	-17.11	99	116	H	
			7.767	38.59	PK-U	36.30	-25.10	0.00	49.79	-	-	-	-	-	68.20	-18.41	90	103	V	
			* 11.64631	35.33	PK-U	38.80	-21.80	0.00	52.33	-	-	74.00	-21.67	-	-	-	0	100	H	
			* 11.64532	34.60	PK-U	38.80	-21.70	0.00	51.70	-	-	74.00	-22.30	-	-	-	0	100	V	
			17.473	32.45	PK-U	42.00	-17.40	0.00	57.05	-	-	-	-	-	-	68.20	-11.15	0	100	H
			17.482	31.30	PK-U	42.00	-17.40	0.00	55.90	-	-	-	-	-	-	68.20	-12.30	0	100	V
802.11ax (HE20) 4RU Spot-check	5785	MIMO	8.686	35.04	PK-U	36.50	-23.30	0.00	48.24	-	-	-	-	68.20	-19.96	0	100	H		
			8.670	34.90	PK-U	36.50	-23.30	0.00	48.10	-	-	-	-	-	68.20	-20.10	0	100	V	
			* 11.57453	34.31	PK-U	38.80	-21.90	0.00	51.21	-	-	74.00	-22.79	-	-	-	0	100	H	
			* 11.57189	34.70	PK-U	38.80	-21.90	0.00	51.60	-	-	74.00	-22.40	-	-	-	0	100	V	
			17.361	31.95	PK-U	42.00	-17.80	0.00	56.15	-	-	-	-	-	-	68.20	-12.05	0	100	H
			17.350	32.29	PK-U	42.00	-17.80	0.00	56.49	-	-	-	-	-	-	68.20	-11.71	0	100	V

Note1. PK-U - U-NII: Maximum Peak / ADR - U-NII AD primary method, RMS average
 Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

11.5. TX ABOVE 1GHz 2Tx MODE IN THE 5.9 GHz BAND

BANDEDGE (WORST CASE: 802.11ax HE20 / 5885 MHz)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBu)	Det	3117_00218957	10dB_ATT[dB]	DC Corr (dB)	Corrected Reading (dBu/m)	Average Limit (dBu/m)	Margin (dB)	Peak Limit (dBu/m)	PK Margin (dB)	Azimuth (Deg)	Height (cm)	Polarity
1	5.89501	77.78	Pk	36	-19.9	0	93.88	-	-	109.99	-16.11	91	100	V
2	5.89516	75.38	Pk	36	-19.9	0	91.48	-	-	109.88	-18.4	91	100	V
3	5.89501	66.55	RMS	36	-19.9	0	82.65	89.99	-7.34	-	-	91	100	V
4	5.89546	52.75	RMS	36	-19.9	0	68.85	89.66	-20.81	-	-	91	100	V

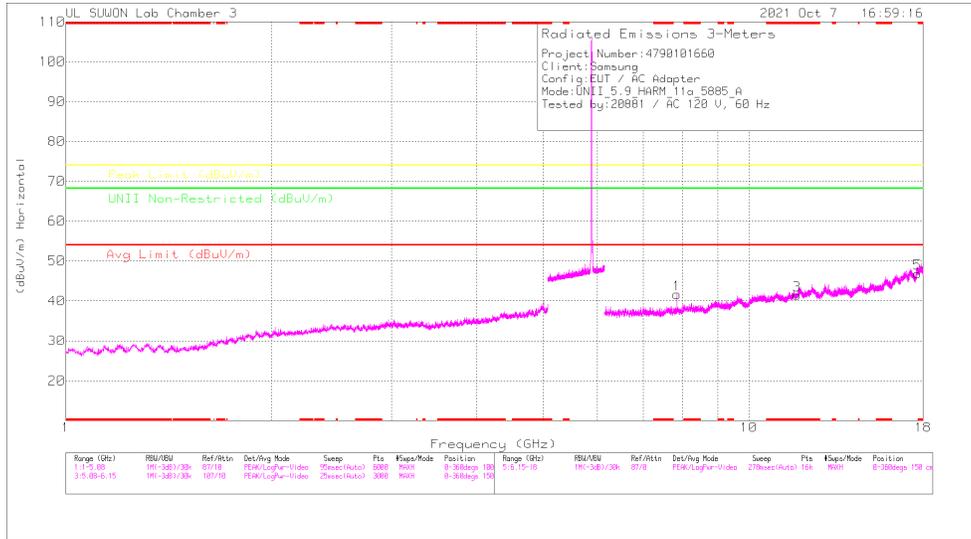
Pk - Peak detector
 RMS - RMS detection

BANDEDGE TEST DATA

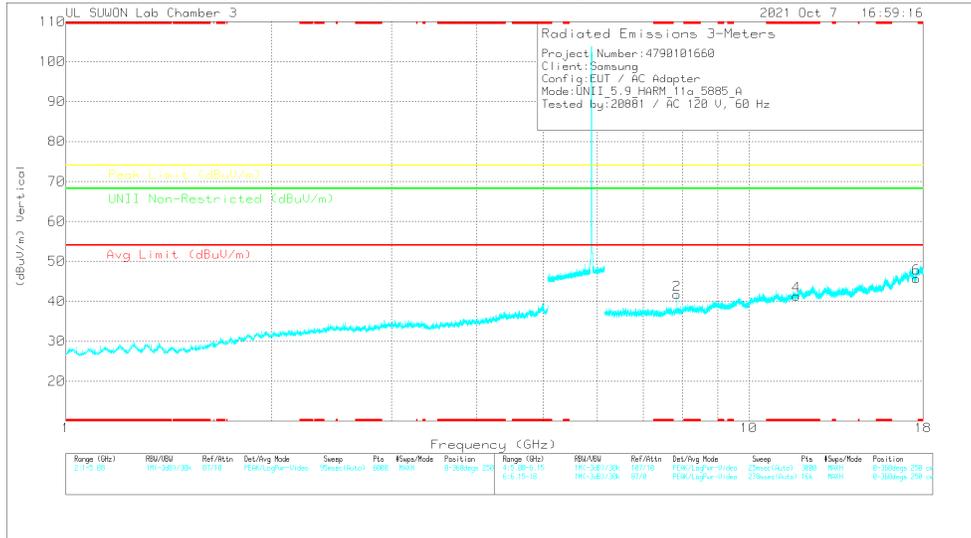
Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity	
802.11a	5885	MIMO	5.89501	60.84	Pk	36.00	-19.90	0.00	76.94	-	-	109.99	-33.05	151	103	H	
			5.93197	39.67	Pk	36.00	-19.70	0.00	55.97	-	-	88.00	-32.03	151	103	H	
			5.89501	45.29	RMS	36.00	-19.90	0.15	61.54	89.99	-28.45	-	-	-	151	103	H
			5.93662	27.79	RMS	36.00	-19.80	0.15	44.14	68.00	-23.86	-	-	-	151	103	H
			5.89501	67.52	Pk	36.00	-19.90	0.00	83.62	-	-	-	109.99	-26.37	85	106	V
			5.89511	66.94	Pk	36.00	-19.90	0.00	83.04	-	-	-	109.92	-26.88	85	106	V
			5.89501	52.58	RMS	36.00	-19.90	0.15	68.83	89.99	-21.16	-	-	-	85	106	V
			5.89514	51.40	RMS	36.00	-19.90	0.15	67.65	89.90	-22.25	-	-	-	85	106	V
802.11n (HT20)	5885	MIMO	5.89501	72.59	Pk	36.00	-19.90	0.00	88.69	-	-	109.99	-21.30	102	156	H	
			5.89514	71.97	Pk	36.00	-19.90	0.00	88.07	-	-	109.90	-21.83	102	156	H	
			5.89501	57.30	RMS	36.00	-19.90	0.17	73.57	89.99	-16.42	-	-	-	102	156	H
			5.89504	58.21	RMS	36.00	-19.90	0.17	74.48	89.97	-15.49	-	-	-	102	156	H
			5.89501	70.86	Pk	36.00	-19.90	0.00	86.96	-	-	-	109.99	-23.03	82	122	V
			5.89509	70.90	Pk	36.00	-19.90	0.00	87.00	-	-	-	109.94	-22.94	82	122	V
			5.89501	56.78	RMS	36.00	-19.90	0.17	73.05	89.99	-16.94	-	-	-	82	122	V
			5.89516	56.98	RMS	36.00	-19.90	0.17	73.25	89.88	-16.63	-	-	-	82	122	V
802.11n (HT40)	5875	MIMO	5.89501	66.26	Pk	36.00	-19.90	0.00	82.36	-	-	109.99	-27.63	102	166	H	
			5.89519	64.98	Pk	36.00	-19.90	0.00	81.08	-	-	109.86	-28.78	102	166	H	
			5.89501	52.15	RMS	36.00	-19.90	0.17	68.42	89.99	-21.57	-	-	-	102	166	H
			5.89504	52.54	RMS	36.00	-19.90	0.17	68.81	89.97	-21.16	-	-	-	102	166	H
			5.89501	65.71	Pk	36.00	-19.90	0.00	81.81	-	-	109.99	-28.18	80	121	V	
			5.89519	64.84	Pk	36.00	-19.90	0.00	80.94	-	-	109.86	-28.92	80	121	V	
			5.89501	51.53	RMS	36.00	-19.90	0.17	67.80	89.99	-22.19	-	-	-	80	121	V
			5.89519	51.71	RMS	36.00	-19.90	0.17	67.98	89.86	-21.88	-	-	-	80	121	V
802.11ac (VHT80)	5855	MIMO	5.89501	64.08	Pk	36.00	-19.90	0.00	80.18	-	-	109.99	-29.81	101	137	H	
			5.89506	64.35	Pk	36.00	-19.90	0.00	80.45	-	-	109.95	-29.50	101	137	H	
			5.89501	49.16	RMS	36.00	-19.90	0.24	65.50	89.99	-24.49	-	-	-	101	137	H
			5.92492	28.60	RMS	36.00	-19.80	0.24	45.04	68.06	-23.02	-	-	-	101	137	H
			5.89501	64.09	Pk	36.00	-19.90	0.00	80.19	-	-	-	109.99	-29.80	83	103	V
			5.89506	63.24	Pk	36.00	-19.90	0.00	79.34	-	-	109.95	-30.61	83	103	V	
			5.89501	47.24	RMS	36.00	-19.90	0.24	63.58	89.99	-26.41	-	-	-	83	103	V
			5.92799	28.55	RMS	36.00	-19.80	0.24	44.99	68.00	-23.01	-	-	-	83	103	V
802.11ac (VHT160)	5815 Upper	MIMO	5.89501	61.69	Pk	36.00	-19.90	0.00	77.79	-	-	109.99	-32.20	103	113	H	
			5.96214	41.00	Pk	36.00	-19.70	0.00	57.30	-	-	88.00	-30.70	103	113	H	
			5.89501	45.91	RMS	36.00	-19.90	0.29	62.30	89.99	-27.69	-	-	-	103	113	H
			5.94724	28.97	RMS	36.00	-19.70	0.29	45.56	68.00	-22.44	-	-	-	103	113	H
			5.89501	60.26	Pk	36.00	-19.90	0.00	76.36	-	-	109.99	-33.63	83	103	V	
			5.96007	40.96	Pk	36.00	-19.70	0.00	57.26	-	-	88.00	-30.74	83	103	V	
			5.89501	45.88	RMS	36.00	-19.90	0.29	62.27	89.99	-27.72	-	-	-	83	103	V
			5.93879	29.06	RMS	36.00	-19.80	0.29	45.55	68.00	-22.45	-	-	-	83	103	V
802.11ax (HE20)	5885	MIMO	5.89501	79.44	Pk	36.00	-19.90	0.00	95.54	-	-	109.99	-14.45	90	100	H	
			5.89506	77.48	Pk	36.00	-19.90	0.00	93.58	-	-	109.95	-16.37	90	100	H	
			5.89501	65.75	RMS	36.00	-19.90	0.00	81.85	89.99	-8.14	-	-	-	105	129	H
			5.89539	54.40	RMS	36.00	-19.90	0.00	70.50	89.72	-19.22	-	-	-	105	129	H
			5.89501	77.78	Pk	36.00	-19.90	0.00	93.88	-	-	109.99	-16.11	91	100	V	
			5.89516	75.38	Pk	36.00	-19.90	0.00	91.48	-	-	109.88	-18.40	91	100	V	
			5.89501	66.55	RMS	36.00	-19.90	0.00	82.65	89.99	-7.34	-	-	-	91	100	V
			5.89546	52.75	RMS	36.00	-19.90	0.00	68.85	89.66	-20.81	-	-	-	91	100	V
802.11ax (HE40)	5875	MIMO	5.89501	73.15	Pk	36.00	-19.90	0.00	89.25	-	-	109.99	-20.74	105	113	H	
			5.89509	71.17	Pk	36.00	-19.90	0.00	87.27	-	-	109.94	-22.67	105	113	H	
			5.89501	53.35	RMS	36.00	-19.90	0.00	69.45	89.99	-20.54	-	-	-	105	113	H
			5.92431	30.20	RMS	36.00	-19.80	0.00	46.40	68.50	-22.10	-	-	-	105	113	H
			5.89501	74.95	Pk	36.00	-19.90	0.00	91.05	-	-	109.99	-18.94	90	100	V	
			5.89506	73.22	Pk	36.00	-19.90	0.00	89.32	-	-	109.95	-20.63	90	100	V	
			5.89501	52.25	RMS	36.00	-19.90	0.00	68.35	89.99	-21.64	-	-	-	90	100	V
			5.89504	53.42	RMS	36.00	-19.90	0.00	69.52	89.97	-20.45	-	-	-	90	100	V
802.11ax (HE80)	5855	MIMO	5.89501	68.23	Pk	36.00	-19.90	0.00	84.33	-	-	109.99	-25.66	104	114	H	
			5.89506	70.97	Pk	36.00	-19.90	0.00	87.07	-	-	109.95	-22.88	104	114	H	
			5.89501	50.65	RMS	36.00	-19.90	0.00	66.75	89.99	-23.24	-	-	-	104	114	H
			5.92456	31.76	RMS	36.00	-19.80	0.00	47.96	68.32	-20.36	-	-	-	104	114	H
			5.89501	72.75	Pk	36.00	-19.90	0.00	88.85	-	-	109.99	-21.14	89	104	V	
			5.89506	71.35	Pk	36.00	-19.90	0.00	87.45	-	-	109.95	-22.50	89	104	V	
			5.89501	50.81	RMS	36.00	-19.90	0.00	66.91	89.99	-23.08	-	-	-	89	104	V
			5.92689	32.90	RMS	36.00	-19.80	0.00	49.10	68.00	-18.90	-	-	-	89	104	V
802.11ax (HE160)	5815 Upper	MIMO	5.89501	65.06	Pk	36.00	-19.90	0.00	81.16	-	-	109.99	-28.83	71	110	H	
			5.89509	67.22	Pk	36.00	-19.90	0.00	83.32	-	-	109.94	-26.62	71	110	H	
			5.89501	44.90	RMS	36.00	-19.90	0.00	61.00	89.99	-28.99	-	-	-	71	110	H
			5.93892	29.40	RMS	36.00	-19.80	0.00	45.60	68.00	-22.40	-	-	-	71	110	H
			5.89501	67.27	Pk	36.00	-19.90	0.00	83.37	-	-	109.99	-26.62	89	104	V	
			5.89536	65.59	Pk	36.00	-19.90	0.00	81.69	-	-	109.73	-28.04	89	104	V	
			5.89501	47.97	RMS	36.00	-19.90	0.00	64.07	89.99	-25.92	-	-	-	89	104	V
			5.94042	30.15	RMS	36.00	-19.70	0.00	46.45	68.00	-21.55	-	-	-	89	104	V

