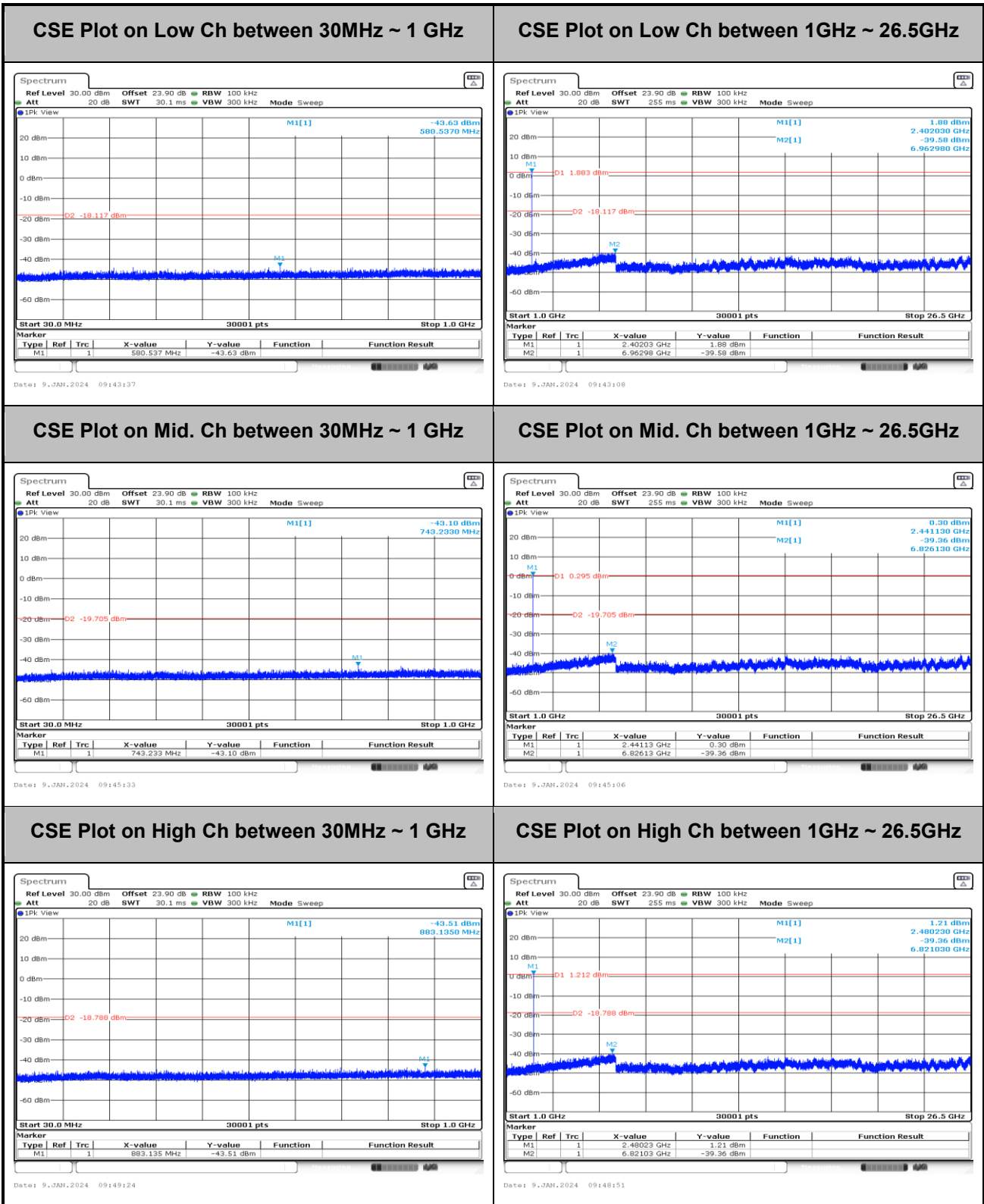




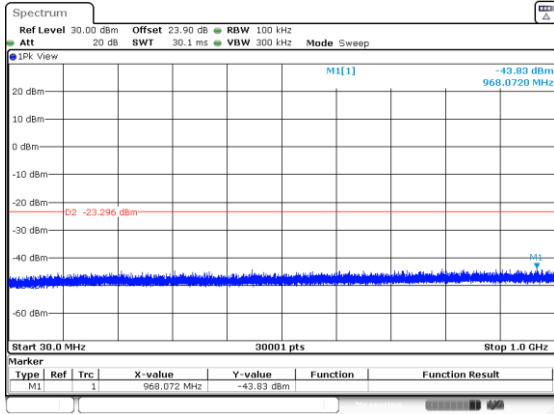
<2Mbps>



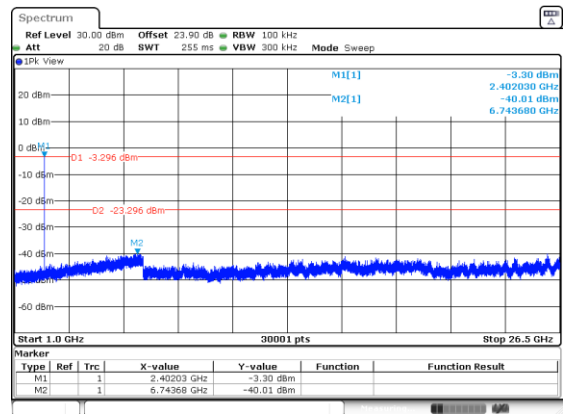


<3Mbps>

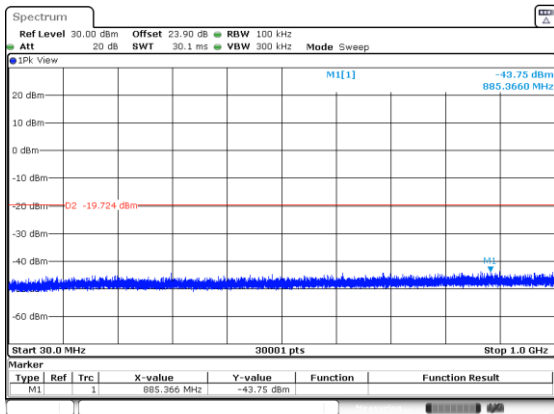
CSE Plot on Low Ch between 30MHz ~ 1 GHz



