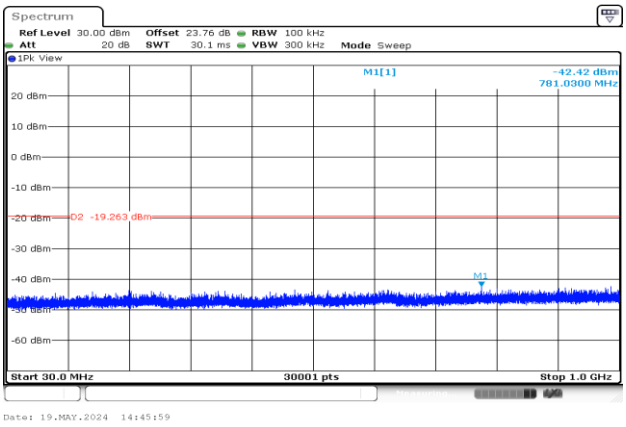
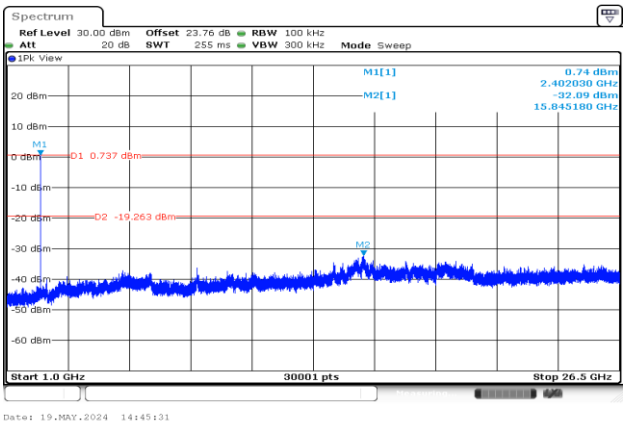
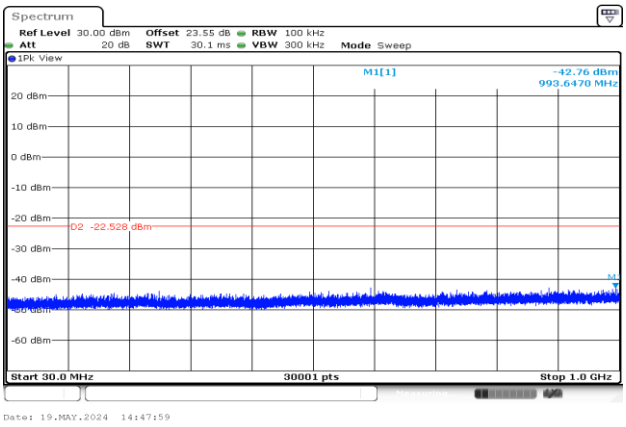
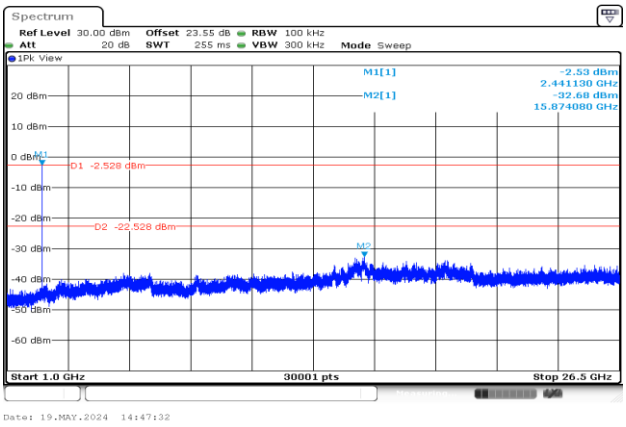
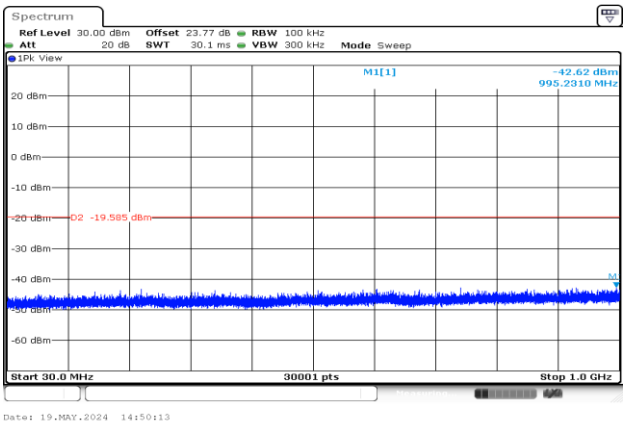
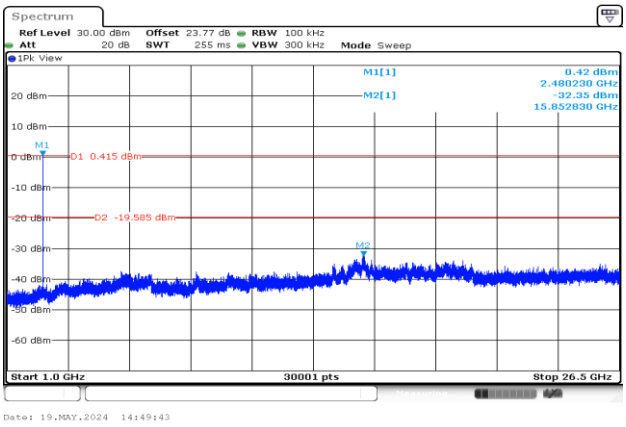
<3Mbps>

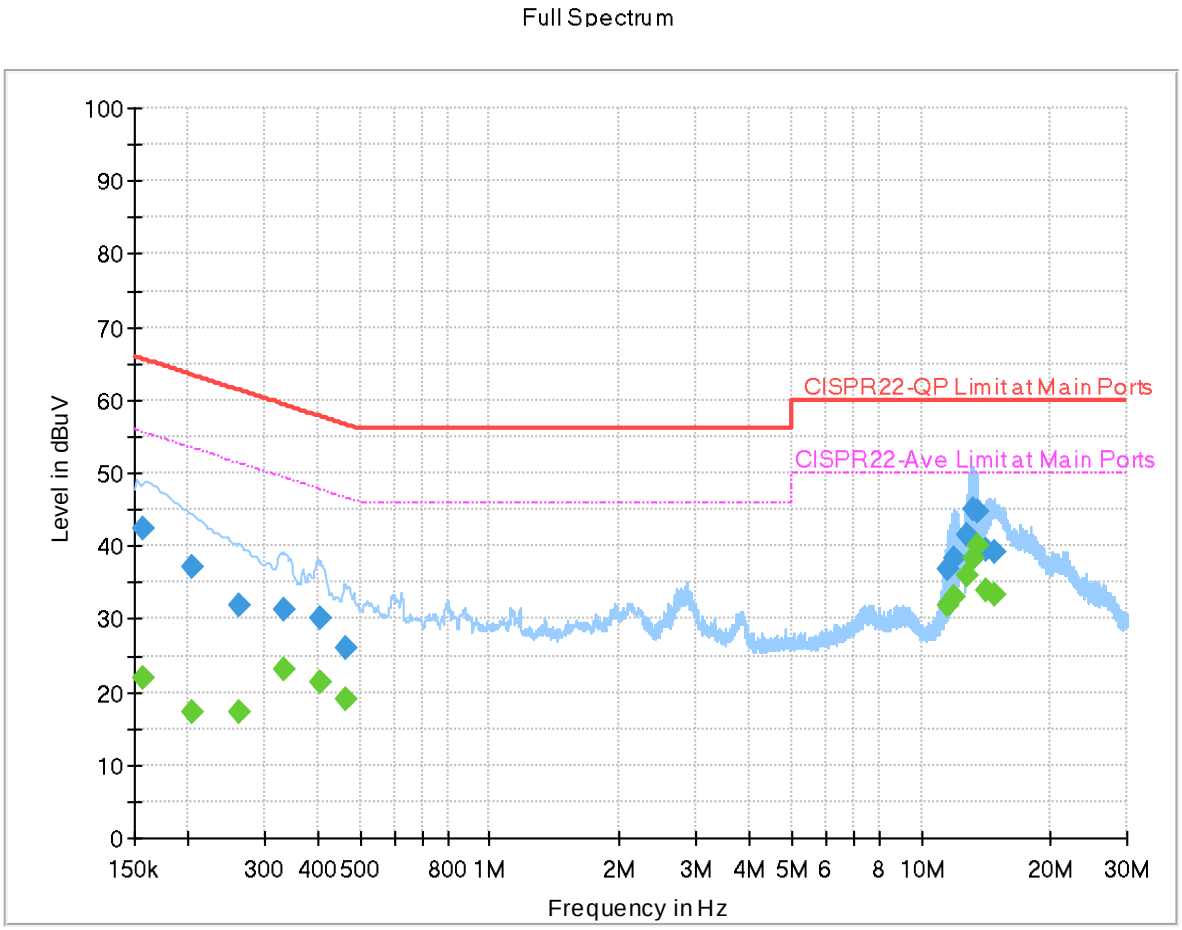
CSE Plot on Low Ch between 30MHz ~ 1 GHz	CSE Plot on Low Ch between 1GHz ~ 26.5GHz
	