Note. RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11a / 5885 MHz)
5885 MHz HORIZONTAL



5885 MHz VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

5885 MHz DATA

Radiated Emissions

Frequency (GHz)	Max Reading (dBuV)	Det	317.0021867	6GHz_HFdB	OC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Altitude (Degs)	Height (m)	Polarity
7.84696	39.01	PK-U	38.3	-24.5	0	50.81	-	-	-	-	68.2	-17.39	98	115	H
7.84696	37.81	PK-U	38.3	-24.5	0	49.61	-	-	-	-	68.2	-18.59	84	125	V
* 11.78806	34.73	PK-U	39	-21.9	0	51.83	-	-	74	-22.17	-	-	0	100	H
* 11.78575	34.68	PK-U	39	-21.8	0	51.88	-	-	74	-22.12	-	-	0	100	V
17.85017	30.91	PK-U	41.9	-16.1	0	56.71	-	-	-	-	68.2	-11.49	0	100	H
17.84629	31.5	PK-U	42	-16.1	0	57.4	-	-	-	-	68.2	-10.8	0	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK-U - U-NII: Maximum Peak

HARMONICS AND SPURIOUS EMISSIONS TEST DATA

Mode	Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Non-Restricted [dBuV/m]	Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity			
802.11a	5845	MIMO	7.793	39.62	PK-U	36.30	-24.80	0.00	51.12	-	-	-	-	68.20	-17.08	99	115	H			
			7.793	38.50	PK-U	36.30	-24.80	0.00	50.00	-	-	-	-	-	68.20	-18.20	87	148	V		
			* 11.68554	35.36	PK-U	38.90	-21.80	0.00	52.46	-	-	74.00	-21.54	-	-	-	0	100	H		
			* 11.69435	35.59	PK-U	38.90	-21.80	0.00	52.69	-	-	74.00	-21.31	-	-	-	0	100	V		
			17.539	31.16	PK-U	42.00	-17.50	0.00	55.66	-	-	-	-	-	-	68.20	-12.54	0	100	H	
			17.532	31.36	PK-U	42.00	-17.40	0.00	55.96	-	-	-	-	-	-	68.20	-12.24	0	100	V	
	5865	MIMO	8.795	34.94	PK-U	36.50	-22.70	0.00	48.74	-	-	-	-	-	68.20	-19.46	0	100	H		
			8.790	35.13	PK-U	36.50	-22.70	0.00	48.93	-	-	-	-	-	68.20	-19.27	0	100	V		
			* 11.72619	34.88	PK-U	38.90	-21.80	0.00	51.98	-	-	74.00	-22.02	-	-	-	0	100	H		
			* 11.73521	35.37	PK-U	38.90	-21.70	0.00	52.57	-	-	74.00	-21.43	-	-	-	0	100	V		
			17.585	32.17	PK-U	42.00	-17.20	0.00	56.97	-	-	-	-	-	-	68.20	-11.23	0	100	H	
			17.604	31.89	PK-U	42.00	-17.00	0.00	56.89	-	-	-	-	-	-	68.20	-11.31	0	100	V	
	5885	MIMO	7.847	39.01	PK-U	36.30	-24.50	0.00	50.81	-	-	-	-	-	68.20	-17.39	98	115	H		
			7.847	37.81	PK-U	36.30	-24.50	0.00	49.61	-	-	-	-	-	68.20	-18.59	84	195	V		
			* 11.76806	34.73	PK-U	39.00	-21.90	0.00	51.83	-	-	74.00	-22.17	-	-	-	0	100	H		
			* 11.76575	34.68	PK-U	39.00	-21.80	0.00	51.88	-	-	74.00	-22.12	-	-	-	0	100	V		
			17.650	30.91	PK-U	41.90	-16.10	0.00	56.71	-	-	-	-	-	-	68.20	-11.49	0	100	H	
			17.646	31.50	PK-U	42.00	-16.10	0.00	57.40	-	-	-	-	-	-	68.20	-10.80	0	100	V	
	802.11ax (HE20) 4RU Spot-check	5865	MIMO	7.820	40.30	PK-U	36.30	-24.60	0.00	52.00	-	-	-	-	-	68.20	-16.20	109	100	H	
				7.820	37.61	PK-U	36.30	-24.60	0.00	49.31	-	-	-	-	-	68.20	-18.89	93	145	V	
				* 11.7352	35.20	PK-U	38.90	-21.70	0.00	52.40	-	-	74.00	-21.60	-	-	-	0	100	H	
				* 11.73991	35.15	PK-U	38.90	-21.70	0.00	52.35	-	-	74.00	-21.65	-	-	-	0	100	V	
				17.605	32.18	PK-U	42.00	-16.90	0.00	57.28	-	-	-	-	-	-	68.20	-10.92	0	100	H
				17.587	31.63	PK-U	42.00	-17.30	0.00	56.33	-	-	-	-	-	-	68.20	-11.87	0	100	V

