





Test Mode :	802.11g		Test Chann	el : 06	6	
100	KHz PSD reference Lev	/el		Cha	innel Plot	
Spectrum Ref Lovel 20.00 dbm Offset 1 20 db Swr 0 IPk Max 0 10 dbm 0 -10 dbm 0 -20 dbm 0 -30 dbm 0 -50 dbm 0 -60 dbm 0 -70 dbm 0	11.20 dB @ RBW 100 IH2 1 ms @ VBW 300 IH2 Mode Sweep M1[1] 	5,99 dbm 2.4420110 GH2 whytehout a span 24.468 MHz			-	
Spurio	ous Emission 30MHz~3	3GHz	Sp	ourious Emi	ssion 2GHz~250	GHz
Spectrum Ref Level 20.00 dBm Offset 3 0 dBm 30 dB SWT 10 dBm	11. 20 db = RBW 100 141: 29.7 ms = VBW 300 141: Mode Sweep MI[1] M2[1] M2[1] M2 M2 M2 M2 M2 M2 M2 M2 M2 M2		Spectrum Ref Level 20.00 dBm Att 30 dB I IPk View 10 dBm 0 dBm -0 dBm -20 dBm -0 dBm	Offset 11:20 dB = RBW SWT 230 ms = VBW	100 H/z 300 H/z Mode Sweep M1[1] 	TED 2.79 dBm 2.4360 GHz -37.46 dBm 17.6320 GHz
Start 30.0 MHz	501 pts	Stop 3.0 GHz]	Start 2.0 GHz	00:05	501 pts	Stop 25.0 GHz



Test Mode :	802.11n HT20	Test Chann	el: 01	
100k	Hz PSD reference Level		Channel Plot	
Spectrum Ref Level 20.00 dbm Offset 1 • Att 20 db SWT • IPk Max 10 dbm 0 10 dbm 0 0 0 -10 dbm - 0 0 -20 dbm - 0 0 -30 dbm - 0 0 -70 dbm - - 0 -70 dbm - - - -70 dbm - - - -70 dbm - - - Date: 23.48R.2022 15:21:19 -	1.20 dB = RBW 100 kHz 1.1 ms = VBW 300 kHz Mode Sweep M1[1] M1	Spectrum Ref Level 20.00 dBm Att 30 dB 2.4169966 GHz 0 dBm 0 dBm -10 dBm -10 dBm -10 dBm -20 dBm 01 -24.240 dB -30 dBm -40 dBm -70 dBm -70 dBm -70 dBm -20 dBm -30 dBm -20 dBm -30 dBm -21 -24.240 dB -30 dBm -20 dBm -50 dBm -20 dBm -70 dBm -20 dBm -20 dBm -20 dBm	Offset 11.20 db RBW 100 let: SWT 8 ms VBW 300 let: Mode Sweep	-35.48 dBm 2.3997720 GHz
Spurio	us Emission 30MHz~3GH	z Sp	ourious Emission 2GHz-	-25GHz
Spectrum Ref Level 20.00 dBm Offset 1 a Att 30 dB SWT 2 a IPk View 10 dBm 10 dBm	1.20 dB = RBW 100 kHz 29.7 ms • VBW 300 kHz Mode Sweep M1[1] M2[1]M2[1] M2[1]M2[1] M2[1]_	Spectrum Ref Level 20.00 dBm 2.41010 GHz -47.09 dBm 1 945.90 MHz 0 dBm -47.09 dBm 10 dBm -47.00 dHz 0 dBm -47.00 dBm -47.00 dBm -47.00 dBm -47.00 dBm -40 dBm -0 dBm -70 dBm -70 dBm -70 dBm	Offset 11.20 db PBW 100 left SWT 230 ms VBW 300 kHz Mode Sweep M1[1] M2[1] M2[1]	2.12 dBm 2.4360 GHz
Date: 23.MAR.2022 15:21:42	Me associations	Date: 23.MAR.2022 15:	21:52	