CSE Plot on Mid. Ch between 30MHz ~ 1 GHz	**CSE Plot on Mid. Ch between 1GHz ~ 26.5GHz**
	
CSE Plot on High Ch between 30MHz ~ 1 GHz	**CSE Plot on High Ch between 1GHz ~ 26.5GHz**
	

Appendix B. AC Conducted Emission Test Results

Test Engineer :	Louis Chung	**Temperature :**	22.3~24.7℃
		Relative Humidity :	40.4~48.9%

EUT Information

Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line



Final_Result

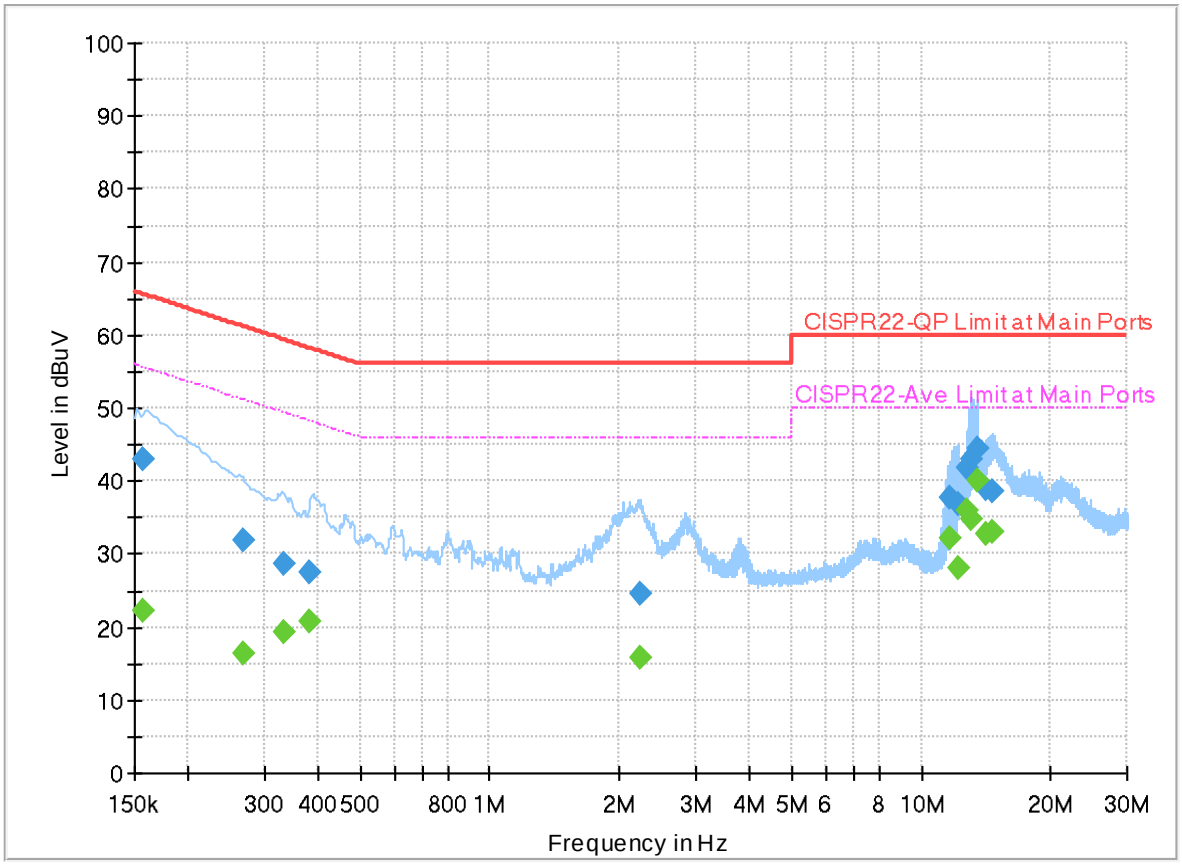
Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.156750	---	21.94	55.63	33.69	L1	OFF	19.9
0.156750	42.26	---	65.63	23.37	L1	OFF	19.9
0.204000	---	17.35	53.45	36.10	L1	OFF	19.9
0.204000	36.99	---	63.45	26.46	L1	OFF	19.9
0.261240	---	17.30	51.39	34.09	L1	OFF	19.9
0.261240	31.87	---	61.39	29.52	L1	OFF	19.9
0.332160	---	23.23	49.40	26.17	L1	OFF	19.9
0.332160	31.28	---	59.40	28.12	L1	OFF	19.9
0.403530	---	21.35	47.78	26.43	L1	OFF	19.9
0.403530	30.07	---	57.78	27.71	L1	OFF	19.9
0.465000	---	18.98	46.60	27.62	L1	OFF	19.9
0.465000	26.05	---	56.60	30.55	L1	OFF	19.9
11.559750	---	31.89	50.00	18.11	L1	OFF	20.1
11.559750	36.81	---	60.00	23.19	L1	OFF	20.1
11.930010	---	33.02	50.00	16.98	L1	OFF	20.1
11.930010	38.27	---	60.00	21.73	L1	OFF	20.1
12.757380	---	36.00	50.00	14.00	L1	OFF	20.1
12.757380	41.65	---	60.00	18.35	L1	OFF	20.1
13.144290	---	38.20	50.00	11.80	L1	OFF	20.1

13.144290	**45.06**	**---**	**60.00**	**14.94**	**L1**	**OFF**	**20.1**
13.559910	**---**	**40.20**	**50.00**	**9.80**	**L1**	**OFF**	**20.1**
13.559910	**44.76**	**---**	**60.00**	**15.24**	**L1**	**OFF**	**20.1**
14.148600	**---**	**33.99**	**50.00**	**16.01**	**L1**	**OFF**	**20.1**
14.148600	**39.44**	**---**	**60.00**	**20.56**	**L1**	**OFF**	**20.1**
14.739000	**---**	**33.34**	**50.00**	**16.66**	**L1**	**OFF**	**20.1**
14.739000	**39.24**	**---**	**60.00**	**20.76**	**L1**	**OFF**	**20.1**

EUT Information

Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Neutral

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.156750	---	22.12	55.63	33.51	N	OFF	19.9
0.156750	42.96	---	65.63	22.67	N	OFF	19.9
0.267900	---	16.39	51.18	34.79	N	OFF	19.9
0.267900	31.93	---	61.18	29.25	N	OFF	19.9
0.332430	---	19.40	49.39	29.99	N	OFF	19.9
0.332430	28.56	---	59.39	30.83	N	OFF	19.9
0.384000	---	20.78	48.19	27.41	N	OFF	19.9
0.384000	27.60	---	58.19	30.59	N	OFF	19.9
2.229000	---	15.66	46.00	30.34	N	OFF	20.0
2.229000	24.62	---	56.00	31.38	N	OFF	20.0
11.656860	---	32.26	50.00	17.74	N	OFF	20.1
11.656860	37.75	---	60.00	22.25	N	OFF	20.1
12.130080	---	28.14	50.00	21.86	N	OFF	20.1
12.130080	36.81	---	60.00	23.19	N	OFF	20.1
12.753780	---	35.94	50.00	14.06	N	OFF	20.1
12.753780	41.70	---	60.00	18.30	N	OFF	20.1
13.058250	---	34.74	50.00	15.26	N	OFF	20.1
13.058250	43.11	---	60.00	16.89	N	OFF	20.1
13.560360	---	40.08	50.00	9.92	N	OFF	20.1

13.560360	**44.50**	**---**	**60.00**	**15.50**	**N**	**OFF**	**20.1**
14.150130	**---**	**32.87**	**50.00**	**17.13**	**N**	**OFF**	**20.1**
14.150130	**38.88**	**---**	**60.00**	**21.12**	**N**	**OFF**	**20.1**
14.632440	**---**	**32.93**	**50.00**	**17.07**	**N**	**OFF**	**20.1**
14.632440	**38.63**	**---**	**60.00**	**21.37**	**N**	**OFF**	**20.1**

Appendix C. Radiated Spurious Emission

Test Engineer :	John Chuang, David Dai, and Sam Chou	Temperature :	19.7~23.5°C
		Relative Humidity :	64.9~70.8%