Note1. PK-U - U-NII: Maximum Peak / ADR - U-NII AD primary method, RMS average
 Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

11.6. Spurious Emissions for Simultaneous Transmission

11.6.1. Worst test case RSDB condition

Case 1	2.4 GHz WLAN ANT1 + ANT2	5GHz WLAN ANT1 + ANT2
Mode	802.11n HT20	802.11a
Channel	11	36
Frequency[MHz]	2462	5180
Tone	-	-
RU	-	-
Data Rate	MCS 0	6 Mbps
Axis (Worst)	Y	

Case 2	2.4 GHz Bluetooth ANT1	2.4 GHz WLAN ANT2	5GHz WLAN ANT1 + ANT2
Mode	BDR	802.11b	802.11a
Channel	78	1	36
Frequency[MHz]	2480	2412	5180
Tone	-	-	-
RU	-	-	-
Data Rate	1 Mbps	1 Mbps	6 Mbps
Axis (Worst)	X & Y		

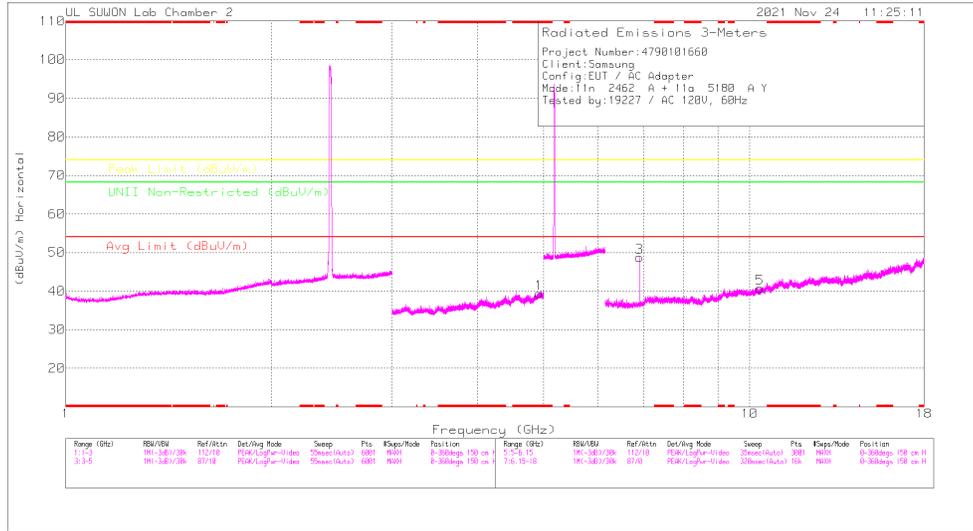
NOTE

The lowest margin condition among the channels and modes were selected for test. Low, mid, and high channels of 2.4GH WLAN were tested, and the worst case configuration & data were listed in the test report.

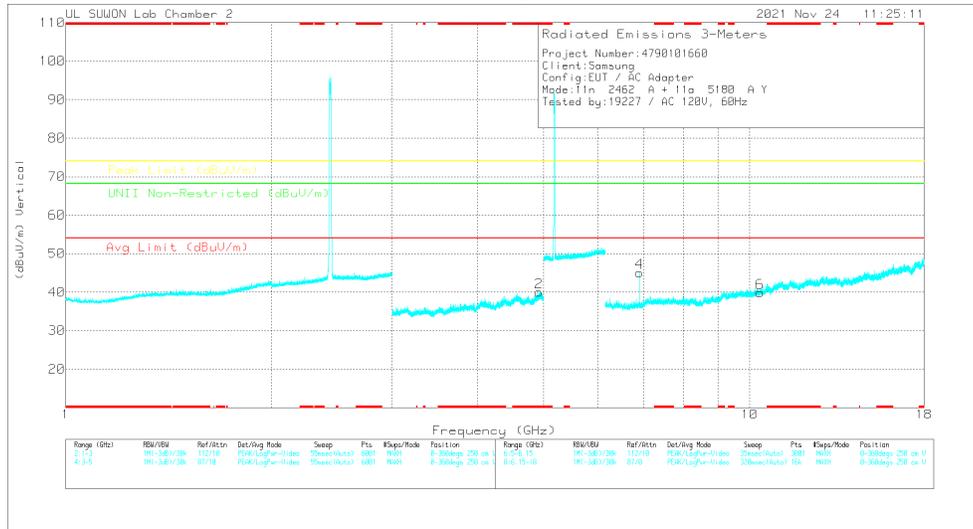
11.6.1. Test Results

Spurious emission for Simultaneous Transmission Case1. - Y axis

HORIZONTAL



VERTICAL



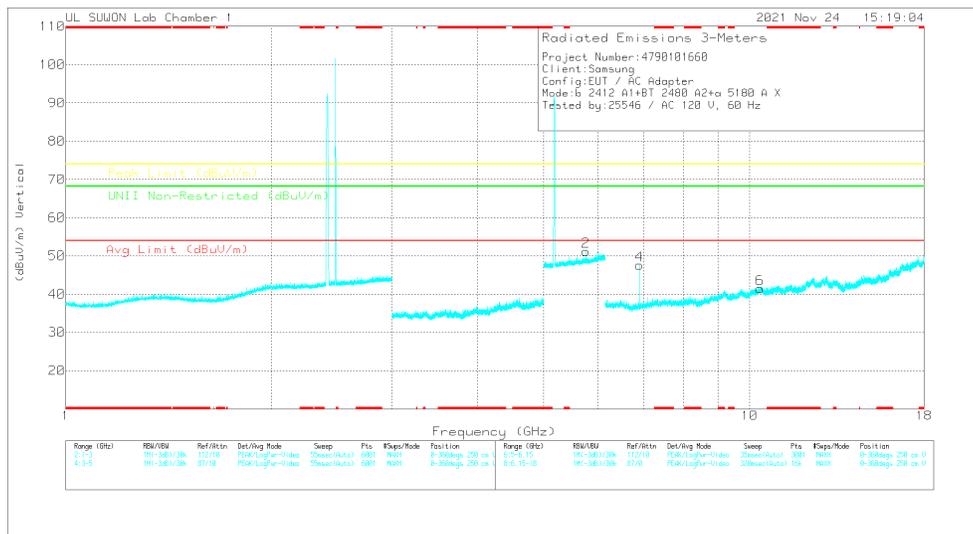
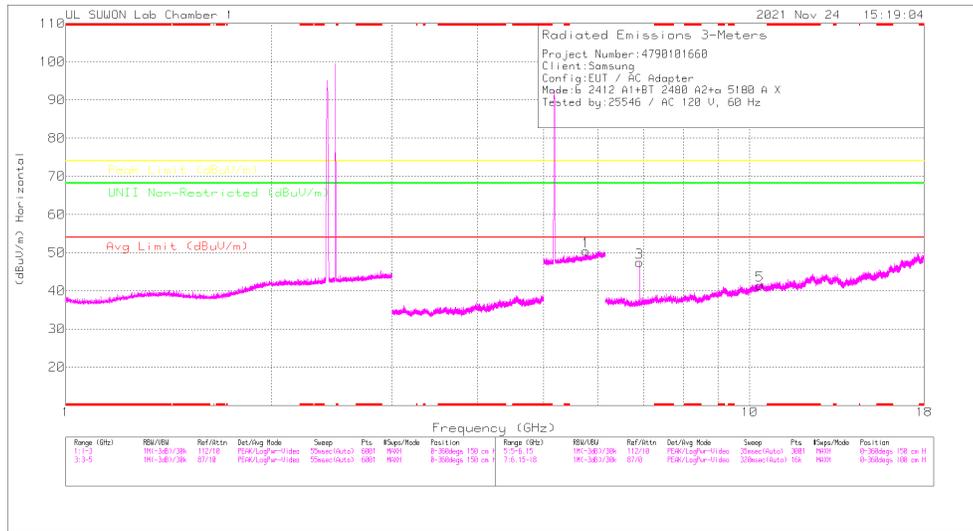
Radiated Emissions

Frequency (GHz)	Meas Reading (dBuV)	Det	3117_00168724	5GHz_LF1[dB]	DTS Noise[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Deg)	Height (cm)	Polarity
* 4.92518	41.52	PK-U	34.1	-26.2	.5	0	49.92	-	-	74	-24.08	-	-	0	100	V
* 4.92332	41.66	PK-U	34.1	-26.3	.5	0	49.96	-	-	74	-24.04	-	-	0	100	H

Frequency (GHz)	Meas Reading (dBuV)	Det	3117_00168724	5GHz_HP1[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Deg)	Height (cm)	Polarity
6.90688	41.27	PK-U	35.8	-25.2	0	51.87	-	-	-	-	68.2	-16.33	90	154	V
6.90686	44.69	PK-U	35.8	-25.2	0	55.29	-	-	-	-	68.2	-12.91	105	116	H
10.35692	33.58	PK-U	37.7	-20.9	0	50.38	-	-	-	-	68.2	-17.82	0	100	V
10.35643	33.9	PK-U	37.7	-20.9	0	50.7	-	-	-	-	68.2	-17.5	0	100	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK-U - U-UNII: Maximum Peak