Test Mode :	802.11n HT20	Test Channel :	06
100k	Hz PSD reference Level	C	Channel Plot
Spectrum Ref Level 20.00 dBm Offset 1 10 dBm 9 JPk Max 10 dBm 9 dBm -10 dBm 9 dBm -20 dBm 9 dBm -30 dBm 9 dBm -50 dBm 9 dBm -60 dBm 9 dBm -70 dBm 9 dBm -20 dBm 9 dBm -20 dBm 9 dBm -30 dBm 9 dBm -60 dBm 9 dBm -70 dBm 9 dBm -70 dBm 10 dBm -20 dBm 10 dBm	11.20 dB @ RBW 100 lHz 11.1m s @ VBW 300 lHz Mode Sweep M1[1] 2.442023 And And And And And And And And And And	Ibm GHz WA	_
Spurio	us Emission 30MHz~3GHz	Spurious E	mission 2GHz~25GHz
Spectrum Ref Level 20.00 dBm Offset 1 • Att 30 dB SWT • IPk View 10 dBm 10 dBm • 0 dBm -0 dBm -0 dBm -20 dBm D1 -24.610 dBm -0 dBm -30 dBm -0 dBm -0 dBm -40 dBm -0 dBm -0 dBm -50 dBm -0 dBm -0 dBm -70 dBm -70 dBm -70 dBm	11.20 dB @ RBW 100 l4t2 29.7 ms @ VBW 300 l4t2 Mode Sweep M1[1] 2.64 24.4399 M2[1] -47.13 M1 1.9240 M1 1.9240 M2 1.94 M2	Spectrum Ref Level 20.00 dBm Offset 11.20 dB ⊕ Att 30 dB SWT 230 ms ⊕ ● PF: View ● Ibm 0 M1 ● 0 dBm ● -20 dBm ● -20 dBm ● -30 dBm ● -20 dBm ● -20 dBm ● -20 dBm ● -20 dBm ● -30 dBm ● -70 dBm ● -70 dBm ● -70 dBm ● -70 dBm ●	RBW 100 kHz Mode Sweep VBW 300 kHz Mode Sweep M1[1] 4.30 dBm M2[1] -37.56 dBm M2[1] 15.8410 GHz M2[1] -37.56 dBm M2[1] -37.56 dBm M2[1] -37.56 dBm M2[1] -37.56 dBm M2[1] -37.86 dBm
Date: 23.MAR.2022 15:24:35	Measuring Calendary (44)	Date: 23.MAR.2022 15:24:47	Mervunina 🦉 anatara 🕅 🎎

Test Mode :	802.11n HT20	Test Channel :	11	
100k	Hz PSD reference Level	C	hannel Plot	
Spectrum Spectrum Spectrum At 20.00 dlm offset 11.20 dl = RBW 100 Hz At 30 dl = SWT 1.1 ms = VBW 300 Hz Mode Sweep 0 Hz At 2.4641950 Hz 5.22 dlm 10 dlm M1[1] -45 601 10 dlm 0 dlm 10 dlm				
Spurio	us Emission 30MHz~3GHz	Spurious E	mission 2GHz~25GHz	
Spectrum Offset 11 Ref Level 20.00 dbm Offset 11 Att 30 db SWT 2 ID dbm 0 0 10 dbm 0 0 -20 dbm 0 -24.680 dbm -30 dbm -30 dbm	1.20 db @ RBW 100 kHz 1.27 ms @ VBW 300 kHz 9.7 ms @ VBW 300 kHz M1[1] 4.68 dbm	Spectrum RefLevel 20.00 dbm Offset 11.20 dB • Att 30 dB 9 19k View 10 dBm 10 dBm -0 dBm -20 dBm -30 dBm <th>RBW 100 kHz Mode Sweep VBW 300 kHz Mode Sweep M1[1] 3.11 dBm 2.4020 GHz -37.04 dBm M2[1] -37.04 dBm M2 -37.04 dBm M3 -37.04 dBm M2 -37.04 dBm M3 -37.04 dBm M4 -37.04 dBm</th>	RBW 100 kHz Mode Sweep VBW 300 kHz Mode Sweep M1[1] 3.11 dBm 2.4020 GHz -37.04 dBm M2[1] -37.04 dBm M2 -37.04 dBm M3 -37.04 dBm M2 -37.04 dBm M3 -37.04 dBm M4 -37.04 dBm	
Date: 23.MAR.2022 15:33:44) - Consider ((((((((((((((((((((((((((((((((((((Date: 23.MAR.2022 15:33:55		