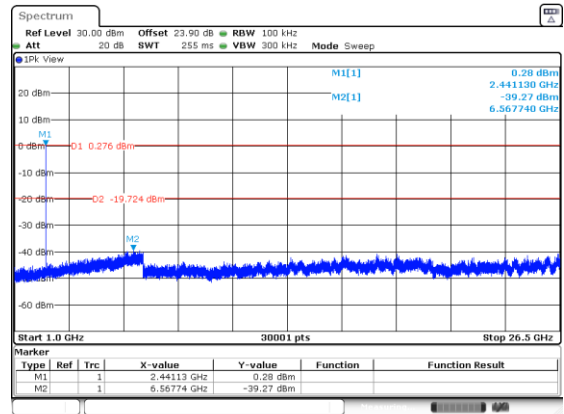
CSE Plot on Low Ch between 1GHz ~ 26.5GHz



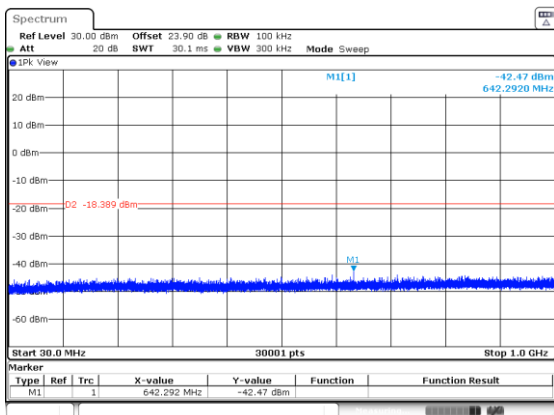
CSE Plot on Mid. Ch between 30MHz ~ 1 GHz



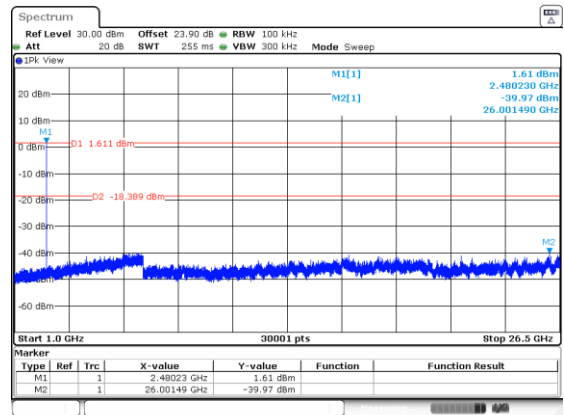
CSE Plot on Mid. Ch between 1GHz ~ 26.5GHz



CSE Plot on High Ch between 30MHz ~ 1 GHz



CSE Plot on High Ch between 1GHz ~ 26.5GHz





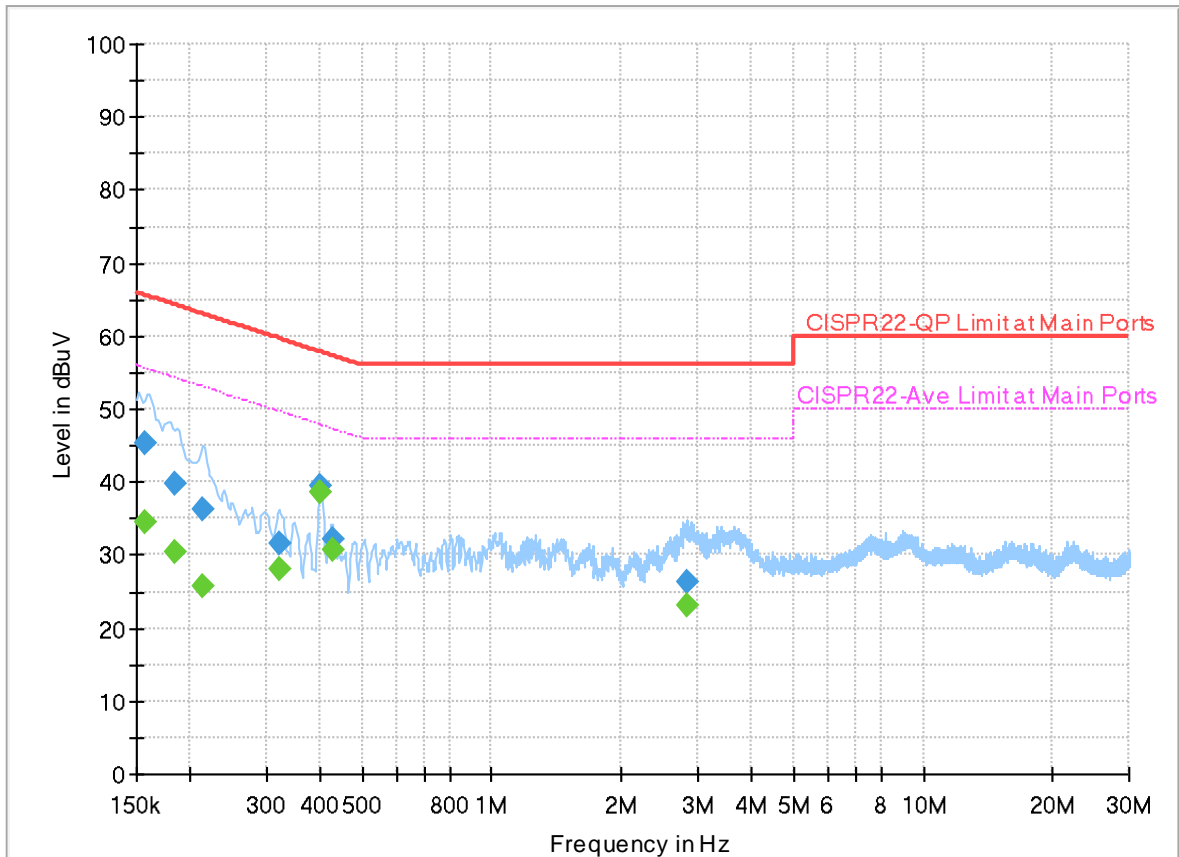
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Louis Chung	Temperature :	19.2~21.3°C
		Relative Humidity :	58.2~63.7%