Case2. - X axis



Radiated Emissions

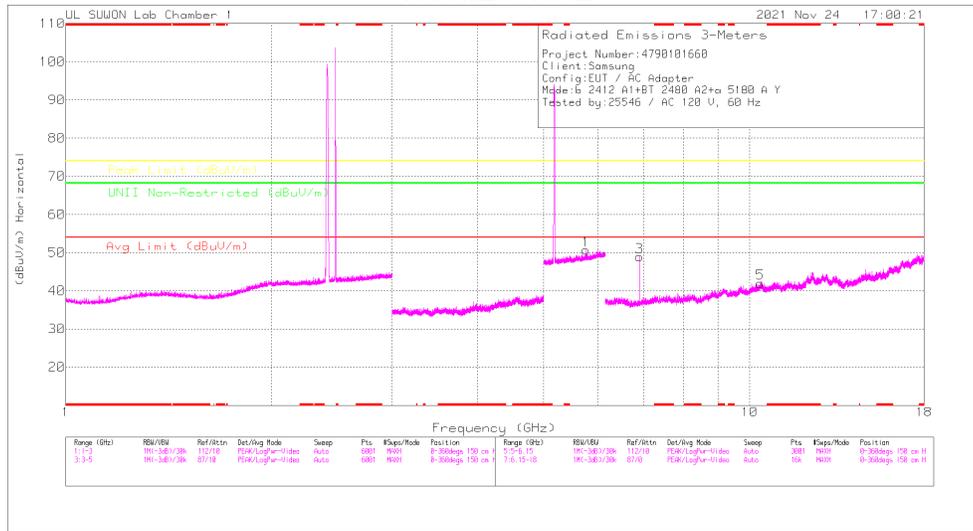
Frequency (GHz)	Max Reading (dBuV)	Det	3117_00166717	10dB_ATT[dB]	DTS Noise[dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Deg)	Height (cm)	Polarity
5.75045	45.28	PK-U	35	-20.9	.6	0	51.99	-	-	-	-	68.2	-8.22	172	116	H
5.75987	45.51	PK-U	35	-20.9	.6	0	52.21	-	-	-	-	68.2	-7.99	180	274	V

Frequency (GHz)	Max Reading (dBuV)	Det	3117_00166717	10dB_ATT[dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Avg Limit (dBV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Deg)	Height (cm)	Polarity
6.9069	44.49	PK-U	35.6	-28.1	0	54.42	-	-	-	-	68.2	-16.21	302	108	H
6.90668	46.92	PK-U	35.6	-28.1	0	54.42	-	-	-	-	68.2	-13.78	178	245	V
10.35836	29.74	PK-U	37.8	-21.8	0	45.74	-	-	-	-	68.2	-22.46	0	100	H
10.36228	35.92	PK-U	37.8	-21.7	0	52.02	-	-	-	-	68.2	-16.18	0	100	V

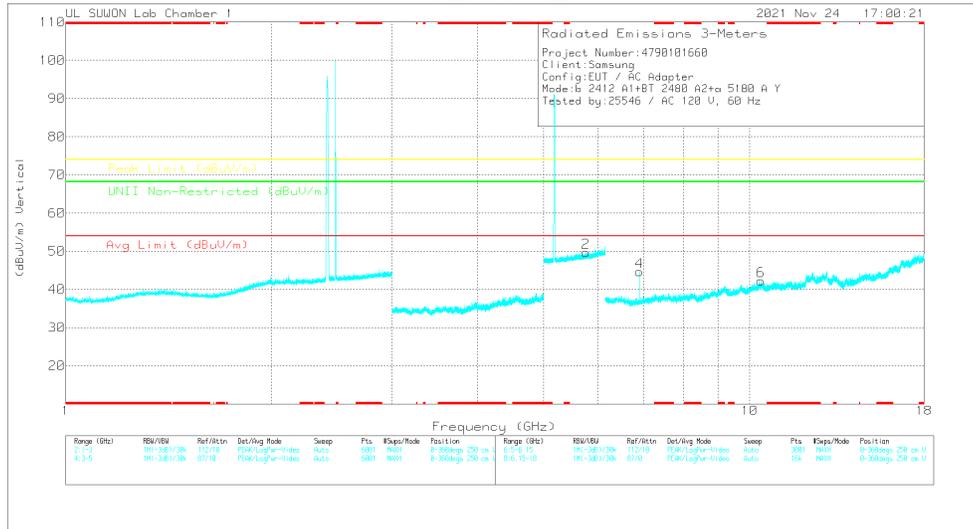
PK-U - U-NII: Maximum Peak

Case2. – Y axis

HORIZONTAL



VERTICAL

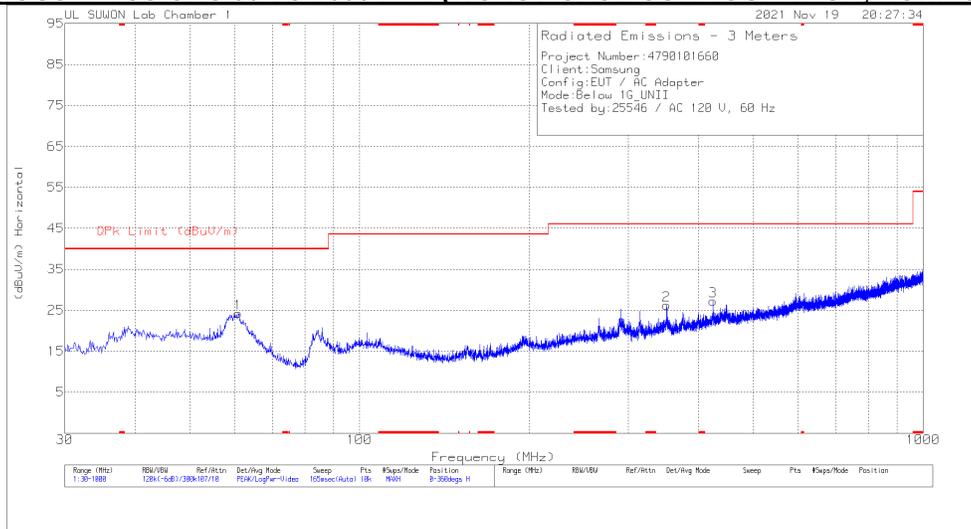


Radiated Emissions

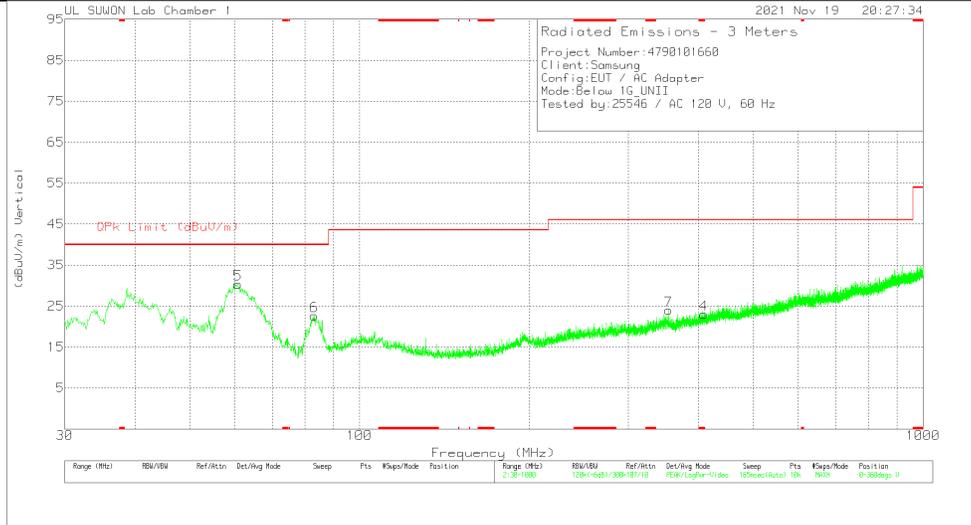
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	10dB_ATT[dB]	DTS Noise[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Deg)	Height (cm)	Polarity
5.75679	45	PK-U	34.9	-20.9	.6	0	59.6	-	-	-	-	68.2	-8.6	8	355	H
5.75997	45.22	PK-U	35	-20.9	.6	0	59.92	-	-	-	-	68.2	-8.28	89	103	V
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	6GHz_HF[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Deg)	Height (cm)	Polarity	
6.90655	42.41	PK-U	35.6	-28.1	0	49.91	-	-	-	-	68.2	-18.29	0	100	H	
10.37586	36.64	PK-U	37.8	-21.5	0	52.94	-	-	-	-	68.2	-15.26	0	100	H	
10.37759	35.54	PK-U	37.8	-21.5	0	51.84	-	-	-	-	68.2	-16.36	0	100	V	
6.90543	39.66	PK-U	35.6	-28.1	0	47.16	-	-	-	-	68.2	-21.04	0	100	V	

PK-U - U-NII: Maximum Peak

12. WORST-CASE BELOW 1 GHz SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)



SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	60.943	36.54	Pk	18.4	-30.7	24.24	40	-15.76	0-360	300	H
2	350.876	33.52	Pk	21	-28.3	26.22	46.02	-19.8	0-360	100	H
3	423.723	33.1	Pk	22	-27.9	27.2	46.02	-18.82	0-360	100	H
4	* 408.3	29.4	Pk	21.7	-28.1	23	46.02	-23.02	0-360	200	V
5	60.846	42.71	Pk	18.4	-30.7	30.41	40	-9.59	0-360	200	V
6	83.059	39.71	Pk	13.3	-30.4	22.61	40	-17.39	0-360	200	V
7	353.689	31.39	Pk	20.9	-28.3	23.99	46.02	-22.03	0-360	300	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector

13. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)
IC RSS-GEN Clause 8.8

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 [*]	56 to 46 [*]
0.5-5	56	46
5-30	60	50

^{*}Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

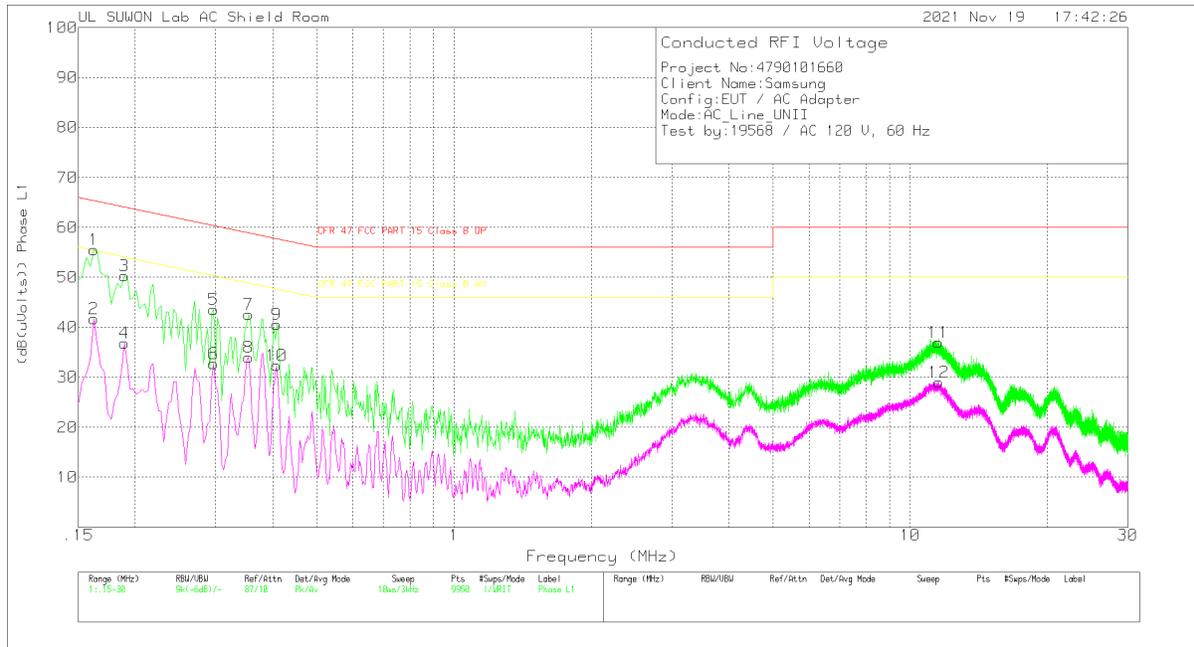
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