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT Ant	Note	Frequency	Level	Margin	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH00 2402MHz		2387.28	41.28	-32.72	74	41.58	27.25	8.69	36.24	150	53	P	H
		2387.28	16.49	-37.51	54	-	-	-	-	-	-	A	H
	*	2402	102.37	-	-	102.6	27.31	8.71	36.25	150	53	P	H
	*	2402	77.58	-	-	-	-	-	-	-	-	A	H
													H
													H
		2387.175	40.56	-33.44	74	40.86	27.25	8.69	36.24	291	50	P	V
		2387.175	15.77	-38.23	54	-	-	-	-	-	-	A	V
	*	2402	101.97	-	-	102.2	27.31	8.71	36.25	291	50	P	V
	*	2402	77.18	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2389.52	40.28	-33.72	74	40.57	27.26	8.69	36.24	130	47	P	H
		2389.52	15.49	-38.51	54	-	-	-	-	-	-	A	H
	*	2441	102.36	-	-	102.37	27.46	8.79	36.26	130	47	P	H
	*	2441	77.57	-	-	-	-	-	-	-	-	A	H
		2491.6	41.23	-32.77	74	40.96	27.67	8.88	36.28	130	47	P	H
		2491.6	16.44	-37.56	54	-	-	-	-	-	-	A	H
		2389.24	40.31	-33.69	74	40.6	27.26	8.69	36.24	301	49	P	V
		2389.24	15.52	-38.48	54	-	-	-	-	-	-	A	V
	*	2441	100.12	-	-	100.13	27.46	8.79	36.26	301	49	P	V
	*	2441	75.33	-	-	-	-	-	-	-	-	A	V
		2493.63	40.39	-33.61	74	40.12	27.67	8.88	36.28	301	49	P	V
		2493.63	15.6	-38.4	54	-	-	-	-	-	-	A	V

BT Ant 1	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BT CH 78 2480MHz	*	2480	100.75	-	-	100.54	27.62	8.86	36.27	150	44	P	H
	*	2480	75.96	-	-	-	-	-	-	-	-	A	H
		2483.64	43.65	-30.35	74	43.43	27.63	8.86	36.27	150	44	P	H
		2483.64	18.86	-35.14	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	100.01	-	-	99.8	27.62	8.86	36.27	295	46	P	V
	*	2480	75.22	-	-	-	-	-	-	-	-	A	V
		2483.68	45.42	-28.58	74	45.2	27.63	8.86	36.27	295	46	P	V
		2483.68	20.63	-33.37	54	-	-	-	-	-	-	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT Ant 1	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BT CH 00 2402MHz		4804	44.87	-29.13	74	36.71	32.4	13.26	37.5	-	-	P	H
		4804	20.08	-33.92	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		4804	44.27	-29.73	74	36.11	32.4	13.26	37.5	-	-	P	V
		4804	19.48	-34.52	54	-	-	-	-	-	-	A	V
													V
													V
													V
													V
													V
													V
													V
													V
													V

BT Ant 1	Note	Frequency (MHz)	Level (dBµV/m)	Margin (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		4882	44.93	-29.07	74	36.74	32.53	13.23	37.57	-	-	P	H
		4882	20.14	-33.86	54	-	-	-	-	-	-	A	H
		7323	49.19	-24.81	74	35.1	36.9	15.8	38.61	-	-	P	H
		7323	24.4	-29.6	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
BT CH 39 2441MHz		4882	44.25	-29.75	74	36.06	32.53	13.23	37.57	-	-	P	V
		4882	19.46	-34.54	54	-	-	-	-	-	-	A	V
		7323	49.1	-24.9	74	35.01	36.9	15.8	38.61	-	-	P	V
		7323	24.31	-29.69	54	-	-	-	-	-	-	A	V
													V
													V
													V
													V
													V
													V
													V
													V

BT Ant 1	Note	Frequency (MHz)	Level (dBµV/m)	Margin (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BT CH 78 2480MHz		4960	44.25	-29.75	74	35.74	32.94	13.2	37.63	-	-	P	H
		4960	19.46	-34.54	54	-	-	-	-	-	-	A	H
		7440	48.37	-25.63	74	34.64	36.52	15.92	38.71	-	-	P	H
		7440	23.58	-30.42	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
		4960	44.29	-29.71	74	35.78	32.94	13.2	37.63	-	-	P	V
		4960	19.5	-34.5	54	-	-	-	-	-	-	A	V
		7440	47.64	-26.36	74	33.91	36.52	15.92	38.71	-	-	P	V
		7440	22.85	-31.15	54	-	-	-	-	-	-	A	V
													V
													V
													V
													V
													V
													V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.
3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.

Emission above 18GHz

2.4GHz BT (SHF)

BT	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz BT SHF		24867	40.66	-33.34	74	41.98	39.27	19.74	60.33	-	-	P	H
													H
													H
													H
													H
													H
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													H
													H
													H
													H
		24853	40.69	-33.31	74	42	39.29	19.73	60.33	-	-	P	V
													V
													V
													V
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													V
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													V
													V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against limit line.
3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.

Emission below 1GHz

2.4GHz BT (LF)

BT	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz BT LF		49.55	33.23	-6.77	40	52.32	14.88	1.59	35.56	400	315	Q	H
		95.96	27.26	-16.24	43.5	45.24	15.51	2.02	35.51	-	-	P	H
		198.3	29.69	-13.81	43.5	47.23	14.99	2.79	35.32	-	-	P	H
		207.2	31.68	-11.82	43.5	48.89	15.26	2.84	35.31	-	-	P	H
		739.2	33.43	-12.57	46	33.94	28.18	5.04	33.73	-	-	P	H
		900	35.83	-10.17	46	34.46	29.02	5.52	33.17	-	-	P	H
													H
													H
													H
													H
													H
													H
		49.38	34.59	-5.41	40	53.61	14.95	1.59	35.56	100	230	Q	V
		156.48	24	-19.5	43.5	39.97	16.92	2.52	35.41	-	-	P	V
		192.69	27.99	-15.51	43.5	45.66	14.91	2.76	35.34	-	-	P	V
		206.4	29.85	-13.65	43.5	47.09	15.23	2.84	35.31	-	-	P	V
		746.4	35.01	-10.99	46	35.42	28.23	5.05	33.69	-	-	P	V
		904	37.4	-8.6	46	36.07	28.95	5.53	33.15	-	-	P	V
													V
													V
													V
													V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against limit line.
3. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH00 2402MHz		2359.665	41.06	-32.94	74	41.52	27.14	8.63	36.23	237	236	P	H
		2359.665	16.27	-37.73	54	-	-	-	-	-	-	A	H
	*	2402	99.82	-	-	100.05	27.31	8.71	36.25	237	236	P	H
	*	2402	75.03	-	-	-	-	-	-	-	-	A	H
													H
													H
		2387.175	39.52	-34.48	74	39.82	27.25	8.69	36.24	264	101	P	V
		2387.175	14.73	-39.27	54	-	-	-	-	-	-	A	V
	*	2402	98.62	-	-	98.85	27.31	8.71	36.25	264	101	P	V
	*	2402	73.83	-	-	-	-	-	-	-	-	A	V
													V
													V
BT CH 39 2441MHz		2373	39.59	-34.41	74	39.98	27.19	8.66	36.24	227	240	P	H
		2373	14.8	-39.2	54	-	-	-	-	-	-	A	H
	*	2441	98.74	-	-	98.75	27.46	8.79	36.26	227	240	P	H
	*	2441	73.95	-	-	-	-	-	-	-	-	A	H
		2497.9	40.51	-33.49	74	40.21	27.69	8.89	36.28	227	240	P	H
		2497.9	15.72	-38.28	54	-	-	-	-	-	-	A	H
		2360.68	39.73	-34.27	74	40.18	27.14	8.64	36.23	242	103	P	V
		2360.68	14.94	-39.06	54	-	-	-	-	-	-	A	V
	*	2441	97.49	-	-	97.5	27.46	8.79	36.26	242	103	P	V
	*	2441	72.7	-	-	-	-	-	-	-	-	A	V
		2499.37	41.36	-32.64	74	41.05	27.7	8.89	36.28	242	103	P	V
		2499.37	16.57	-37.43	54	-	-	-	-	-	-	A	V

BT Ant 2	Note	Frequency (MHz)	Level (dBµV/m)	Margin (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BT CH 78 2480MHz	*	2480	98.33	-	-	98.12	27.62	8.86	36.27	294	5	P	H
	*	2480	73.54	-	-	-	-	-	-	-	-	A	H
		2483.52	43.63	-30.37	74	43.41	27.63	8.86	36.27	294	5	P	H
		2483.52	18.84	-35.16	54	-	-	-	-	-	-	A	H
													H
													H
	*	2480	96.61	-	-	96.4	27.62	8.86	36.27	100	41	P	V
	*	2480	71.82	-	-	-	-	-	-	-	-	A	V
		2483.6	42.75	-31.25	74	42.53	27.63	8.86	36.27	100	41	P	V
		2483.6	17.96	-36.04	54	-	-	-	-	-	-	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT Ant 2	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BT CH 00 2402MHz		4804	43.24	-30.76	74	35.08	32.4	13.26	37.5	-	-	P	H
		4804	18.45	-35.55	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		4804	43.42	-30.58	74	35.26	32.4	13.26	37.5	-	-	P	V
		4804	18.63	-35.37	54	-	-	-	-	-	-	A	V
													V
													V
													V
													V
													V
													V
													V
													V
													V

BT Ant 2	Note	Frequency (MHz)	Level (dBµV/m)	Margin (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
		4882	44.34	-29.66	74	36.15	32.53	13.23	37.57	-	-	P	H
		4882	19.55	-34.45	54	-	-	-	-	-	-	A	H
		7323	48.69	-25.31	74	34.6	36.9	15.8	38.61	-	-	P	H
		7323	23.9	-30.1	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
BT CH 39 2441MHz		4882	44.38	-29.62	74	36.19	32.53	13.23	37.57	-	-	P	V
		4882	19.59	-34.41	54	-	-	-	-	-	-	A	V
		7323	49.2	-24.8	74	35.11	36.9	15.8	38.61	-	-	P	V
		7323	24.41	-29.59	54	-	-	-	-	-	-	A	V
													V
													V
													V
													V
													V
													V
													V
													V

BT	Note	Frequency (MHz)	Level (dBμV/m)	Margin (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BT CH 78 2480MHz		4960	44.29	-29.71	74	35.78	32.94	13.2	37.63	-	-	P	H
		4960	19.5	-34.5	54	-	-	-	-	-	-	A	H
		7440	47.79	-26.21	74	34.06	36.52	15.92	38.71	-	-	P	H
		7440	23	-31	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
													H
													H
													H
													H
		4960	44.03	-29.97	74	35.52	32.94	13.2	37.63	-	-	P	V
		4960	19.24	-34.76	54	-	-	-	-	-	-	A	V
		7440	47.75	-26.25	74	34.02	36.52	15.92	38.71	-	-	P	V
		7440	22.96	-31.04	54	-	-	-	-	-	-	A	V
													V
													V
													V
													V
													V
													V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.
3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.