EUT Information

Report NO : 3N2803
 Test Mode : Mode 1
 Test Voltage : 120Vac/60Hz
 Phase : Line

Full Spectrum



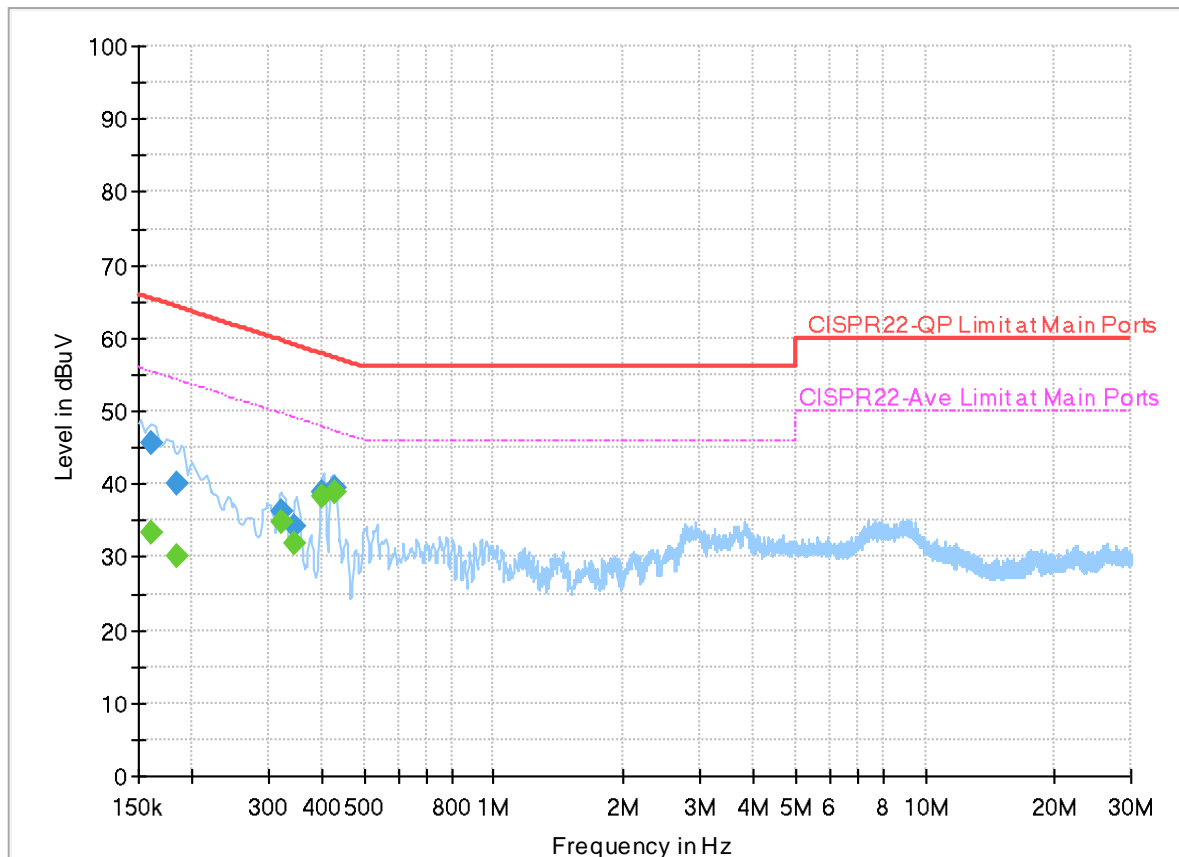
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.157380	---	34.43	55.60	21.17	L1	OFF	19.9
0.157380	45.44	---	65.60	20.16	L1	OFF	19.9
0.183750	---	30.55	54.31	23.76	L1	OFF	19.9
0.183750	39.70	---	64.31	24.61	L1	OFF	19.9
0.214710	---	25.73	53.02	27.29	L1	OFF	19.9
0.214710	36.27	---	63.02	26.75	L1	OFF	19.9
0.323340	---	27.97	49.62	21.65	L1	OFF	19.9
0.323340	31.56	---	59.62	28.06	L1	OFF	19.9
0.401280	---	38.69	47.83	9.14	L1	OFF	19.9
0.401280	39.39	---	57.83	18.44	L1	OFF	19.9
0.426210	---	30.67	47.33	16.66	L1	OFF	19.9
0.426210	32.23	---	57.33	25.10	L1	OFF	19.9
2.845860	---	23.00	46.00	23.00	L1	OFF	20.0
2.845860	26.31	---	56.00	29.69	L1	OFF	20.0

EUT Information

Report NO : 3N2803
 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)
0.161250	---	33.28	55.40	22.12	N	OFF	19.9
0.161250	45.63	---	65.40	19.77	N	OFF	19.9
0.183750	---	30.21	54.31	24.10	N	OFF	19.9
0.183750	40.01	---	64.31	24.30	N	OFF	19.9
0.321810	---	34.75	49.66	14.91	N	OFF	19.9
0.321810	36.18	---	59.66	23.48	N	OFF	19.9
0.345750	---	31.76	49.06	17.30	N	OFF	19.9
0.345750	34.15	---	59.06	24.91	N	OFF	19.9
0.401550	---	38.44	47.82	9.38	N	OFF	19.9
0.401550	39.00	---	57.82	18.82	N	OFF	19.9
0.425940	---	38.96	47.33	8.37	N	OFF	19.9
0.425940	39.50	---	57.33	17.83	N	OFF	19.9



Appendix C. Radiated Spurious Emission

Test Engineer :	Jack Cheng, Ray Lung, and Sky Chang	Temperature :	18~26°C
		Relative Humidity :	50~70%