WORST EMISSIONS

LINE 1 DATA



Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_L1[dB]	CABLELOS S(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
1	.162	45.49	Pk	9.9	.1	55.49	65.36	-9.87	-	-
2	.162	31.67	Av	9.9	.1	41.67	-	-	55.36	-13.69
3	.189	40.21	Pk	9.9	.2	50.31	64.08	-13.77	-	-
4	.189	26.78	Av	9.9	.2	36.88	-	-	54.08	-17.2
5	.297	33.69	Pk	9.7	.2	43.59	60.33	-16.74	-	-
6	.297	22.78	Av	9.7	.2	32.68	-	-	50.33	-17.65
7	.354	32.61	Pk	9.8	.2	42.61	58.87	-16.26	-	-
8	.354	23.95	Av	9.8	.2	33.95	-	-	48.87	-14.92
9	.408	30.54	Pk	9.8	.2	40.54	57.69	-17.15	-	-
10	.408	22.4	Av	9.8	.2	32.4	-	-	47.69	-15.29
11	11.532	26.82	Pk	9.9	.3	37.02	60	-22.98	-	-
12	11.559	18.85	Av	9.9	.3	29.05	-	-	50	-20.95

Pk - Peak detector
 Av - Average detection

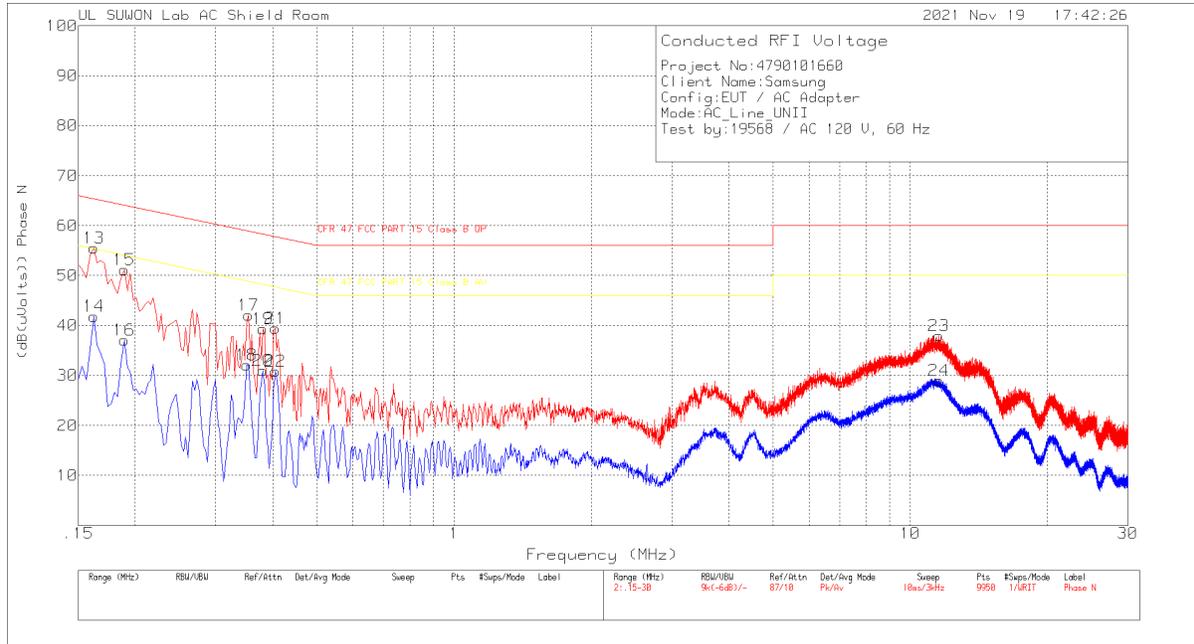
Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_L1[dB]	CABLELOS S(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
.16275	42.96	Qp	9.9	.1	52.96	65.32	-12.36	-	-

Qp - Quasi-Peak detector

LINE 2 DATA



Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_N[dB]	CABLELOS S(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
13	.162	45.57	Pk	9.9	.1	55.57	65.36	-9.79	-	-
14	.162	31.89	Av	9.9	.1	41.89	-	-	55.36	-13.47
15	.189	41.09	Pk	9.9	.2	51.19	64.08	-12.89	-	-
16	.189	27.05	Av	9.9	.2	37.15	-	-	54.08	-16.93
17	.354	32.07	Pk	9.8	.2	42.07	58.87	-16.8	-	-
18	.351	22.12	Av	9.8	.2	32.12	-	-	48.94	-16.82
19	.381	29.36	Pk	9.8	.2	39.36	58.26	-18.9	-	-
20	.381	21.01	Av	9.8	.2	31.01	-	-	48.26	-17.25
21	.405	29.45	Pk	9.8	.2	39.45	57.75	-18.3	-	-
22	.405	20.82	Av	9.8	.2	30.82	-	-	47.75	-16.93
23	11.556	27.79	Pk	9.9	.3	37.99	60	-22.01	-	-
24	11.556	18.79	Av	9.9	.3	28.99	-	-	50	-21.01

Pk - Peak detector
 Av - Average detection

Quasi-Peak Emissions

Range 2: Phase N .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_N[dB]	CABLELOS S(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
.16275	43.41	Qp	9.9	.1	53.41	65.32	-11.91	-	-

Qp - Quasi-Peak detector

14. DYNAMIC FREQUENCY SELECTION

14.1. OVERVIEW

14.1.1. LIMITS

FCC

§15.407 (h), FCC KDB 905462 D02 “COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVICES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION” and KDB 905462 D03 “U-NII CLIENT DEVICES WITHOUT RADAR DETECTION CAPABILITY”.

Table 1: Applicability of DFS requirements prior to use of a channel

Requirement	Operational Mode		
	Master	Client (without radar detection)	Client (with radar detection)
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode		
	Master	Client (without DFS)	Client (with DFS)
DFS Detection Threshold	Yes	Not required	Yes
Channel Closing Transmission Time	Yes	Yes	Yes
Channel Move Time	Yes	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required	Yes

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar DFS	Client (without DFS)
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required

Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in all 20 MHz channel blocks and a null frequency between the bonded 20 MHz channel blocks.

Table 3: Interference Threshold values, Master or Client incorporating In-Service Monitoring

Maximum Transmit Power	Value (see notes)
E.I.R.P. \geq 200 mill watt	-64 dBm
E.I.R.P. < 200 mill watt and power spectral density < 10 dBm/MHz	-62 dBm
E.I.R.P. < 200 mill watt that do not meet power spectral density requirement	-64 dBm
<p>Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. Note 3: E.I.R.P. is based on the highest antenna gain. For MIMO devices refer to KDB publication 662911 D01.</p>	

Table 4: DFS Response requirement values

Parameter	Value
<i>Non-occupancy period</i>	30 minutes
<i>Channel Availability Check Time</i>	60 seconds
<i>Channel Move Time</i>	10 seconds (See Note 1)
<i>Channel Closing Transmission Time</i>	200 milliseconds + approx. 60 milliseconds over remaining 10 second period. (See Notes 1 and 2)
<i>U-NII Detection Bandwidth</i>	Minimum 100% of the U- NII 99% transmission power bandwidth. (See Note 3)
<p>Note 1: <i>Channel Move Time</i> and the <i>Channel Closing Transmission Time</i> should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. Note 2: The <i>Channel Closing Transmission Time</i> is comprised of 200 milliseconds starting at the beginning of the <i>Channel Move Time</i> plus any additional intermittent control signals required to facilitate a <i>Channel</i> move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. Note 3: During the <i>U-NII Detection Bandwidth</i> detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.</p>	

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (usec)	PRI (usec)	Pulses	Minimum Percentage of Successful Detection	Minimum Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in table 5a	Roundup: $\{(1/360) \times (19 \times 10^6 \text{ PRI}_{\text{usec}})\}$	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 usec. With a minimum increment of 1 usec, excluding PRI values selected in Test A			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120
Note 1: Short Pulse Radar Type 0 should be used for the <i>Detection Bandwidth</i> test, <i>Channel Move Time</i> , and <i>Channel Closing Time</i> tests.					