Test Mode :	802.11ax HE20	Test Channel : 01		
100k	Hz PSD reference Level	Channel Plot		
Spectrum Spectrum <th< th=""></th<>				
Spurio	us Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz		
Spectrum Ref Level 20.00 dBm Offset 1 Att 30 dB SWT 2 ID dBm 0 dBm 0 0 dBm 0 dBm 0 dBm -20 dBm 01 -25.440 dBm NZ -30 dBm 01 -25.440 dBm NZ -60 dBm -70 dBm -70 dBm NZ -80 dBm -70 dBm -70 dBm NZ	1.20 dB RBW 100 kHz 19.7 ms VBW 300 kHz Mode Sweep 1.93 dBn M1[1] 1.93 dBn M2[1] 2.49420 dH M2[1] 4.7.24 dBn M2[1] 4.7.24 dBn M2[1] 4.7.24 dBn M2[1] 4.7.24 dBn M2[1] 4.49420 dH M2[1] 4.49420 dH <tr< th=""><th>Spectrum Image: Constraint of the second secon</th></tr<>	Spectrum Image: Constraint of the second secon		
Date: 23.MAR.2022 15:37:46		Date: 23.MAR.2022 15:30:34		



Test Mode :	802.11ax HE20	Test CI	hannel :	06	
100k	Hz PSD reference Level		С	hannel Plot	
Spectrum Ref Level 20.00 dBm Offset 1 Att 20 dB SWT ID dBm 0 dBm 0 10 dBm 0 dBm 0 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -60 dBm -60 dBm -70 dBm -70 dBm -20 dBm -20 dBm -20 dBm -20 dBm -30 dBm -60 dBm -50 dBm -50 dBm -50 dBm -60 dBm -70 dBm	1.20 dB • RBW 100 kHz 1.1 ms • VBW 300 kHz M1[1] 2.4413 M1 1.1 ms • VBW 300 kHz 1.	79 dBm 910 GHz		-	
Spurio	us Emission 30MHz~3GHz		Spurious E	mission 2GHz~	25GHz
Spectrum Ref Level 20.00 dBm Offset 1 att 30 dB SWT 2 ID dBm 0 0 0 0 10 dBm 0 0 0 0 0 -20 dBm 0 -25.210 dBm -30 dBm -40 dBm -60 dBm -70 dBm	1.20 dB • RBW 100 kHz 29.7 ms • VBW 300 kHz Mode Sweep M1[1] -M2[1] M1 -M2[1]	Image: Constraint of the second se	-25.210 dBm 	Note Mode Sweep Mail Mail Mail Mail Mail Mail	
Date: 23.MAR.2022 15:47:58	Mercurina (Calabatan) 44	Date: 23.MAR.	2022 15:48:09	Measu	(1) 44