<Ant. 6>

**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.		
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
BT CH00 2402MHz		2370.585	40.36	-33.64	74	37.52	27.09	8.41	32.66	117	359	P	H	
		2370.585	15.57	-38.43	54	-	-	-	-	-	-	A	H	
	*	2402	97.08	-	-	94.22	27.08	8.46	32.68	117	359	P	H	
	*	2402	72.29	-	-	-	-	-	-	-	-	A	H	
													H	
													H	
			2362.395	40.26	-33.74	74	37.42	27.1	8.39	32.65	314	38	P	V
			2362.395	15.47	-38.53	54	-	-	-	-	-	-	A	V
	*		2402	95.68	-	-	92.82	27.08	8.46	32.68	314	38	P	V
	*		2402	70.89	-	-	-	-	-	-	-	-	A	V
														V
														V
BT CH 39 2441MHz		2327.64	40.58	-33.42	74	37.78	27.1	8.33	32.63	108	360	P	H	
		2327.64	15.79	-38.21	54	-	-	-	-	-	-	A	H	
	*	2441	100.23	-	-	97.5	26.9	8.53	32.7	108	360	P	H	
	*	2441	75.44	-	-	-	-	-	-	-	-	A	H	
			2495.66	40.6	-33.4	74	37.81	26.9	8.63	32.74	108	360	P	H
			2495.66	15.81	-38.19	54	-	-	-	-	-	-	A	H
			2363.2	40.89	-33.11	74	38.06	27.1	8.39	32.66	302	36	P	V
			2363.2	16.1	-37.9	54	-	-	-	-	-	-	A	V
	*		2441	98.81	-	-	96.08	26.9	8.53	32.7	302	36	P	V
	*		2441	74.02	-	-	-	-	-	-	-	-	A	V
			2486.91	40.75	-33.25	74	37.96	26.9	8.62	32.73	302	36	P	V



		2486.91	15.96	-38.04	54	-	-	-	-	-	-	A	V	
BT CH 78 2480MHz	*	2480	100.04	-	-	97.27	26.9	8.6	32.73	107	360	P	H	
	*	2480	75.25	-	-	-	-	-	-	-	-	A	H	
		2483.52	44.54	-29.46	74	41.76	26.9	8.61	32.73	107	360	P	H	
		2483.52	19.75	-34.25	54	-	-	-	-	-	-	A	H	
													H	
													H	
	*	2480	98.76	-	-	95.99	26.9	8.6	32.73	301	36	P	V	
	*	2480	73.97	-	-	-	-	-	-	-	-	-	A	V
		2483.6	42.93	-31.07	74	40.15	26.9	8.61	32.73	301	36	P	V	
		2483.6	18.14	-35.86	54	-	-	-	-	-	-	A	V	
													V	
													V	
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 													



2.4GHz 2400~2483.5MHz
BT (Harmonic @ 3m)

BT ANT	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	43.86	-30.14	74	32.73	32.32	12.79	33.98	-	-	P	H
		4804	19.07	-34.93	54	-	-	-	-	-	-	A	H
													H
													H
													H
													H
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													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
			4804	44.58	-29.42	74	33.45	32.32	12.79	33.98	-	-	P
		4804	19.79	-34.21	54	-	-	-	-	-	-	A	V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V
													V



BT ANT	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	45.44	-28.56	74	34.02	32.7	12.69	33.97	-	-	P	H	
		4960	20.65	-33.35	54	-	-	-	-	-	-	A	H	
		7440	48.25	-25.75	74	32.18	36.9	15.66	36.49	-	-	P	H	
		7440	23.46	-30.54	54	-	-	-	-	-	-	A	H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
			4960	44.39	-29.61	74	32.97	32.7	12.69	33.97	-	-	P	V
			4960	19.6	-34.4	54	-	-	-	-	-	-	A	V
			7440	48.33	-25.67	74	32.26	36.9	15.66	36.49	-	-	P	V
			7440	23.54	-30.46	54	-	-	-	-	-	-	A	V
														V
														V
														V
														V
													V	
													V	
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 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.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz BT SHF		22585	40.09	-33.91	74	43.96	38.77	17.74	60.38	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
			21213	41.83	-32.17	74	48.12	38.32	16.75	61.36	-	-	P
													V
													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.		
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
2.4GHz BT LF		30	22.17	-17.83	40	29.47	24.48	0.97	32.75	-	-	P	H	
		199.56	19.56	-23.94	43.5	34.84	14.96	2.47	32.71	-	-	P	H	
		266.79	19.83	-26.17	46	30.11	19.58	2.9	32.76	-	-	P	H	
		387.5	27.77	-18.23	46	35.87	21.28	3.46	32.84	-	-	P	H	
		945.4	34.03	-11.97	46	29.43	30.82	5.46	31.68	-	-	P	H	
		990.9	34.88	-19.12	54	29.85	30.61	5.65	31.23	-	-	P	H	
														H
														H
														H
														H
														H
														H
														H
			33.78	27.61	-12.39	40	36.3	23.03	1.02	32.74	-	-	P	V
			145.29	24.12	-19.38	43.5	37.35	17.35	2.12	32.7	-	-	P	V
			267.06	20.3	-25.7	46	30.64	19.52	2.9	32.76	-	-	P	V
			633.2	28.53	-17.47	46	30.79	26.35	4.41	33.02	-	-	P	V
			955.2	34.66	-11.34	46	29.58	31.16	5.5	31.58	-	-	P	V
			973.4	35.1	-18.9	54	29.97	30.95	5.58	31.4	-	-	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.													



<Ant. 7>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT ANT	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 CH00 2402MHz		2388.855	40.49	-33.51	74	37.72	27	8.44	32.67	143	59	P	H	
		2388.855	15.7	-38.3	54	-	-	-	-	-	-	A	H	
	*	2402	102.95	-	-	100.09	27.08	8.46	32.68	143	59	P	H	
	*	2402	78.16	-	-	-	-	-	-	-	-	A	H	
													H	
													H	
			2361.45	40.16	-33.84	74	37.32	27.1	8.39	32.65	100	89	P	V
			2361.45	15.37	-38.63	54	-	-	-	-	-	-	A	V
	*		2402	92.59	-	-	89.73	27.08	8.46	32.68	100	89	P	V
	*		2402	67.8	-	-	-	-	-	-	-	-	A	V
														V
														V
BT CH 39 2441MHz		2366.28	40.64	-33.36	74	37.8	27.1	8.4	32.66	145	61	P	H	
		2366.28	15.85	-38.15	54	-	-	-	-	-	-	A	H	
	*	2441	99.35	-	-	96.62	26.9	8.53	32.7	145	61	P	H	
	*	2441	74.56	-	-	-	-	-	-	-	-	A	H	
			2495.73	41.12	-32.88	74	38.33	26.9	8.63	32.74	145	61	P	H
			2495.73	16.33	-37.67	54	-	-	-	-	-	-	A	H
			2330.3	40.46	-33.54	74	37.66	27.1	8.33	32.63	106	83	P	V
			2330.3	15.67	-38.33	54	-	-	-	-	-	-	A	V
	*		2441	93.73	-	-	91	26.9	8.53	32.7	106	83	P	V
	*		2441	68.94	-	-	-	-	-	-	-	-	A	V
			2490.48	41.15	-32.85	74	38.36	26.9	8.62	32.73	106	83	P	V
			2490.48	16.36	-37.64	54	-	-	-	-	-	-	A	V