Emission above 18GHz

2.4GHz BT (SHF)

BT	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz BT SHF		24867	41.13	-32.87	74	42.45	39.27	19.74	60.33	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
		24902	42.01	-31.99	74	43.37	39.2	19.76	60.32	-	-	P	V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against limit line.
3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.

Emission below 1GHz

2.4GHz BT (LF)

BT	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz BT LF		49.72	33.79	-6.21	40	52.94	14.81	1.6	35.56	371	131	Q	H
		95.45	26.4	-17.1	43.5	44.48	15.42	2.01	35.51	-	-	P	H
		197.96	27.66	-15.84	43.5	45.21	14.99	2.79	35.33	-	-	P	H
		204.8	29.68	-13.82	43.5	47.01	15.15	2.83	35.31	-	-	P	H
		708	33.63	-12.37	46	35.83	26.75	4.96	33.91	-	-	P	H
		941.6	35.2	-10.8	46	32.31	30.31	5.59	33.01	-	-	P	H
													H
													H
													H
													H
													H
													H
		49.55	35.01	-4.99	40	54.1	14.88	1.59	35.56	100	235	Q	V
		95.96	25.06	-18.44	43.5	43.04	15.51	2.02	35.51	-	-	P	V
		195.41	29.95	-13.55	43.5	47.56	14.95	2.77	35.33	-	-	P	V
		205.6	32.32	-11.18	43.5	49.61	15.19	2.83	35.31	-	-	P	V
		896.8	35.09	-10.91	46	33.87	28.89	5.51	33.18	-	-	P	V
		959.2	35.48	-10.52	46	31.8	31	5.62	32.94	-	-	P	V
													V
													V
													V
													V
													V
													V

Remark

1. No other spurious found.
2. All results are PASS against limit line.
3. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.

Note symbol

*	**Fundamental Frequency** which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is **Margin** line.
P/A	**P**eak or **A**verage
H/V	**H**orizontal or **V**ertical

A calculation example for radiated spurious emission is shown as below:

BT	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
					Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH 00 2402MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) =

Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

3. Margin (dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Margin (dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

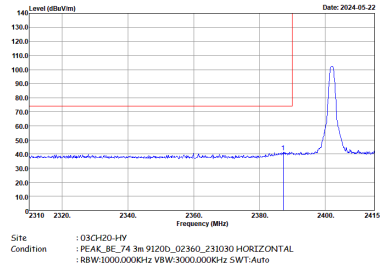
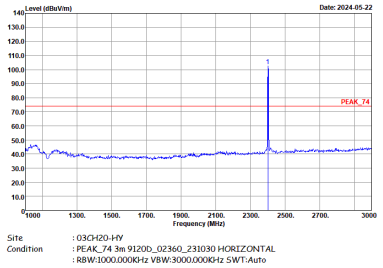
Peak measured complies with the limit line, so test result is “PASS”.

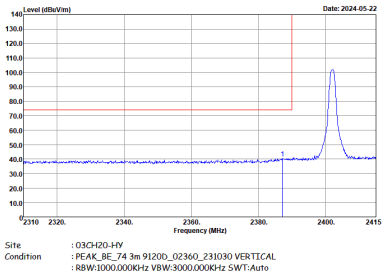
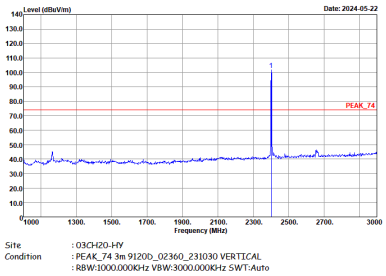
Appendix D. Radiated Spurious Emission Plots

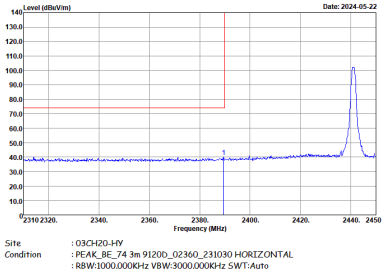
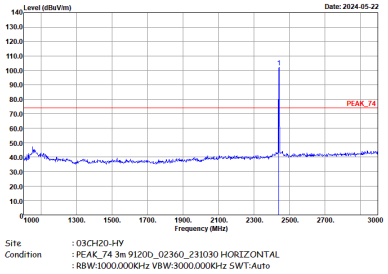
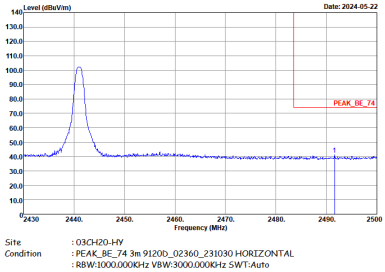
Test Engineer :	John Chuang, David Dai, and Sam Chou	Temperature :	19.7~23.5°C
		Relative Humidity :	64.9~70.8%

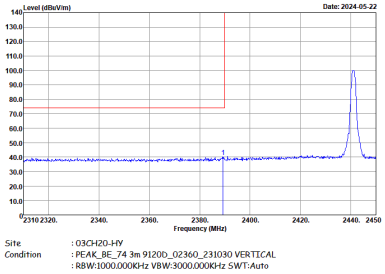
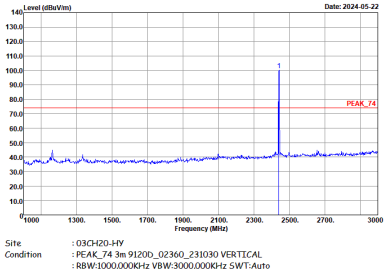
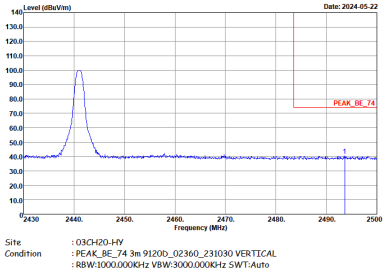
2.4GHz 2400~2483.5MHz

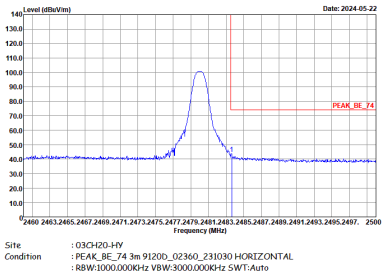
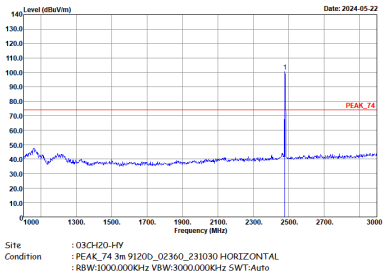
BT (Band Edge @ 3m)

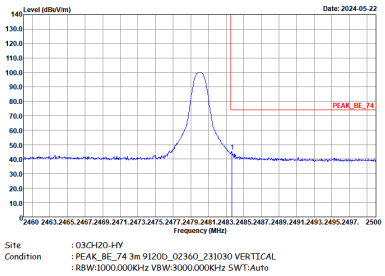
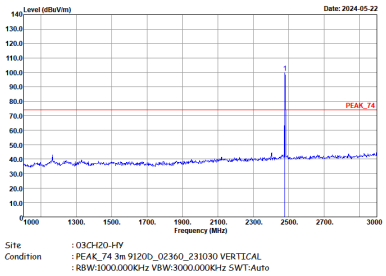
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH00 2402MHz	
1	Horizontal	Fundamental
Peak		

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH00 2402MHz	
1	Vertical	Fundamental
Peak		

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH39 2441MHz	
1	Horizontal	Fundamental
Peak		
Peak		Left blank

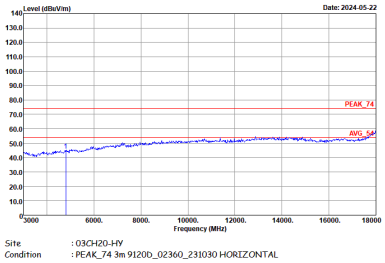
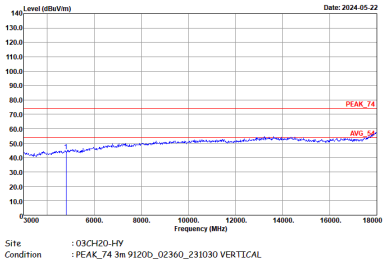
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH39 2441MHz	
1	Vertical	Fundamental
Peak		
Peak		Left blank