Table 6 – Long Pulse Radar Test Signal

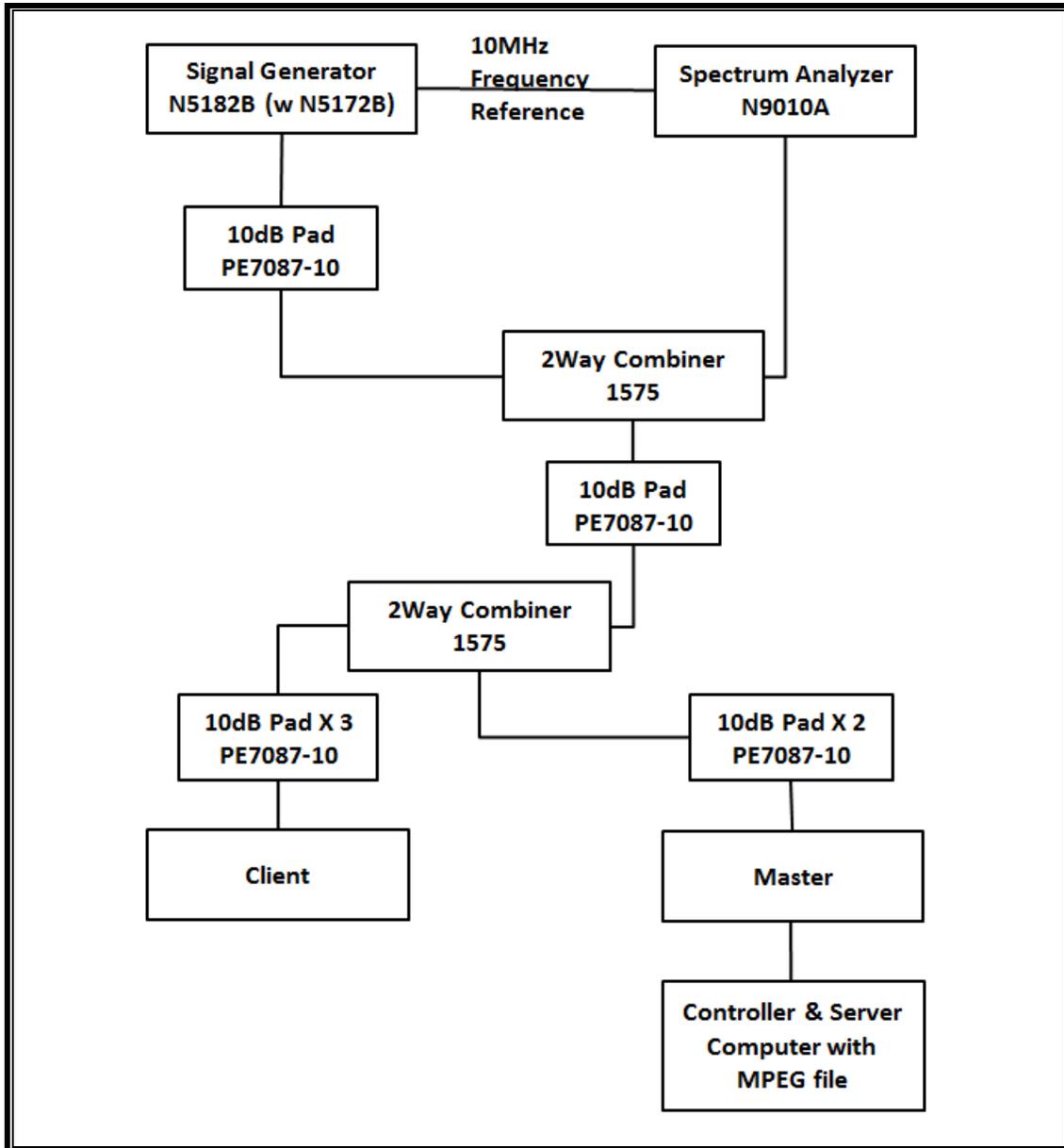
Radar Waveform Type	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

Table 7 – Frequency Hopping Radar Test Signal

Radar Waveform Type	Pulse Width (μsec)	PRI (μsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	9	0.333	300	70%	30

14.1.2. TEST AND MEASUREMENT SYSTEM

CONDUCTED METHOD SYSTEM BLOCK DIAGRAM



SYSTEM OVERVIEW

The short pulse and long pulse signal generating system utilizes the Keysite Signal Studio for Pulse Building as N5172B. The Vector Signal Generator has been validated by the NTIA. The hopping signal generating system utilizes the CCS simulated hopping method and system, which has been validated by the DoD, FCC and NTIA. The software selects waveform parameters from within the bounds of the signal type on a random basis using uniform distribution.

The short pulse types 1, 2, 3 and 4, and the long pulse type 5 parameters are randomized at run-time.

The hopping type 6 pulse parameters are fixed while the hopping sequence is based on the August 2005 NTIA Hopping Frequency List. The initial starting point randomized at run-time and each subsequent starting point is incremented by 475. Each frequency in the 100-length segment is compared to the boundaries of the EUT Detection Bandwidth and the software creates a hopping burst pattern in accordance with Section 7.4.1.3 Method #2 Simulated Frequency Hopping Radar Waveform Generating Subsystem of KDB 905462 D02. The frequency of the signal generator is incremented in 1 MHz steps from F_L to F_H for each successive trial. This incremental sequence is repeated as required to generate a minimum of 30 total trials and to maintain a uniform frequency distribution over the entire Detection Bandwidth.

The signal monitoring equipment consists of a spectrum analyzer. The aggregate ON time is calculated by multiplying the number of bins above a threshold during a particular observation period by the dwell time per bin, with the analyzer set to peak detection and max hold.

SYSTEM CALIBRATION

A 50-ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected to a horn antenna via a coaxial cable, with the reference level offset set to (horn antenna gain – coaxial cable loss). The signal generator is set to CW mode. The amplitude of the signal generator is adjusted to yield a level of –64 dBm as measured on the spectrum analyzer.

Without changing any of the instrument settings, the spectrum analyzer is reconnected to the Common port of the Spectrum Analyzer Combiner/Divider. The Reference Level Offset of the spectrum analyzer is adjusted so that the displayed amplitude of the signal is –64 dBm.

The spectrum analyzer displays the level of the signal generator as received at the antenna ports of the Master Device. The interference detection threshold may be varied from the calibrated value of –64 dBm and the spectrum analyzer will still indicate the level as received by the Master Device.

ADJUSTMENT OF DISPLAYED TRAFFIC LEVEL

A link is established between the Master and Slave and the distance between the units is adjusted as needed to provide a suitable received level at the Master and Slave devices. The video test file is streamed to generate WLAN traffic. The monitoring antenna is adjusted so that the WLAN traffic level, as displayed on the spectrum analyzer, is at lower amplitude than the radar detection threshold.

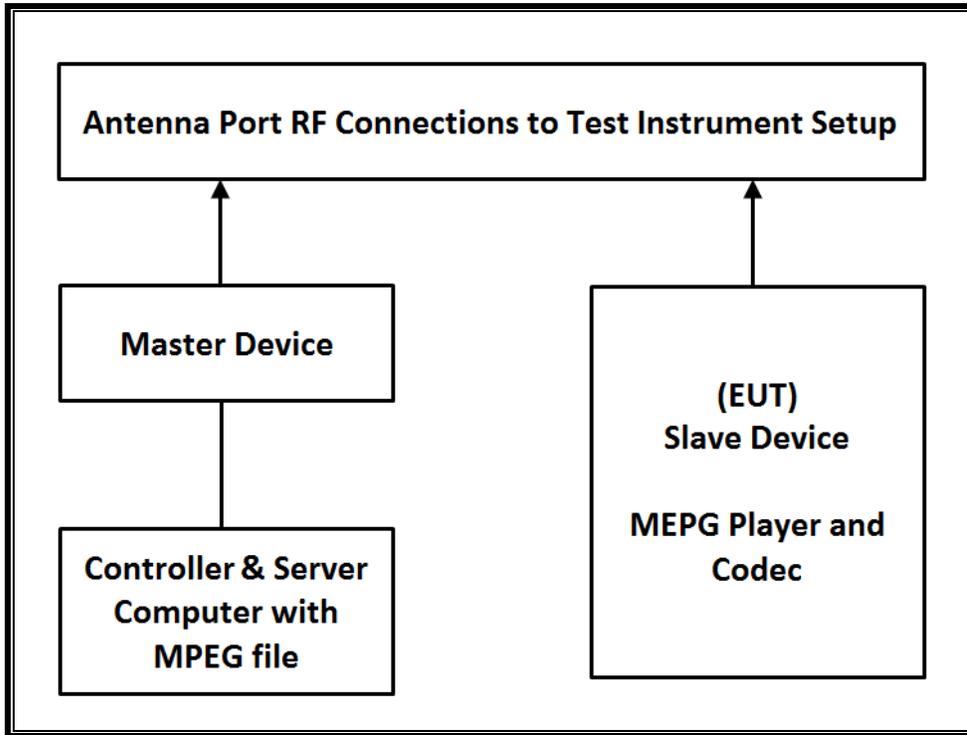
TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the DFS tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	S/N	Next Cal Due
Spectrum Analyzer, 7 GHz	Agilent / HP	N9010A	MY54200580	08-02-22
Vector Signal Generator, 6GHz	Agilent / HP	N5182B	MY53051241	08-02-22
Combiner	WEINSCHTEL	WA1534	UL001	01-27-22
Combiner	WEINSCHTEL	WA1535	UL002	01-27-22

14.1.3. SETUP OF EUT

CONDUCTED METHOD EUT TEST SETUP



SUPPORT EQUIPMENT

The following support equipment was utilized for the DFS tests documented in this report:

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Wireless Access Point	Cisco	AIR-CAP3702E-A-K9	FTX182276QX	LDK102087
Notebook PC (Controller/Server)	HP	HP EliteDesk 800 G1 TWR	CZC4125J25	DoC

14.1.4. DESCRIPTION OF EUT

The EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges.

The EUT is a Slave Device without Radar Detection.

The highest power level of the widest bandwidth (802.11ac VHT80) within these bands is 14.74 dBm in the 5250-5350 MHz band and 15.10 dBm in the 5470-5725 MHz band.

The antenna assembly utilized two antenna.

Gain of ANT1 : -3.4 dBi for UNII 2A and -3.5 dBi for UNII 2C.

Gain of ANT2 : -3.3 dBi for UNII 2A and -2.3 dBi for UNII 2C.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is -64 dBm. After correction for procedural adjustments, the required conducted threshold at the antenna port is $-64 + 1 = -63$ dBm.

The calibrated radiated DFS Detection Threshold level is set to -64 dBm. The tested level is lower than the required level hence it provides a margin to the limit.

The EUT uses one transmitter/receiver chain connected to an antenna to perform radiated tests. WLAN traffic that meets or exceeds the minimum required loading was generated by transferring a data stream from the controller/server PC to the EUT using iPerf version 2.0.5 software package.

TPC is not required since the maximum EIRP is less than 500 mW (27 dBm).

The EUT utilizes the 802.11 architecture. Three nominal channel bandwidths are implemented: 20 MHz, 40 MHz and 80 MHz.

The software installed in the access point is 12.4(25d)JA1.

UNIFORM CHANNEL SPREADING

This requirement is not applicable to Slave radio devices.

CHANNEL PUNCTURING(802.11ax)

This EUT does not support channel puncturing.