BT ANT	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	98.6	-	-	95.83	26.9	8.6	32.73	111	99	P	H	
	*	2480	73.81	-	-	-	-	-	-	-	-	A	H	
		2483.68	41.13	-32.87	74	38.35	26.9	8.61	32.73	111	99	P	H	
		2483.68	16.34	-37.66	54	-	-	-	-	-	-	A	H	
													H	
														H
	*	2480	94.61	-	-	91.84	26.9	8.6	32.73	118	81	P	V	
	*	2480	69.82	-	-	-	-	-	-	-	-	-	A	V
		2495.36	41.39	-32.61	74	38.6	26.9	8.63	32.74	118	81	P	V	
		2495.36	16.6	-37.4	54	-	-	-	-	-	-	A	V	
														V
														V
	Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only. 												



BT ANT	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	44.08	-29.92	74	32.66	32.7	12.69	33.97	-	-	P	H	
		4960	19.29	-34.71	54	-	-	-	-	-	-	A	H	
		7440	48.5	-25.5	74	32.43	36.9	15.66	36.49	-	-	P	H	
		7440	23.71	-30.29	54	-	-	-	-	-	-	A	H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
			4960	44.8	-29.2	74	33.38	32.7	12.69	33.97	-	-	P	V
			4960	20.01	-33.99	54	-	-	-	-	-	-	A	V
			7440	47.77	-26.23	74	31.7	36.9	15.66	36.49	-	-	P	V
			7440	22.98	-31.02	54	-	-	-	-	-	-	A	V
														V
														V
														V
														V
													V	
													V	
													V	
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 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.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz BT SHF		22648	39.93	-34.07	74	43.52	38.99	17.79	60.37	-	-	P	H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
													H
			18931	40.65	-33.35	74	50.69	38.38	15.29	63.71	-	-	P
													V
													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.		
		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)	
2.4GHz BT LF		30.81	22.3	-17.7	40	29.95	24.11	0.98	32.74	-	-	P	H	
		143.4	21.2	-22.3	43.5	34.38	17.42	2.1	32.7	-	-	P	H	
		260.31	20.21	-25.79	46	30.13	19.96	2.87	32.75	-	-	P	H	
		382.6	27.83	-18.17	46	36.1	21.13	3.44	32.84	-	-	P	H	
		855.8	32.5	-13.5	46	30.38	29.32	5.2	32.4	-	-	P	H	
		973.4	35.27	-18.73	54	30.14	30.95	5.58	31.4	-	-	P	H	
														H
														H
														H
														H
														H
														H
														H
			33.78	27.65	-12.35	40	36.34	23.03	1.02	32.74	-	-	P	V
			91.02	24.73	-18.77	43.5	40.52	15.23	1.68	32.7	-	-	P	V
			262.47	20.14	-25.86	46	29.95	20.06	2.88	32.75	-	-	P	V
			582.1	27.39	-18.61	46	30.19	25.89	4.34	33.03	-	-	P	V
			806.1	31.51	-14.49	46	31.15	28.03	5.02	32.69	-	-	P	V
			983.2	34.63	-19.37	54	29.48	30.84	5.62	31.31	-	-	P	V
														V
													V	
													V	
													V	
													V	
													V	
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against limit line. 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	Peak or Average
H/V	Horizontal or Vertical



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.
ANT		(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 :	Jack Cheng, Ray Lung, and Sky Chang	Temperature :	18~26°C
		Relative Humidity :	50~70%

<Ant. 6>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH00 2402MHz	
	Horizontal	Fundamental
Peak	<p>Site : 03CH21-HY Condition : PEAK_BE_74 3m HORN_03A18EN_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH21-HY Condition : PEAK_74 3m HORN_03A18EN_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH00 2402MHz	
	Vertical	Fundamental
Peak	<p>Site : 03CH21-14Y Condition : PEAK_85_74 3m HORN_03A18EN_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH21-14Y Condition : PEAK_74 3m HORN_03A18EN_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>

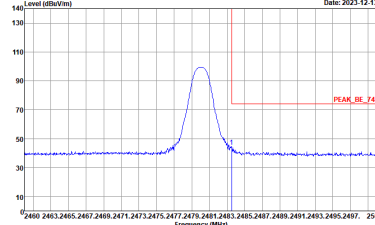
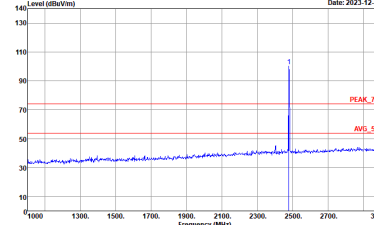


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH39 2441MHz	
	Horizontal	Fundamental
Peak	<p>Site : 03CH21-HY Condition : PEAK_BE_74 3m HORN_03A18EN_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH21-HY Condition : PEAK_74 3m HORN_03A18EN_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	<p>Site : 03CH21-HY Condition : PEAK_BE_74 3m HORN_03A18EN_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank

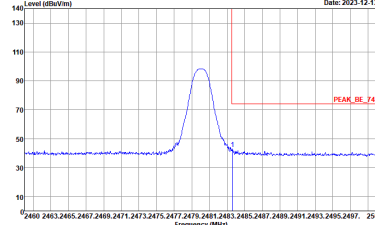
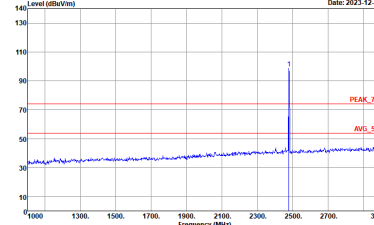