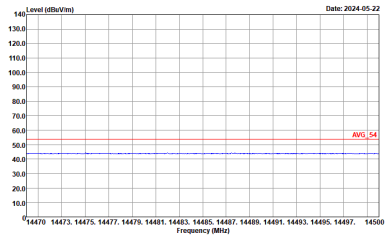
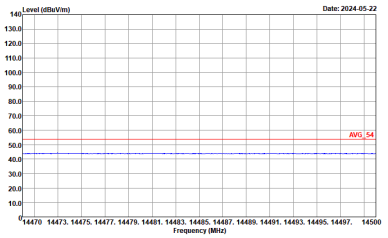
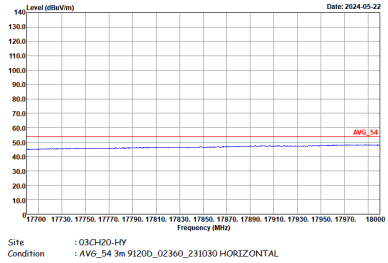
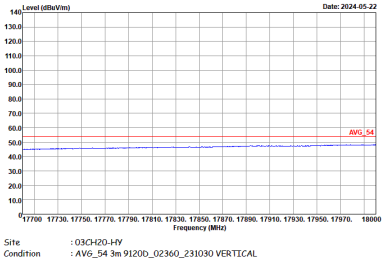
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
0	Horizontal	Fundamental
Peak		

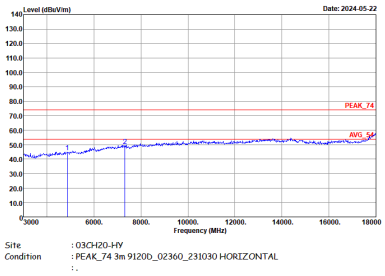
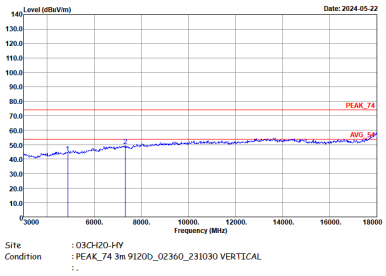
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
1	Vertical	Fundamental
Peak		

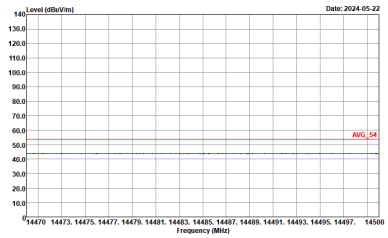
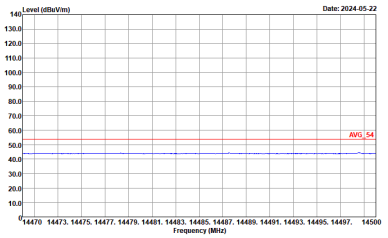
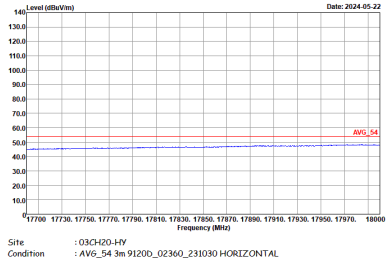
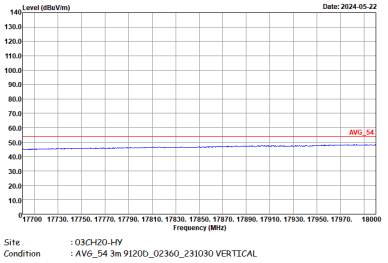
2.4GHz 2400~2483.5MHz

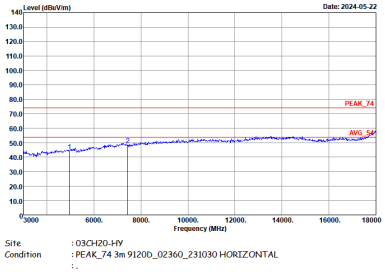
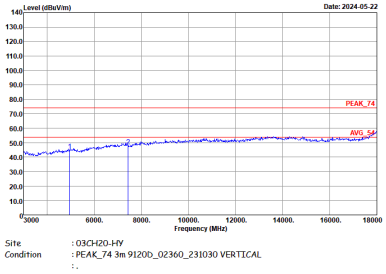
BT (Harmonic @ 3m)

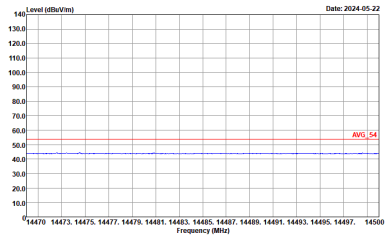
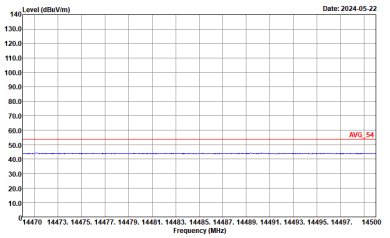
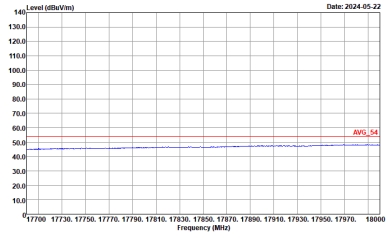
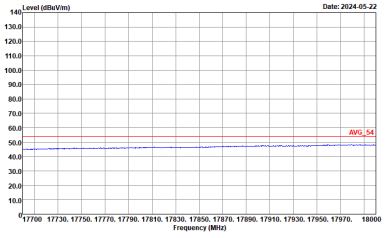
BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH00 2402MHz	
1	Horizontal	Vertical
Peak Avg.		

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH00 2402MHz	
1	Horizontal	Vertical
14.47G ~14.5G Avg.		
17.7G ~18G Avg		

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH39 2441MHz	
1	Horizontal	Vertical
Peak Avg.		

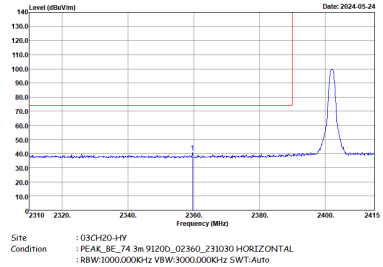
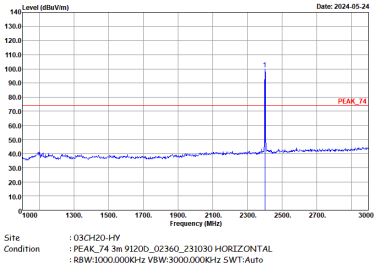
BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH39 2441MHz	
1	Horizontal	Vertical
14.47G ~14.5G Avg.		
17.7G ~18G Avg		

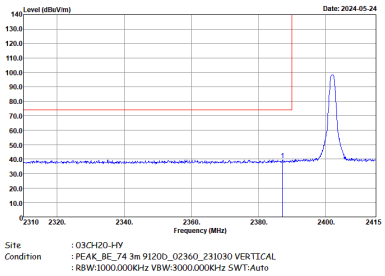
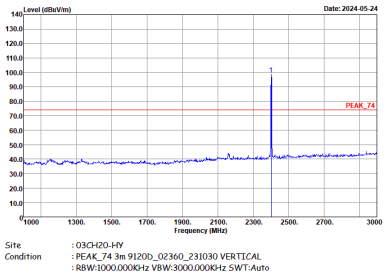
BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH78 2480MHz	
1	Horizontal	Vertical
Peak Avg.		

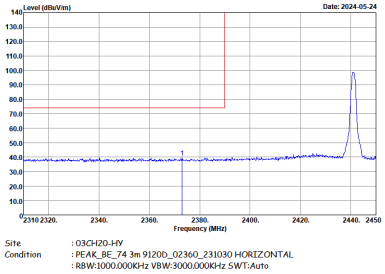
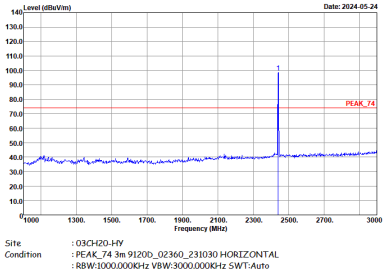
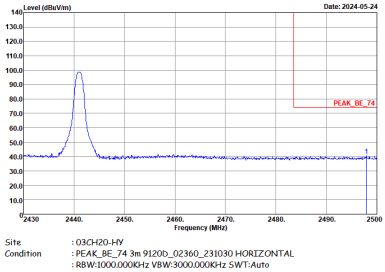
BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH78 2480MHz	
1	Horizontal	Vertical
14.47G ~14.5G Avg.	 Site : 03CH20-HY Condition : AVG_54 3m 9120D_02360_231030 HORIZONTAL : .	 Site : 03CH20-HY Condition : AVG_54 3m 9120D_02360_231030 VERTICAL : .
17.7G ~18G Avg	 Site : 03CH20-HY Condition : AVG_54 3m 9120D_02360_231030 HORIZONTAL : .	 Site : 03CH20-HY Condition : AVG_54 3m 9120D_02360_231030 VERTICAL : .