Test Mode :	802.11ax HE20	Те	st Channe	I: 11		
100	kHz PSD reference Le	evel		Chann	el Plot	
Spectrum Ref Lovel 20.00 dBm Offset 20 dB SWT PIPk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -30 dBm -30 dBm -30 dBm -70 dBm -50 dBm -60 dBm -70 dBm -7	11.20 dB * RBW 100 kHz 1.1 ms * VBW 300 kHz Mode Sweep M1[1] M		Ctrum Level 20.00 dBm Of 30 dB SV Max m D1 -25 390 dBm Bm D1 -25 390 dBm Bm C1 -25 390 dBm Bm C1 -25 390 dBm C1 -2	Freet 11.20 dB @ RBW 100 k VT B ms @ VBW 300 k Fill C C C C C C C C C C C C C C C C C C	H2 H2 M0de Sweep M1[1] M1[++3.30 dBm 2.4842720 GHz
Date: 23.MAR.2022 15:50:03	ous Emission 30MHz~	-3GHz	23.MAR.2022 15:50: Spu	rious Emissi	on 2GHz~25	GHz
Spectrum Ref Level 20.00 dBm Offset : Att 30 dB SWT	11.20 dB ● RBW 100 kHz 29.7 ms ● VBW 300 kHz Mode Sween	Spe Re Att	ctrum Level 20.00 dBm Off 30 dB SW	fset 11.20 dB ● RBW 100 k VT 230 ms ● VBW 300 k	Hz Hz Mode Sween	
1Pk View 10 dBm 0 dBm -10 dBm -20 dBm -20 dBm -30 dBm -40 dBm	MI[1] M2[1] M2[1]	2.6.01 dBm 2.4.5760 GHz -47.77 dBm 10 d M1 1.18900 GHz -20 c -20 c -20 c -20 c	View m Bm D1 -25.390 dBm Bm Bm		M1[1] M2[1] M2[1]	2.42 dBm 2.4820 GHz - 36.58 dBm 17.5860 GHz
-50 dBm		-70 (Bm	and welder of the Microsoft Mi		Name A.A.
Stort 30.0 MHz	501 pts	Stop 3.0 GHz	2.0 GHz	59	pts Measuring	Stop 25.0 GHz



Test Mode : 802.11ax H	E20(26RU0)	Test Channel : 01				
100kHz PSD refe	erence Level	Channel Plot				
Spectrum Ref Level 20.00 dBm Offset 11.20 dB RBW 100 kHz Att 20 dB SWT 1.1 ms VBW 300 kHz ID dBm M M M M M 10 dBm M M M M M M 20 dBm M M M M M M M -10 dBm M	Mode Sweep M1[1] 7.87 dBm 2.4029019 GHz MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM	Spectrum Ref Lovel 20.00 dBm Offset 11.20 dB RBW 100 kH Att 30 dB SWT 8 ms VBW 300 kH ID dBm	22 22 Mode Sweep M1[1]24.65 dBm 2,3999070 GHz 			
Spurious Emission	n 30MHz~3GHz	Spurious Emissio	on 2GHz~25GHz			
Spectrum Ref Level 20.00 dBm Offset 11.20 dB • RBW 100 kHz Att 30 dB • SWT 29.7 ms • VBW 300 kHz ● JPK View In dBm In dBm In dBm 0 dBm In dBm In dBm In dBm -20 dBm In -22.630 dBm In dBm In dBm -30 dBm In -22.630 dBm In -22.630 dBm In -22.630 dBm -30 dBm In -22.630 dBm In -22.630 dBm In -22.630 dBm -30 dBm In -22.630 dBm In -22.630 dBm In -22.630 dBm -30 dBm In -22.630 dBm In -22.630 dBm In -22.630 dBm -30 dBm In -22.630 dBm In -22.630 dBm In -22.630 dBm -30 dBm In -22.630 dBm In -22.630 dBm In -22.630 dBm -50 dBm In -22.630 dBm In -22.630 dBm In -22.630 dBm -70 dBm In -22.630 dBm In -22.630 dBm In -22.630 dBm -70 dBm In -22.630 dBm In -22.630 dBm In -22.630 dBm	Made Sweep M1[1] 6.53 dBm 2.40420 GHz M2[1] M1 1.46160 GHz 1.46160 GHz	Spectrum Ref Lavel 20.00 dBm Offset 11.20 dB RBW 100 kF Att 30 dB SWT 230 ms VBW 300 kF ID dBm	Image: Stop 25.0 GHz			