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH39 2441MHz	
	Vertical	Fundamental
Peak	<p>Site : 03CH21-HY Condition : PEAK_BE_74 3m HORN_03A18ENL_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH21-HY Condition : PEAK_74 3m HORN_03A18ENL_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	<p>Site : 03CH21-HY Condition : PEAK_BE_74 3m HORN_03A18ENL_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 3N2803</p>	Left blank



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
	Horizontal	Fundamental
Peak	 <p>Site : 03CH21-14Y Condition : PEAK_BE_74 3m HORN_03A18EN_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH21-14Y Condition : PEAK_74 3m HORN_03A18EN_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>

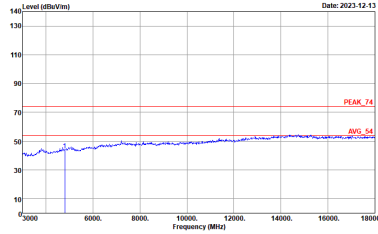
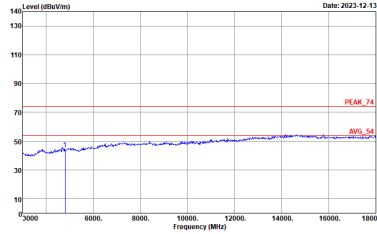


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
	Vertical	Fundamental
Peak	 <p>Site : 03CH21-14Y Condition : PEAK_BE_74 3m HORN_03A18EN_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH21-14Y Condition : PEAK_74 3m HORN_03A18EN_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH00 2402MHz	
	Horizontal	Vertical
Peak Avg.	 <p>Site : 03CH21-HY Condition : PEAK_74 3m HORN_03A18EN_230712 HORIZONTAL</p>	 <p>Site : 03CH21-HY Condition : PEAK_74 3m HORN_03A18EN_230712 VERTICAL</p>



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH00 2402MHz	
	Horizontal	Vertical
10.6G ~18G Avg.	<p>Site : 03CH21-14Y Condition : AVG_54 3m HORN_03A18EN_230712 HORIZONTAL :</p>	<p>Site : 03CH21-14Y Condition : AVG_54 3m HORN_03A18EN_230712 VERTICAL :</p>

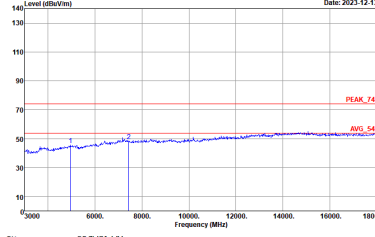
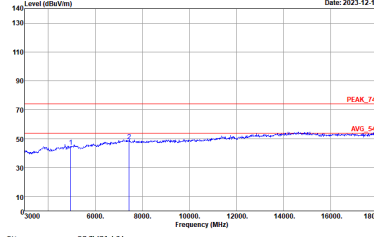


BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH39 2441MHz	
	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH21-14Y Condition : PEAK_74 3m HORN_03A18EN_230712 HORIZONTAL</p>	<p>Site : 03CH21-14Y Condition : PEAK_74 3m HORN_03A18EN_230712 VERTICAL</p>



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH39 2441MHz	
	Horizontal	Vertical
10.6G ~18G Avg.	<p>Site : 03CH21-14Y Condition : AVG_54 3m HORN_03A18EN_230712 HORIZONTAL :</p>	<p>Site : 03CH21-14Y Condition : AVG_54 3m HORN_03A18EN_230712 VERTICAL :</p>



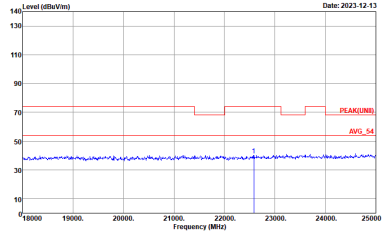
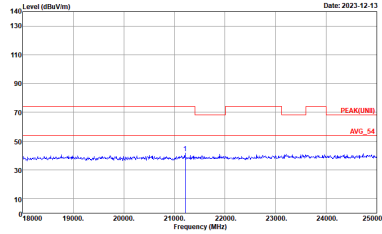
BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH78 2480MHz	
	Horizontal	Vertical
Peak Avg.	 <p>Site : 03CH21-14Y Condition : PEAK_74 3m HORN_03A18EN_230712 HORIZONTAL</p>	 <p>Site : 03CH21-14Y Condition : PEAK_74 3m HORN_03A18EN_230712 VERTICAL</p>



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH78 2480MHz	
	Horizontal	Vertical
10.6G ~18G Avg.	<p>Site : 03CH21-14Y Condition : AVG_54 3m HORN_03A18EN_230712 HORIZONTAL :</p>	<p>Site : 03CH21-14Y Condition : AVG_54 3m HORN_03A18EN_230712 VERTICAL :</p>



Emission above 18GHz
2.4GHz BT (SHF @ 1m)

BT	2.4GHz 2400~2483.5MHz	
ANT	BT SHF	
	Horizontal	Vertical
Peak Avg.	 <p>Site : 03CH21-HY Condition : PEAR(UNIT) 1m 88HA9170_1225_230710 HORIZONTAL</p>	 <p>Site : 03CH21-HY Condition : PEAR(UNIT) 1m 88HA9170_1225_230710 VERTICAL</p>



Emission below 1GHz
2.4GHz BT (LF)

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



<Ant. 7>

2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH00 2402MHz	
	Horizontal	Fundamental
Peak	<p>Site : 03CH21-1FY Condition : PEAK_BE_74 3m HORN_03A18EN_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH21-1FY Condition : PEAK_74 3m HORN_03A18EN_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH00 2402MHz	
	Vertical	Fundamental
Peak	<p>Site : 03CH21-14Y Condition : PEAK_85_74 3m HORN_03A18EN_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH21-14Y Condition : PEAK_74 3m HORN_03A18EN_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH39 2441MHz	
	Horizontal	Fundamental
Peak	<p>Site : 03CH21-HY Condition : PEAK_BE_74 3m HORN_03A18EN_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH21-HY Condition : PEAK_74 3m HORN_03A18EN_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	<p>Site : 03CH21-HY Condition : PEAK_BE_74 3m HORN_03A18EN_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank