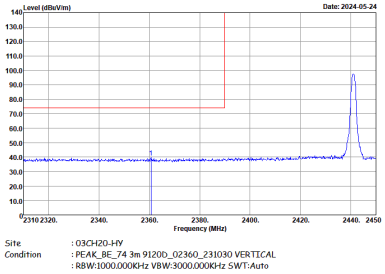
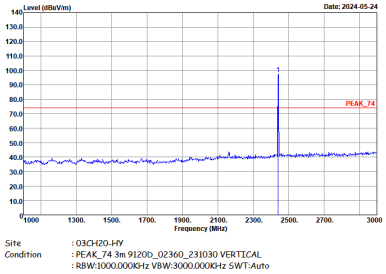
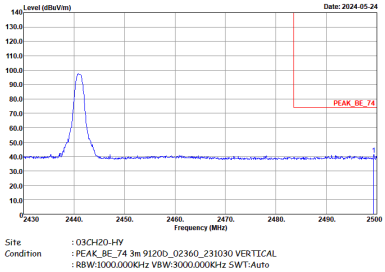
2.4GHz 2400~2483.5MHz

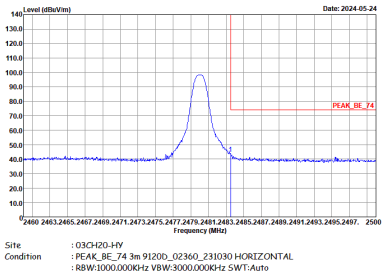
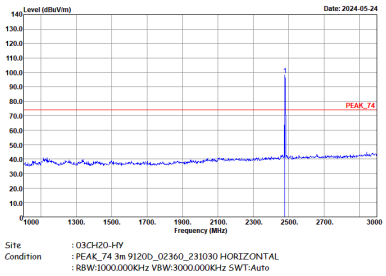
BT (Band Edge @ 3m)

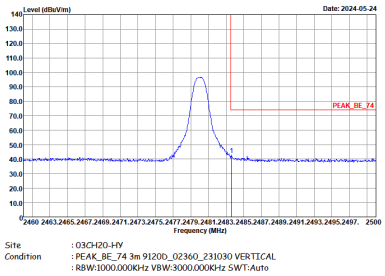
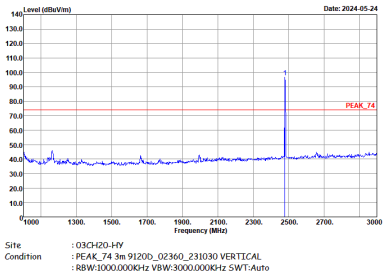
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH00 2402MHz	
2	Horizontal	Fundamental
Peak		

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH00 2402MHz	
2	Vertical	Fundamental
Peak		

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH39 2441MHz	
2	Horizontal	Fundamental
Peak		
Peak		Left blank

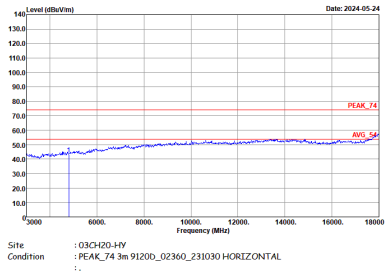
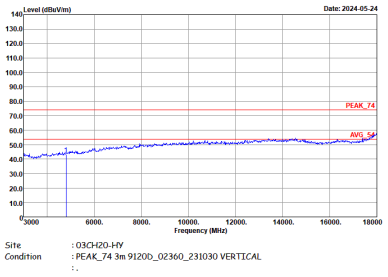
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH39 2441MHz	
2	Vertical	Fundamental
Peak		
Peak		Left blank

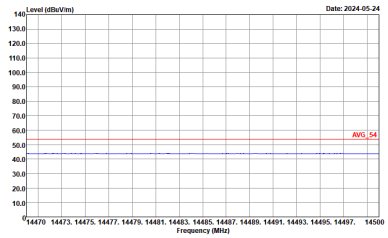
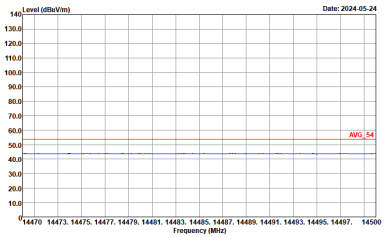
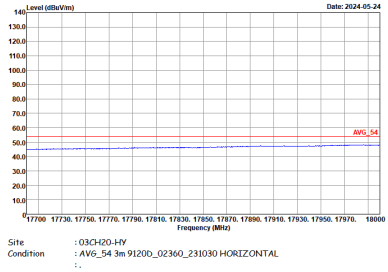
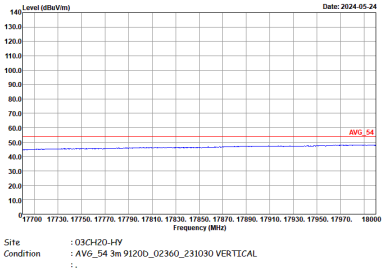
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
2	Horizontal	Fundamental
Peak		

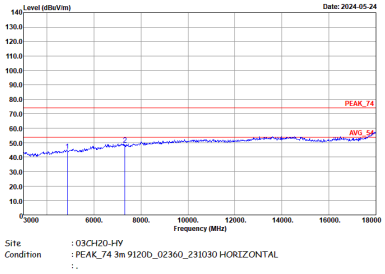
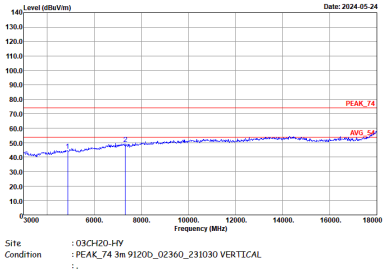
BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
2	Vertical	Fundamental
Peak		

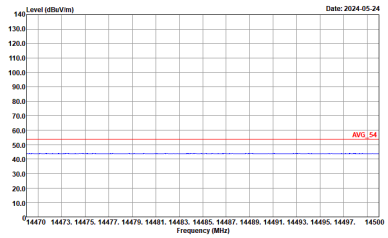
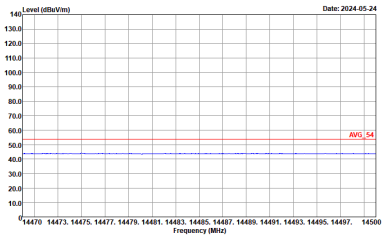
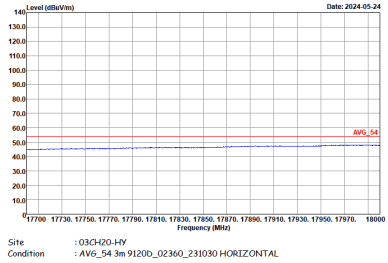
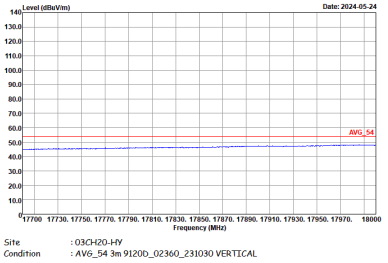
2.4GHz 2400~2483.5MHz

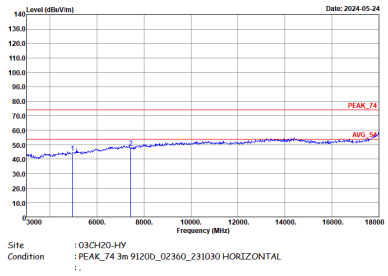
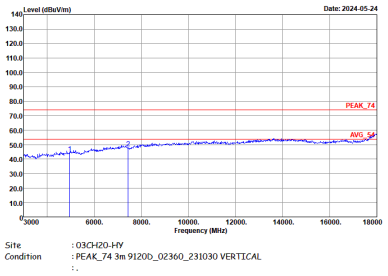
BT (Harmonic @ 3m)

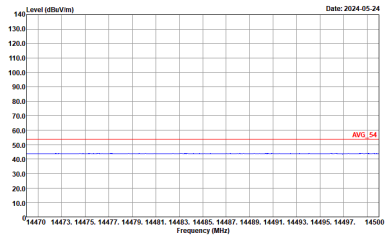
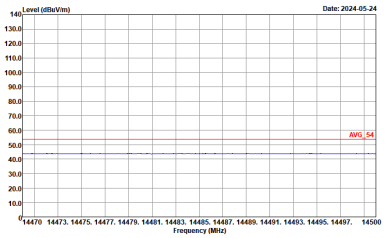
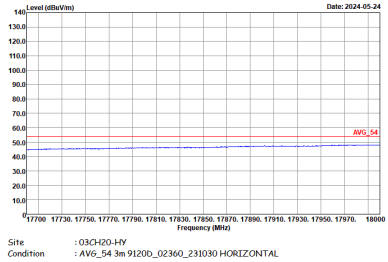
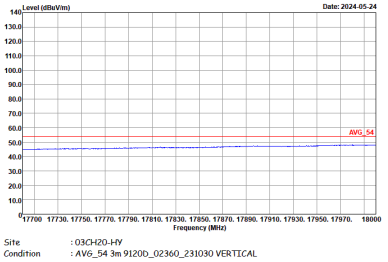
BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH00 2402MHz	
2	Horizontal	Vertical
Peak Avg.		