OVERVIEW OF MASTER DEVICE WITH RESPECT TO §15.407 (h) REQUIREMENTS

The Master Device is a Cisco Access Point, FCC ID: LDK102087. The minimum antenna gain for the Master Device is 6 dBi.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is -64 dBm. After correction for procedural adjustments, the required radiated threshold at the antenna port is $-64 + 1 = -63$ dBm.

The calibrated radiated DFS Detection Threshold level is set to -64 dBm. The tested level is lower than the required level hence it provides a margin to the limit.

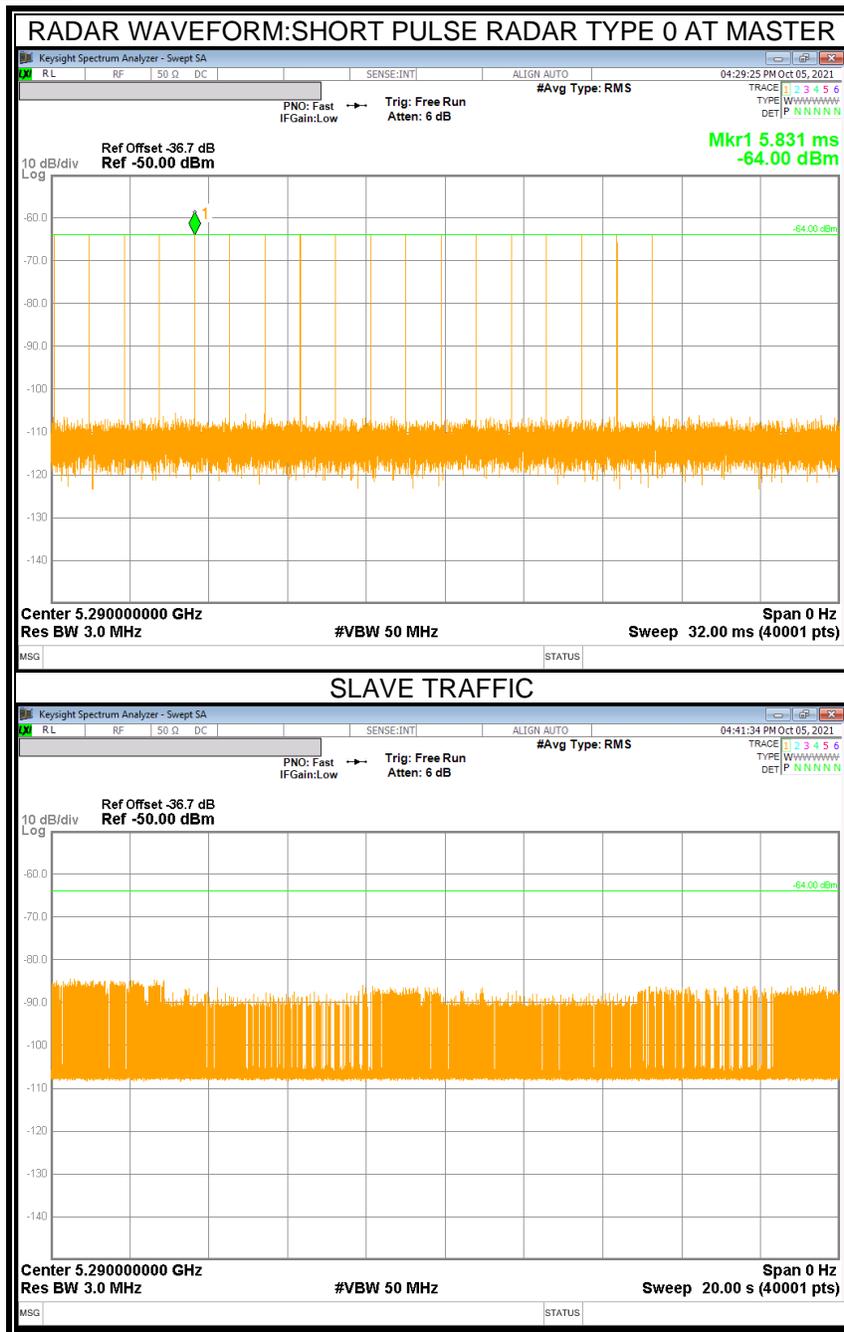
14.2. RESULTS FOR 80 MHz BANDWIDTH (UNII-2A BAND)

14.2.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5290 MHz.

14.2.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



14.2.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

14.2.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

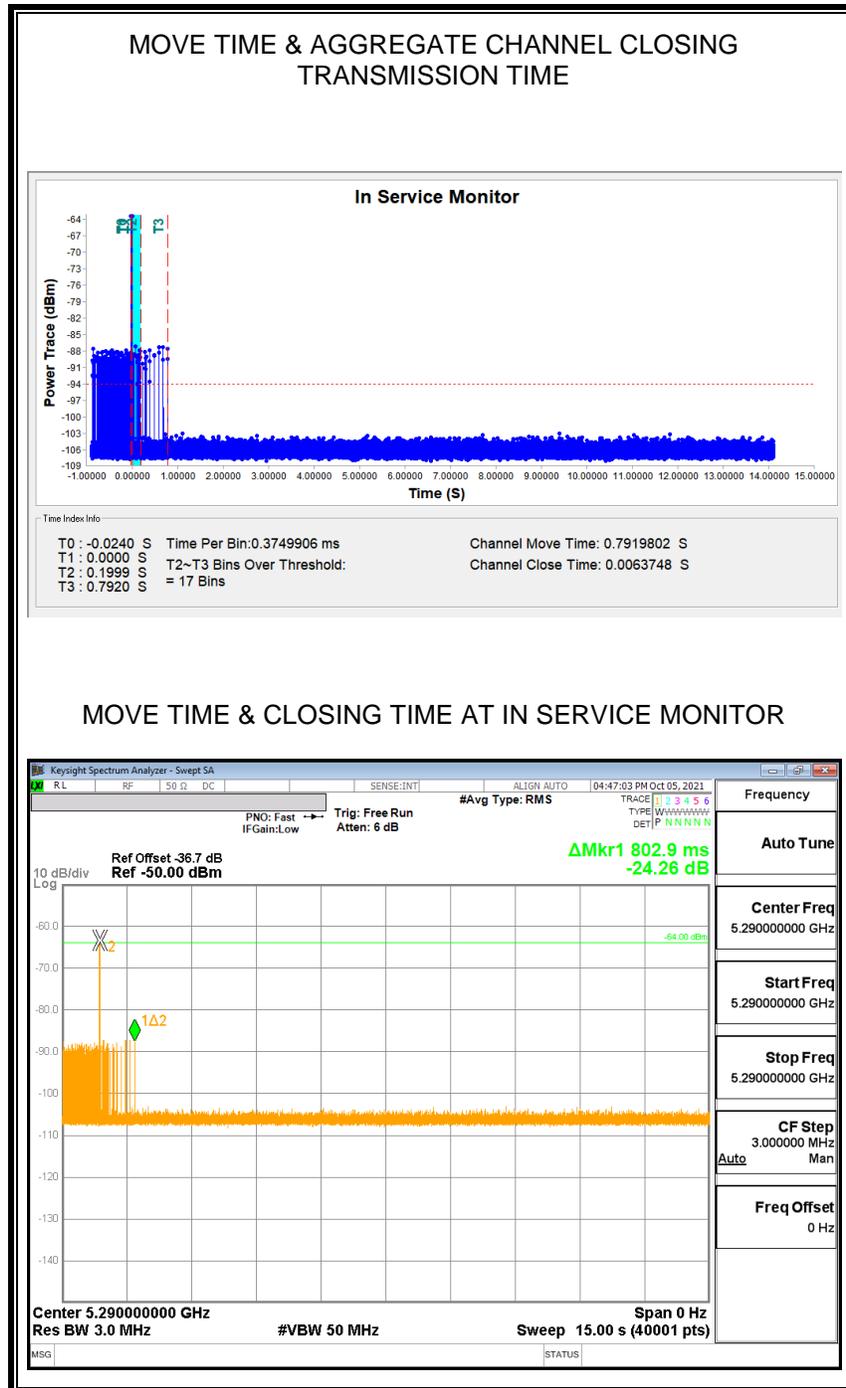
Channel Move Time (sec)	Limit (sec)
0.792	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
6.375	60

MOVE TIME & CHANNEL CLOSING TIME

AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

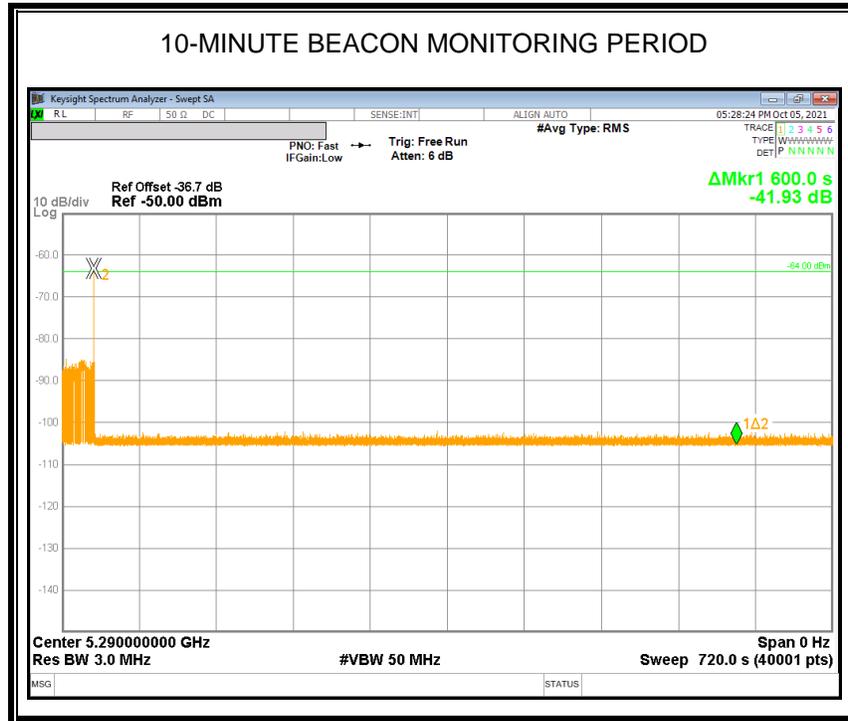
No transmissions are observed during the aggregate monitoring period.