Test Mode :	802.11ax HE20(52RU37)	Test Channel : 01
100k	Hz PSD reference Level	Channel Plot
Spectrum Ref Level 20.00 dBm Offset 1 Att 20 dB 9 JPk Max M1 10 dBm M1 0 dBm	1.00 dB • RBW 100 kH2 1.1m s • VBW 300 kH2 M1[1] 9.47 dBm M00 v V V V V V V V V V V V V V V V V V V	Spectrum Total Ref Level 20.00 dbm Offset 11.20 db & RBW 100 kHz Att 30 db SWT 8 ms VBW 300 kHz Mode Sweep I Pk Max -21.55 dbm -21.55 dbm -21.55 dbm 0 dbm -20.48 m 01 -20.530 dbm -21.55 dbm -20 dbm 01<-20.530 dbm -20.530 dbm -21.55 dbm -30 dbm -20.530 dbm -20.530 dbm -20.530 dbm -30 dbm -20.530 dbm -20.530 dbm -20.530 dbm -30 dbm -20.530 dbm -20.530 dbm -20.530 dbm -20 dbm -1.20 sbm -20.530 dbm -20.530 dbm -20 dbm -20.530 dbm -20.530 dbm -20.530 dbm -30 dbm -20.530 dbm -20.530 dbm -20.530 dbm -20 dbm -20.530 dbm -20.530 dbm -20.550 dbm
Spurio	us Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
Spectrum Ref Level 20.00 dBm Offset 1 Att 30 dB SWT 2 ● IPk View 10 dBm 10 dBm 10 dBm 10 dBm -10 dBm	1.20 d8 @ RBW 100 kHz 29.7 ms @ VBW 300 kHz Mde Sweep M1[1] .46.30 dBm .2,9550 dHz M1[1] .46.30 dBm .46.30 dBm .46.30 dBm .46.30 dBm .46.30 dBm .46.30 dBm .40420 GHz .40420 GHz	Spectrum Image: Constraint of the sector of th
Date: 23.MAR.2022 16:40:18		Date: 23.MAR.2022 16:40:30

Test Mode :	802.11ax HE20(106RU53)	Test Channel : 01			
100k	Hz PSD reference Level	Channel Plot			
Spectrum Image:					
Spurio	us Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz			
Spectrum Ref Level 20.00 dbm Offset 1: SWT 9 TPi: View 9 Uiew 10 dbm 0 10 dbm 0 -20 dbm 0 -30 dbm 0 -40 dbm 0 -50 dbm 0 -50 dbm 0 -50 dbm 0 -70 dbm 0 -70 dbm 0 -70 dbm 0	1.20 dß @ RBW 100 kHz 29.7 ms @ VBW 300 kHz Mode Sweep M1[1] 5.75 dl M2[1] M1 M2[1] M1 M2[1] M1 M2[1] M1 M2[1] M1 M2 M2 M3	By Spectrum Image: Constraint of the im			
Date: 23.MAR.2022 16:47:53		Date: 23.MAR.2022 16:48:03			



Channel Plot						
Spectrum Image: Constraint of the second secon						
Spurious Emission 2GHz~25GHz						
Spectrum						