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH00 2402MHz	
2	Horizontal	Vertical
14.47G ~14.5G Avg.		
17.7G ~18G Avg		

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH39 2441MHz	
2	Horizontal	Vertical
Peak Avg.		

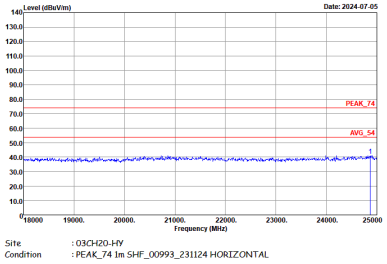
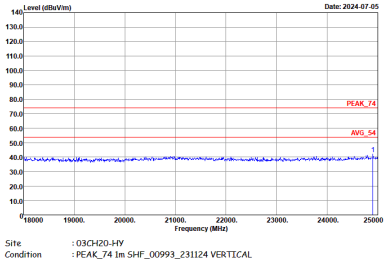
BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH39 2441MHz	
2	Horizontal	Vertical
14.47G ~14.5G Avg.		
17.7G ~18G Avg		

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH78 2480MHz	
2	Horizontal	Vertical
Peak Avg.		

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH78 2480MHz	
2	Horizontal	Vertical
14.47G ~14.5G Avg.		
17.7G ~18G Avg		

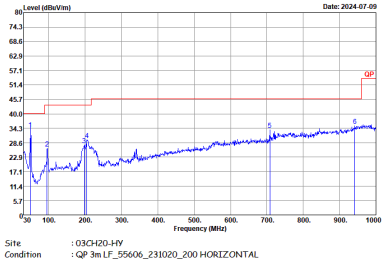
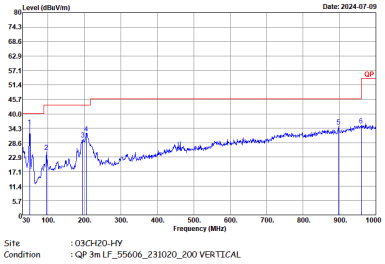
Emission above 18GHz

2.4GHz BT (SHF @ 1m)

BT	2.4GHz 2400~2483.5MHz	
ANT	BT SHF	
2	Horizontal	Vertical
Peak Avg.		

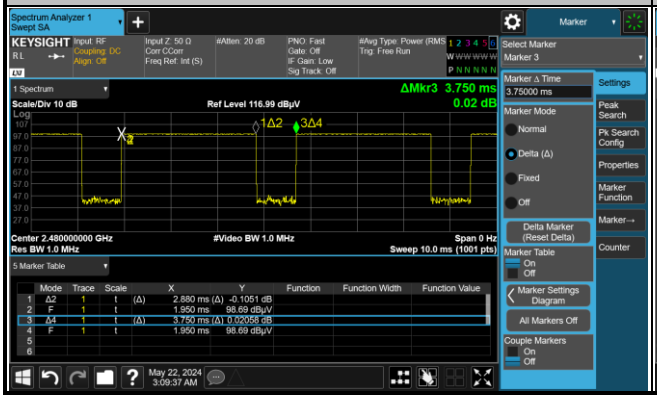
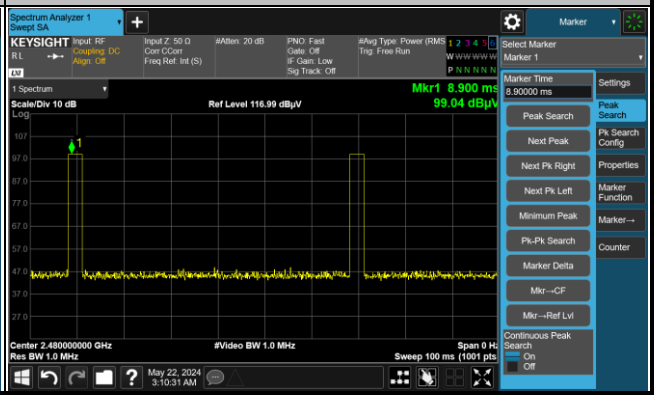
Emission below 1GHz

2.4GHz BT (LF)

BT	2.4GHz 2400~2483.5MHz	
ANT	BT LF	
2	Horizontal	Vertical
QP / Peak		

Appendix E. Duty Cycle Plots

<Ant. 1>

DH5 on time (One Pulse) Plot on Channel 78	on time (Count Pulses) Plot on Channel 78
	

Note:

1. Worst case Duty cycle = on time/100 milliseconds = 2 * 2.88 / 100 = 5.76 %
2. Worst case Duty cycle correction factor = 20*log(Duty cycle) = -24.79 dB
3. DH5 has the highest duty cycle worst case and is reported.

Duty Cycle Correction Factor Consideration for AFH mode:

Bluetooth normal hopping rate is 1600Hz and reduced to 800Hz in AFH mode; due to the reduced number of hopping frequencies, with the same packet configuration the dwell time in each channel frequency within 100msec period is longer in AFH mode than normal mode.

In AFH mode, the minimum hopping frequencies are 20, to get the longest dwell time DH5 packet is observed; the on time period to have DH5 packet completing one hopping sequence is

2.88 ms x 20 channels = 57.6 ms

There cannot be 2 complete hopping sequences within 100ms period, considering the random hopping behavior, maximum 2 hops can be possibly observed within the period. [100 ms / 57.6 ms] = 2 hops

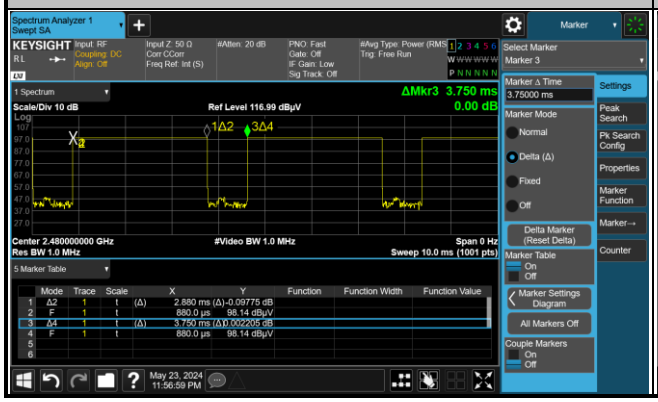
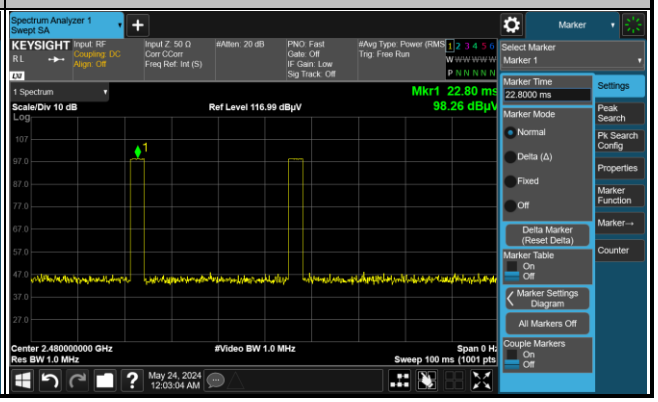
Thus, the maximum possible ON time:

2.88 ms x 2 = 5.76 ms

Worst case Duty Cycle Correction factor, which is derived from the maximum possible ON time,

20 x log(5.76 ms/100 ms) = -24.79 dB

<Ant. 2>

DH5 on time (One Pulse) Plot on Channel 78	on time (Count Pulses) Plot on Channel 78
	

Note:

1. Worst case Duty cycle = on time/100 milliseconds = 2 * 2.88 / 100 = 5.76 %
2. Worst case Duty cycle correction factor = 20*log(Duty cycle) = -24.79 dB
3. DH5 has the highest duty cycle worst case and is reported.

Duty Cycle Correction Factor Consideration for AFH mode:

Bluetooth normal hopping rate is 1600Hz and reduced to 800Hz in AFH mode; due to the reduced number of hopping frequencies, with the same packet configuration the dwell time in each channel frequency within 100msec period is longer in AFH mode than normal mode.

In AFH mode, the minimum hopping frequencies are 20, to get the longest dwell time DH5 packet is observed; the on time period to have DH5 packet completing one hopping sequence is

2.88 ms x 20 channels = 57.6 ms

There cannot be 2 complete hopping sequences within 100ms period, considering the random hopping behavior, maximum 2 hops can be possibly observed within the period. [100 ms / 57.6 ms] = 2 hops

Thus, the maximum possible ON time:

2.88 ms x 2 = 5.76 ms

Worst case Duty Cycle Correction factor, which is derived from the maximum possible ON time,

20 x log(5.76 ms/100 ms) = -24.79 dB

Appendix G. Spot Check Evaluation on KC50E15

Conducted power test and radiated spurious emission test configurations were selected from the worst cases identified in the reference model and tested to demonstrate the test data from reference model remains representative for the variant model.