NON-OCCUPANCY PERIOD

RESULTS

No EUT transmissions were observed on the test channel during the 10-minute observation time.



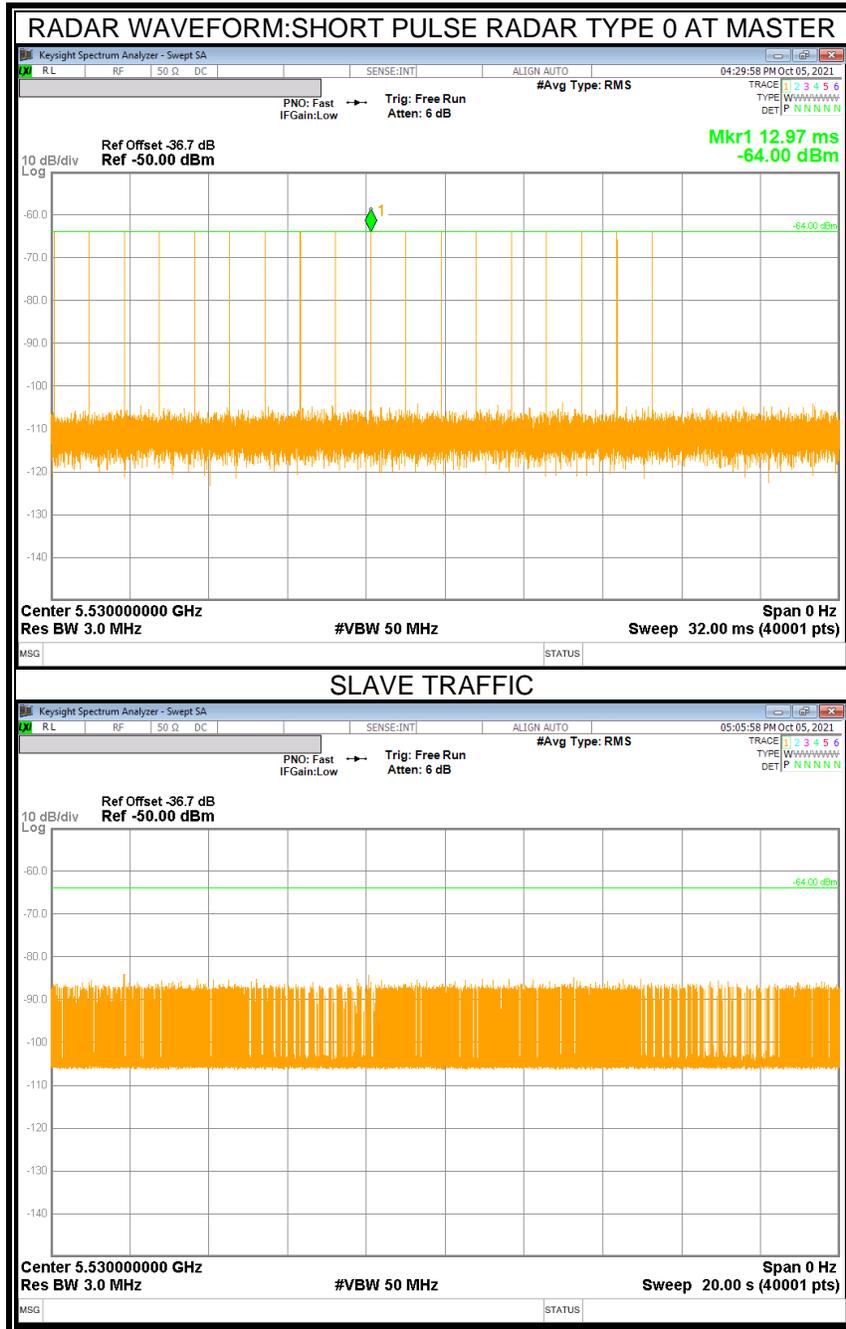
14.3. RESULTS FOR 80 MHz BANDWIDTH (UNII-2C BAND)

14.3.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5530 MHz.

14.3.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



14.3.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

14.3.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

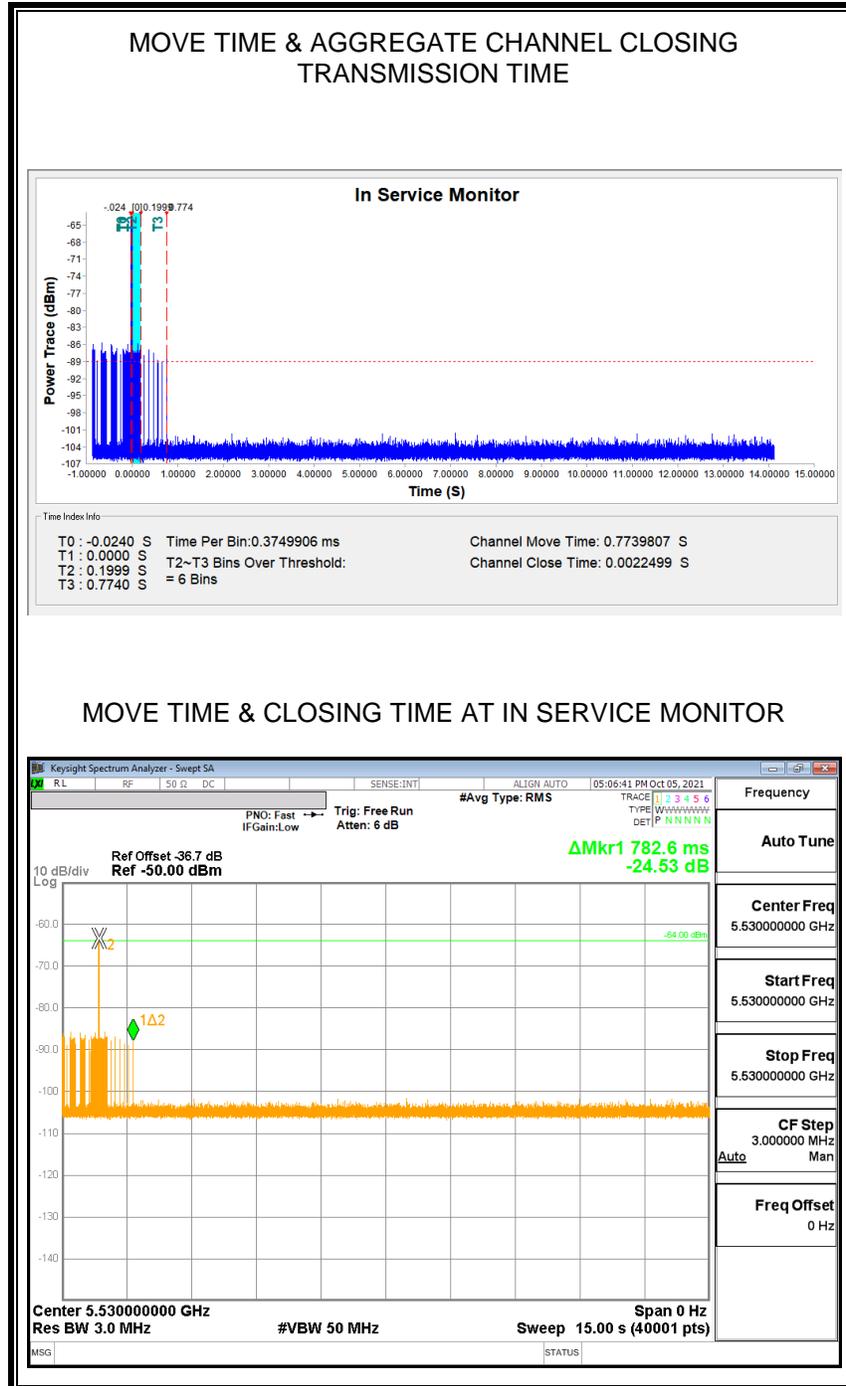
Channel Move Time (sec)	Limit (sec)
0.774	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
2.250	60

MOVE TIME & CHANNEL CLOSING TIME

AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

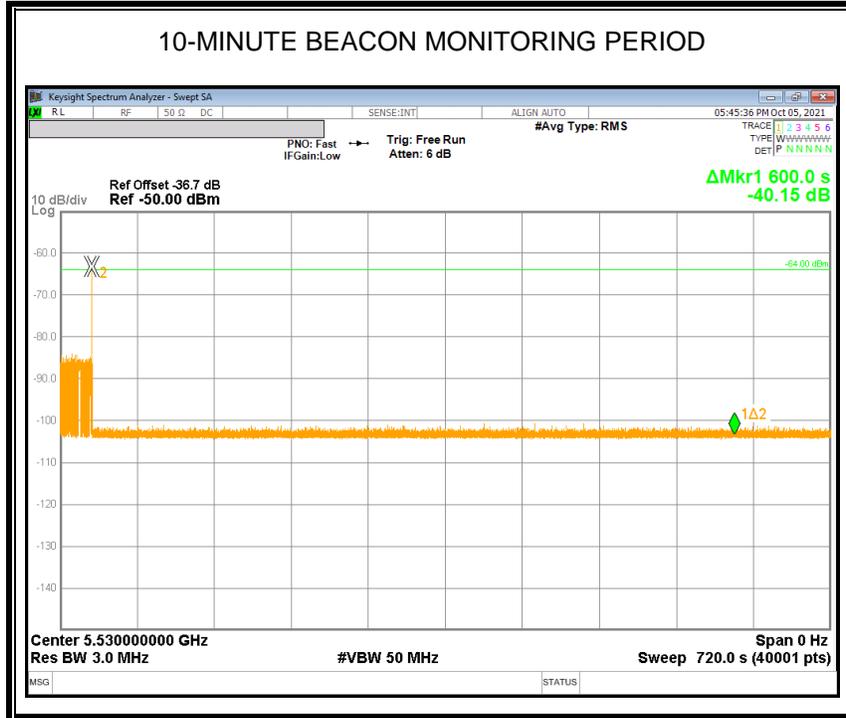
No transmissions are observed during the aggregate monitoring period.



NON-OCCUPANCY PERIOD

RESULTS

No EUT transmissions were observed on the test channel during the 10-minute observation time.



END OF TEST REPORT