Test Mode :	802.11ax HE20(52RU40)	Test C	Channel :	11	
100k	Hz PSD reference Level		Cł	hannel Plot	
Spectrum Ref Lovel 20.00 dbm Offset 11 Att 20 db SWT IPIK Max 10 dbm 0 10 dbm 0 dbm 0 -10 dbm - - -20 dbm - - -50 dbm - - -60 dbm - - -70 dbm - - -70 dbm - -	1.20 db @ RBW 100 lHz 1.1ms @ VBW 300 lHz Made Sweep	Spectrum 9.37 dBm 2.4693700 GHz 0 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm -70 dBm -80 dBm	D1 -20.630 dBm D1 -20.630 dBm	BW 100 H4: BW 100 H4: BW 300 H4: Mode Sweep M1[1] M1[1	-38.95 dBm 2.4837990 GHz
Date: 23.MAR.2022 17:07:44 Spurio Spectrum Pet aud 20.01 dbm Offset 1	us Emission 30MHz~3GHz	Date: 23.88	Spurious En	nission 2GHz~2	5GHz (1979)
Att 30 dB SWT 2 10 dBm	1.20 db • HBW 100 HH2 19.7 ms • VBW 300 HH2 Mode Sweep M2(1) M1(1) M1	-47.10 dBm 945.90 MHz 8.60 dBm 2.46940 GHz	30 dB SWT 230 ms V	BW 100 KHZ Mode Sweep M2[1]	-38.09 dBm 15.7950 GHz 8.87 dBm 2.4820 GHz
0 dBm -10 dBm -20 dBm -20 dBm -30 dBm -40 dBm -40 dBm -50 dBm -50 dBm -70 dBm -70 dBm -70 dBm -70 dBm -70 dBm -70 dBm -70 dBm -80 dBm -80 dBm -80 dBm -90	100 pts	ان بالاس - 10 بالاس - 10 بالاس - 20 بالاس - 30 بالمالمالمم - 30 بالمالمم - 30 بالمالمم - 30 بالمالمم - 30 بالمالمم - 30 بالمالمم - 30 بالمم - 30 بالمم	D1 -20.630 dBm	Ng handhan han han han han han han han han han	مراجع المراجع ا Stop 25.0 GHz
Date: 23.MAR.2022 17:08:32	Measuree	Date: 23.MA)(Measuring	(IIIIIII) 44

Test Mode :	802.11ax HE20(106RU54)	Test Channel : 11
100k	Hz PSD reference Level	Channel Plot
Spectrum Ref Level 20.00 dbm Offset 11 Att 20 db SWT ID dbm 0 0 -10 dbm - 0 -20 dbm - - -20 dbm - - -30 dbm - - -50 dbm - - -50 dbm - - -70 dbm - - -70 dbm - - Date: 23.MAR.2022 17:12:31 -	1.20 db @ RBW 100 HHZ 1.1 ms @ VBW 300 HHZ Mark Mark	Spectrum Total Ref Level 20.00 dbm Offset 11.20 db @ RBW 100 kHz Att 30 db 1Pk Max
Spurio	us Emission 30MHz~3GHz	Spurious Emission 2GHz~25GHz
Spectrum Ref Level 20.00 dBm Offset 11 att 30 dB SWT 2 ID dBm 0	1.20 dB @ RBW 100 Htz 29.7 ms @ VBW 300 Htz Made Sweep M1[1] 6.32 dBm M2[1] M1 - 46.60 dBm M2[1] M1 - 2.9550 GHz January Law	Spectrum Image: Constraint of the second secon
Date: 23.MAR.2022 17:13:00		Date: 23.MAR.2022 17:13:11

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency	Field Strength	Measurement Distance
(MHz)	(microvolts/meter)	(meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 - 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.



3.5.3 Test Procedures

- 1. The testing follows ANSI C63.10-2013 clause 11.11 & 11.12
- 2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
- 3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
- 4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- 5. Corrected Reading: Antenna Factor + Cable Loss + Read Level Preamp Factor = Level
- 6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
- 7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than peak limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- 8. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for $f \ge 1$ GHz for peak measurement. For average measurement:
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.



3.5.4 Test Setup

For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



Spectrum Analyzer / Receiver





Sporton International Inc. (Shenzhen) TEL : + 86-755-8637-9589 FAX : + 86-755-8637-9595 FCC ID: 2AUCY-V2145



3.5.5 Test Results of Radiated Spurious Emissions (9kHz ~ 30MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C.

3.5.7 Duty Cycle

Please refer to Appendix D.

3.5.8 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic or 40GHz, whichever is lower)

Please refer to Appendix C.



3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission	Conducted Limit (dBµV)			
(MHz)	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.

3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.6.3 Test Procedures

- 1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
- 2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- 3. All the support units are connecting to the other LISN.
- 4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- 5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- 6. Both sides of AC line were checked for maximum conducted interference.
- 7. The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and specified bandwidth (IF bandwidth = 9kHz) with Maximum Hold Mode.