The deviation between the spot check and the referenced values is within 3dB, therefore data referencing is justified according to the guidance in the ECR inquiry

Mode	Test Item	UZ7KC50A15 Reference Worst mode Test Result	UZ7KC50E15 Variant Check Test Result	Deviation	Limit (dB)
Bluetooth	Number of Channels	79	79	0	Within the authorized block
	Hopping Channel Separation	1.298	0.994	0.304	Within the authorized block
	Dwell Time of Each Channel	0.31	0.31	0	Within the authorized block
	20dB Bandwidth	0.895	0.943	0.048	Within the authorized frequency block
	99% Bandwidth	0.829	0.835	0.006	Within the authorized frequency block
	Conducted Band Edges	-40.99	-41.96	0.97	Deviation (ddB) < 3 dB
	Conducted Spurious Emission	-31.60	-31.83	0.23	Deviation (ddB) < 3 dB
	Peak Output Power	5.51	6.55	1.04	Deviation (ddB) < 3 dB
	Radiated Band Edges and Radiated Spurious Emission	29.69	30.55	0.86	Deviation (ddB) < 3 dB
	AC Conducted Emission	40.20	42.89	2.69	Deviation (ddB) < 3 dB
Bluetooth-LE	6dB Bandwidth	1.152	1.145	0.007	Within the authorized frequency block
	99% Bandwidth	2.002	1.998	0.004	Within the authorized frequency block
	Power Spectral Density	-12.50	-12.91	0.41	Deviation (ddB) < 3 dB
	Conducted Band Edges	-41.12	-42.06	0.94	Deviation (ddB) < 3 dB
	Conducted Spurious Emission	-31.67	-31.99	0.32	Deviation (ddB) < 3 dB
	Power Output Measurement	4.9	4.8	0.1	Deviation (ddB) < 3 dB
	Radiated Band Edges and Spurious Emission	35.09	32.18	2.91	Deviation (ddB) < 3 dB
	AC Conducted Emission	40.20	42.89	2.69	Deviation (ddB) < 3 dB
WIFI 2.4G	6dB Bandwidth	8.05	8.08	0.03	Within the authorized frequency block
	99% Bandwidth	19.33	19.33	0	Within the authorized frequency block
	Power Spectral Density	3.48	3.54	0.06	Deviation (ddB) < 3 dB
	Conducted Band Edges	-41.60	-41.47	0.13	Deviation (ddB) < 3 dB
	Conducted Spurious Emission	-42.45	-42.79	0.34	Deviation (ddB) < 3 dB
	Output Power	26.47	26.37	0.1	Deviation (ddB) < 3 dB
	Radiated Band Edges and Spurious Emission	52.42	52.41	0.01	Deviation (ddB) < 3 dB
	AC Conducted Emission	40.20	42.89	2.69	Deviation (ddB) < 3 dB

Mode	Test Item	UZ7KC50A15 Reference Worst mode Test Result	UZ7KC50E15 Variant Check Test Result	Deviation	Limit (dB)
WIFI 5G	26dB Bandwidth	165.46	166.13	0.67	Within the authorized frequency block
	99% Bandwidth	156.56	156.56	0.00	Within the authorized frequency block
	Power Spectral Density	10.06	10.01	0.05	Deviation (ddB) < 3 dB
	Maximum Conducted Output Power	23.14	22.68	0.46	Deviation (ddB) < 3 dB
	Unwanted Emissions	52.91	52.13	0.78	Deviation (ddB) < 3 dB
	AC Conducted Emission	41.22	42.43	1.21	Deviation (ddB) < 3 dB
WIFI 6G (Indoor Client)	26dB Emission Bandwidth	166.37	166.94	0.57	Within the authorized frequency block
	99% Occupied Bandwidth	156.56	156.32	0.24	Within the authorized frequency block
	Contention Based Protocol	-66.39	-63.16	3.23	Within the authorized block
	Fundamental Maximum EIRP	20.18	20.13	0.05	Deviation (ddB) < 3 dB
	Fundamental Power Spectral Density	-1.14	-1.11	0.03	Deviation (ddB) < 3 dB
	In-Band Emissions (Channel Mask)	-43.14	-44.97	1.83	Deviation (ddB) < 3 dB
	Unwanted Emissions	66.75	64.43	2.32	Deviation (ddB) < 3 dB
	AC Conducted Emission	40.50	37.56	2.94	Deviation (ddB) < 3 dB

List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	Keysight	N9038A(MXE)	MY54130085	N/A	Oct. 06, 2023	Aug. 28, 2024~ Aug. 30, 2024	Oct. 05, 2024	Radiation (03CH20-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 12, 2023	Aug. 28, 2024~ Aug. 30, 2024	Sep. 11, 2024	Radiation (03CH20-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	May 27, 2024	Aug. 28, 2024~ Aug. 30, 2024	May 26, 2025	Radiation (03CH20-HY)
Controller	ChainTek	3000-1	N/A	Control Turn table & Ant Mast	N/A	Aug. 28, 2024~ Aug. 30, 2024	N/A	Radiation (03CH20-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Aug. 28, 2024~ Aug. 30, 2024	N/A	Radiation (03CH20-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Aug. 28, 2024~ Aug. 30, 2024	N/A	Radiation (03CH20-HY)
Signal Analyzer	Keysight	N9010B	MY60240520	N/A	Dec. 12, 2023	Aug. 28, 2024~ Aug. 30, 2024	Dec. 11, 2024	Radiation (03CH20-HY)
Bilog Antenna	TESEQ	CBL 6111D&00802 N1D01N-06	55606 & 08	30MHz~1GHz	Oct. 20, 2023	Aug. 28, 2024~ Aug. 30, 2024	Oct. 19, 2024	Radiation (03CH20-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	02360	1GHz-18GHz	Oct. 30, 2023	Aug. 28, 2024~ Aug. 30, 2024	Oct. 29, 2024	Radiation (03CH20-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	1223	18GHz-40GHz	Jun. 24, 2024	Aug. 28, 2024~ Aug. 30, 2024	Jun. 23, 2025	Radiation (03CH20-HY)
Preamplifier	COM-POWER	PAM-103	18020201	1MHz-1000MHz	Jan. 01, 2024	Aug. 28, 2024~ Aug. 30, 2024	Dec. 31, 2024	Radiation (03CH20-HY)
Amplifier	EMCI	EMC118A45SE	980792	N/A	Nov. 13, 2023	Aug. 28, 2024~ Aug. 30, 2024	Nov. 12, 2024	Radiation (03CH20-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	519229/2,804015/2,804027/2	N/A	Jan. 17, 2024	Aug. 28, 2024~ Aug. 30, 2024	Jan. 16, 2025	Radiation (03CH20-HY)
Hygrometer	TECPEL	DTM-303A	TP211382	N/A	Mar. 27, 2024	Aug. 28, 2024~ Aug. 30, 2024	Mar. 26, 2025	Radiation (03CH20-HY)
Software	Audix	N/A	RK-002156	N/A	N/A	Aug. 28, 2024~ Aug. 30, 2024	N/A	Radiation (03CH20-HY)
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 07, 2023	Jul. 20, 2024	Nov. 06, 2024	Conducted (TH05-HY)
Power Meter	Anritsu	ML2495A	1036004	N/A	Jul. 27, 2023	Jul. 20, 2024	Jul. 26, 2024	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Jul. 27, 2023	Jul. 20, 2024	Jul. 26, 2024	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz~40GHz	Aug. 23, 2023	Jul. 20, 2024	Aug. 22, 2024	Conducted (TH05-HY)
BT Base Station(Measure)	Rohde & Schwarz	CBT	101136	BT 3.0	Oct. 22, 2023	Jul. 20, 2024	Oct. 21, 2024	Conducted (TH05-HY)
Software	Sporton	BTWIFI_Final_version_240411	N/A	Conducted Other Test Item	N/A	Jul. 20, 2024	N/A	Conducted (TH05-HY)

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
AC Power Source	ACPOWER	AFC-11003G	F317040033	N/A	N/A	Jul. 16, 2024	N/A	Conduction (CO07-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Jul. 16, 2024	N/A	Conduction (CO07-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	9561-F N00373	9kHz-200MHz	Oct. 20, 2023	Jul. 16, 2024	Oct. 19, 2024	Conduction (CO07-HY)
RF Cable	HUBER + SUHNER	RG 214/U	1358175	9kHz~30MHz	Mar. 14, 2024	Jul. 16, 2024	Mar. 13, 2025	Conduction (CO07-HY)
Two-Line V-Network	TESEQ	NNB 51	45051	N/A	Mar. 10, 2024	Jul. 16, 2024	Mar. 09, 2025	Conduction (CO07-HY)
Four-Line V-Network	TESEQ	NNB 52	36122	N/A	Mar. 07, 2024	Jul. 16, 2024	Mar. 06, 2025	Conduction (CO07-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102317	9kHz~3.6GHz	Sep. 20, 2023	Jul. 16, 2024	Sep. 19, 2024	Conduction (CO07-HY)

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