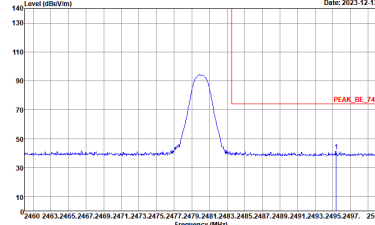
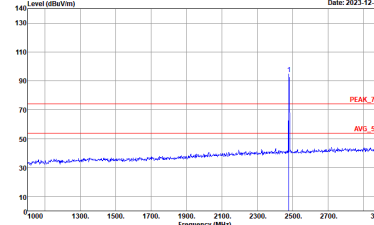


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH39 2441MHz	
	Vertical	Fundamental
Peak	<p>Site : 03CH21-HY Condition : PEAK_BE_74 3m HORN_03A18EN_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH21-HY Condition : PEAK_74 3m HORN_03A18EN_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Peak	<p>Site : 03CH21-HY Condition : PEAK_BE_74 3m HORN_03A18EN_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank



BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
	Horizontal	Fundamental
Peak	<p>Site : 03CH21-14Y Condition : PEAK_BE_74 3m HORN_03A18EN_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH21-14Y Condition : PEAK_74 3m HORN_03A18EN_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>

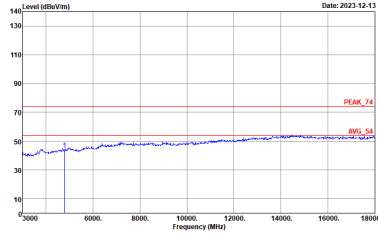
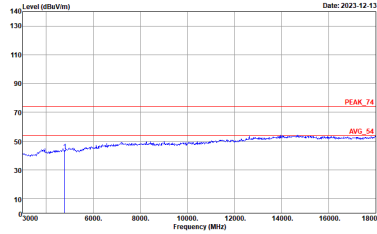


BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
	Vertical	Fundamental
Peak	 <p>Site : 03CH21-14Y Condition : PEAK_BE_74 3m HORN_03A18EN_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH21-14Y Condition : PEAK_74 3m HORN_03A18EN_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH00 2402MHz	
	Horizontal	Vertical
Peak Avg.	 <p>Site : 03CH21-HY Condition : PEAK_74 3m HORN_03A18EN_230712 HORIZONTAL</p>	 <p>Site : 03CH21-HY Condition : PEAK_74 3m HORN_03A18EN_230712 VERTICAL</p>



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH00 2402MHz	
	Horizontal	Vertical
10.6G ~18G Avg.	<p>Site : 03CH21-14Y Condition : AVG_54 3m HORN_03A18EN_230712 HORIZONTAL :</p>	<p>Site : 03CH21-14Y Condition : AVG_54 3m HORN_03A18EN_230712 VERTICAL :</p>

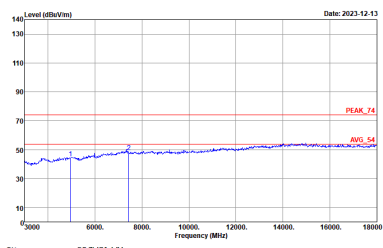
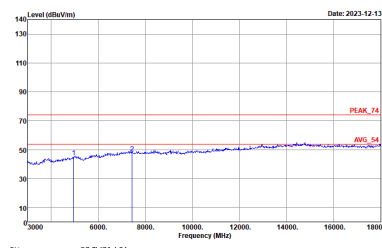


BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH39 2441MHz	
	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH21-14Y Condition : PEAK_74 3m HORN_03A18EN_230712 HORIZONTAL</p>	<p>Site : 03CH21-14Y Condition : PEAK_74 3m HORN_03A18EN_230712 VERTICAL</p>



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH39 2441MHz	
	Horizontal	Vertical
10.6G ~18G Avg.	<p>Site : 03CH21-14Y Condition : AVG_54 3m HORN_03A18EN_230712 HORIZONTAL :</p>	<p>Site : 03CH21-14Y Condition : AVG_54 3m HORN_03A18EN_230712 VERTICAL :</p>



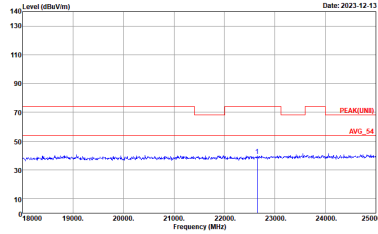
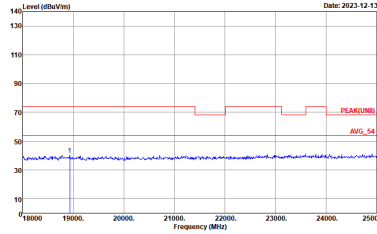
BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH78 2480MHz	
	Horizontal	Vertical
Peak Avg.	 <p>Site : 03CH21-14Y Condition : PEAK_74 3m HORN_03A18EN_230712 HORIZONTAL</p>	 <p>Site : 03CH21-14Y Condition : PEAK_74 3m HORN_03A18EN_230712 VERTICAL</p>



BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH78 2480MHz	
	Horizontal	Vertical
10.6G ~18G Avg.	<p>Site : 03CH21-14Y Condition : AVG_54 3m HORN_03A18EN_230712 HORIZONTAL :</p>	<p>Site : 03CH21-14Y Condition : AVG_54 3m HORN_03A18EN_230712 VERTICAL :</p>

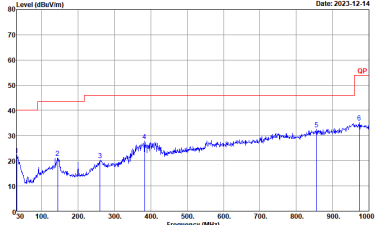
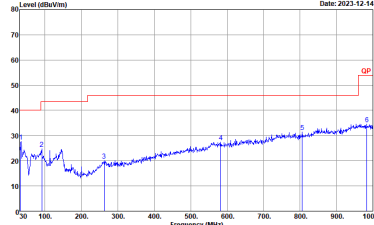