3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.



3.7 Antenna Requirements

3.7.1 Standard Applicable

If directional gain of transmitting Antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached Antenna or of an Antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = $10 \log(N_{ANT}/N_{SS}=1) dB$.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \le 4$.

Directional gain may be calculated by using the formulas applicable to equal gain antennas with GANT set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain G_{ANT} is set equal to the antenna having the highest gain, i.e., F)2)f)i).

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain "DG" is calculated as following table.

<cdd mod<="" th=""><th>es></th><th></th><th></th><th></th><th></th><th></th></cdd>	es>					
			DG	DG	Power	PSD
			for	for	Limit	Limit
	Ant. 1	Ant. 2	Power	PSD	Reduction	Reduction
	(dBi)	(dBi)	(dBi)	(dBi)	(dB)	(dB)
2.4 GHz	-3.00	-3.00	-3.00	0.01	0.00	0.00

Power Limit Reduction = DG(Power) - 6dBi, (min = 0) PSD Limit Reduction = DG(PSD) - 6dBi, (min = 0)



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristic s	Calibration Date	Test Date	Due Date	Remark
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Mar. 06, 2022	Mar. 26, 2022	Mar. 05, 2023	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2 LISN	00103912	9kHz~30MHz	Dec. 25, 2020	Mar. 26, 2022	Dec 24, 2021	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Oct. 15, 2020	Mar. 26, 2022	Oct. 14, 2021	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	61602000 0891	100Vac~250Va c	Jul. 21, 2020	Mar. 26, 2022	Jul. 20, 2021	Conduction (CO01-SZ)
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 08, 2021	Mar. 21, 2022~ Mar. 23, 2022	Apr. 07, 2022	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangrou p	LP-150U	H2014081 803	-40~+150°C	Jul. 22, 2020	Mar. 21, 2022~ Mar. 23, 2022	Jul. 21, 2021	Conducted (TH01-SZ)
Power Sensor	Anritsu	MA24440A	11707	50MHz~40GH z	Jun. 04, 2021	Mar. 21, 2022~ Mar. 23, 2022	Jun.03, 2022	Conducted (TH01-SZ)
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY544500 83	20Hz~8.4GHz	Apr. 06, 2022	Apr. 08, 2022	Apr. 05, 2023	Radiation (03CH03-SZ)
EXA Spectrum Anaiyzer	KEYSIGHT	N9010A	MY551502 46	10Hz~44GHz;	Apr. 06, 2022	Apr. 08, 2022	Apr. 05, 2023	Radiation (03CH03-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jun. 22, 2020	Apr. 08, 2022	Jun. 21, 2022	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz-2GHz	Jun. 22, 2020	Apr. 08, 2022	Jun. 21, 2022	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	SCHWARZBE CK	BBHA9120 D	9120D-135 5	1GHz~18GHz	Apr. 25 2021	Apr. 08, 2022	Apr. 24 2022	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-3 5-HG	1871923	18GHz~40GH z	Oct. 22,2021	Apr. 08, 2022	Oct. 21,2022	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Apr. 11, 2021	Apr. 08, 2022	Apr. 10, 2022	Radiation (03CH03-SZ)
Amplifier	Burgeon	BPA-530	102211	0.01Hz ~3000MHz	Oct. 22, 2021	Apr. 08, 2022	Oct. 21, 2022	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	AMF-7D-00 101800-30- 10P-R	1943528	1GHz~18GHz	Oct. 22, 2021	Apr. 08, 2022	Oct. 21, 2022	Radiation (03CH03-SZ)
Amplifier	Agilent Technologies	83017A	MY395013 02	500MHz~26.5 GHz	Dec. 30, 2021	Apr. 08, 2022	Dec. 29, 2022	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	61601000 1985	N/A	NCR	Apr. 08, 2022	NCR	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Apr. 08, 2022	NCR	Radiation (03CH03-SZ)