Emission above 18GHz
2.4GHz BT (SHF @ 1m)

BT	2.4GHz 2400~2483.5MHz	
ANT	BT SHF	
	Horizontal	Vertical
Peak Avg.	 <p>Site : 03CH21-HY Condition : PEAK(UNIT) 1m 88HA9170_1225_230710 HORIZONTAL</p>	 <p>Site : 03CH21-HY Condition : PEAK(UNIT) 1m 88HA9170_1225_230710 VERTICAL</p>



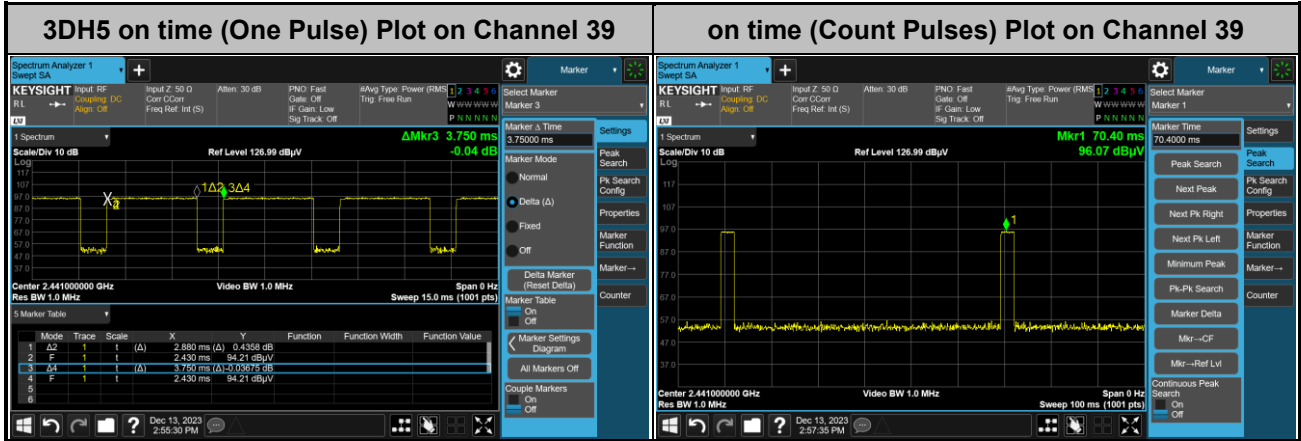
Emission below 1GHz
2.4GHz BT (LF)

BT	2.4GHz 2400~2483.5MHz	
ANT	BT LF	
	Horizontal	Vertical
QP / Peak	 <p>Site : :03CH21-HV Condition : :QP-3m 633034001_231015_30-HORIZONTAL</p>	 <p>Site : :03CH21-HV Condition : :QP-3m 633034001_231015_30-VERTICAL</p>



Appendix E. Duty Cycle Plots

<Ant. 6>



Note:

1. Worst case Duty cycle = on time/100 milliseconds = $2 * 2.88 / 100 = 5.76 \%$
2. Worst case Duty cycle correction factor = $20 * \log(\text{Duty cycle}) = -24.79 \text{ dB}$
3. **3DH5** 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

$$2.88 \text{ ms} \times 20 \text{ channels} = 57.6 \text{ ms}$$

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. $[100 \text{ ms} / 57.6 \text{ ms}] = 2 \text{ hops}$

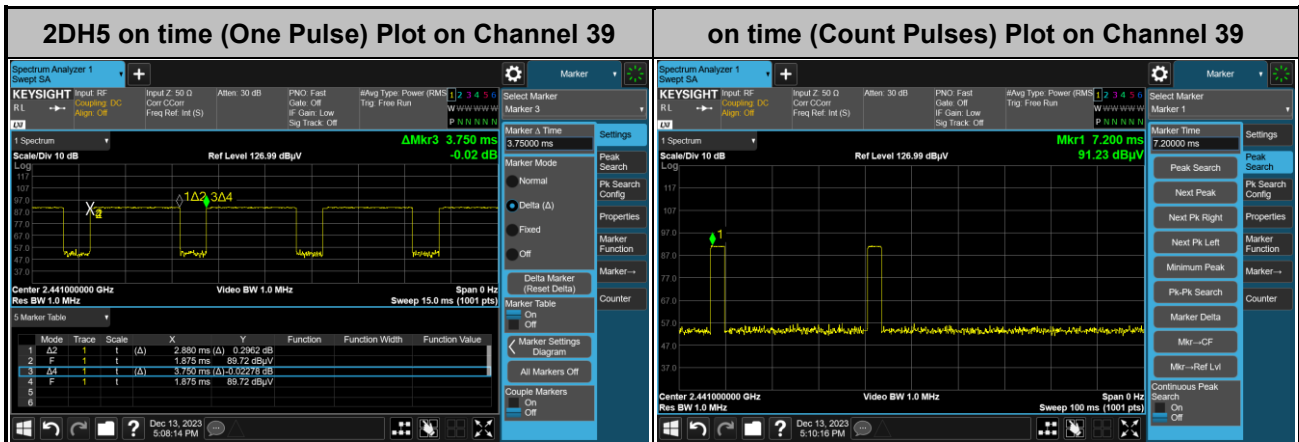
Thus, the maximum possible ON time:

$$2.88 \text{ ms} \times 2 = 5.76 \text{ ms}$$

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

$$20 \times \log(5.76 \text{ ms}/100 \text{ ms}) = -24.79 \text{ dB}$$

<Ant. 7>



Note:

1. Worst case Duty cycle = on time/100 milliseconds = $2 * 2.88 / 100 = 5.76 \%$
2. Worst case Duty cycle correction factor = $20 * \log(\text{Duty cycle}) = -24.79 \text{ dB}$
3. **2DH5** 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

$$2.88 \text{ ms} \times 20 \text{ channels} = 57.6 \text{ ms}$$

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. $[100 \text{ ms} / 57.6 \text{ ms}] = 2 \text{ hops}$

Thus, the maximum possible ON time:

$$2.88 \text{ ms} \times 2 = 5.76 \text{ ms}$$

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

$$20 \times \log(5.76 \text{ ms}/100 \text{ ms}) = -24.79 \text{ dB}$$