NCR: No Calibration Required



5 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.10-2013. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Measuring Uncertainty for a Level of Confidence	2 2 4 P
of 95% (U = 2Uc(y))	2.2 dB

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence	E O AD
of 95% (U = 2Uc(y))	5.0 dB

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence	10 dB
of 95% (U = 2Uc(y))	4.9 dB

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence	E O dB
of 95% (U = 2Uc(y))	5.0 GB

----- THE END ------



Appendix A. Conducted Test Results



Appendix B. AC Conducted Emission Test Results

Toot Engineer		liona				Tem	peratu	re:	22~25°C
rest Engineer.		lang				Rela	ative Hu	imidity :	50~55%
Test Voltage :	120Vac	/ 60Hz				Pha	se :		Line
Remark :	All emis	sions no	ot reporte	ed here a	are more	e than 10) dB be	ow the pre	escribed limit.
	evel (dBuV)							Date: 2022-0)3-26
100									
90									
80-									
70-									
60	12							FCC 15C	_QP
50	To the	ANA A						FCC 15C_	AVG
	17W W	TEL TEL TIME	In Swame	200	WAR	WHITE WAR AND	Mathing		
40-					- Contraction of the contraction			production and a second second	humphan
30-		579		1					
20-									
10-									
0-									
-0).15	0.5	1	Frequ	2 ency (MHz)	5	10	20	30
Site Conditio	: CO01-: on: FCC 1:	5Z 5C_QP LI:	SN_20210	901_L LII	NE				
			Over	Limit	Read	LISN	Cable		
	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark	
_	Freq MHz	Level 	Over Limit dB	Limit Line dBuV	Read Level dBuV	LISN Factor dB	Cable Loss dB	Remark	_
1	Freq MHz 0.17	Level dBuV 40.65	Over Limit dB -14.34	Limit Line dBuV 54.99	Read Level dBuV 19.90	LISN Factor dB 10.20	Cable Loss dB 10.55	Remark Average	_
1 2 *	Freq MHz 0.17 0.17	Level dBuV 40.65 57.05	Over Limit dB -14.34 -7.94	Limit Line dBuV 54.99 64.99	Read Level dBuV 19.90 36.30	LISN Factor dB 10.20 10.20	Cable Loss dB 10.55 10.55	Remark Average QP	_
1 2 * 3	Freq MHz 0.17 0.17 0.25	Level dBuV 40.65 57.05 31.18	Over Limit dB -14.34 -7.94 -20.42	Limit Line dBuV 54.99 64.99 51.60	Read Level dBuV 19.90 36.30 10.40	LISN Factor dB 10.20 10.20 10.18	Cable Loss dB 10.55 10.55 10.60	Remark Average QP Average	_
1 2 * 3 4	Freq MHz 0.17 0.25 0.25	Level dBuV 40.65 57.05 31.18 46.48	Over Limit dB -14.34 -7.94 -20.42 -15.12	Limit Line dBuV 54.99 64.99 51.60 61.60	Read Level dBuV 19.90 36.30 10.40 25.70	LISN Factor dB 10.20 10.20 10.18 10.18	Cable Loss dB 10.55 10.55 10.60 10.60	Average QP Average QP	
1 2 * 3 4 5	Freq MHz 0.17 0.25 0.25 0.34	Level dBuV 40.65 57.05 31.18 46.48 28.44	Over Limit dB -14.34 -7.94 -20.42 -15.12 -20.74	Limit Line dBuV 54.99 64.99 51.60 61.60 49.18	Read Level dBuV 19.90 36.30 10.40 25.70 7.20	LISN Factor dB 10.20 10.20 10.18 10.18 10.09	Cable Loss dB 10.55 10.55 10.60 10.60 11.15	Average QP Average QP Average	
1 2 * 3 4 5 6	Freq MHz 0.17 0.25 0.25 0.34 0.34	Level dBuV 40.65 57.05 31.18 46.48 28.44 43.24	Over Limit dB -14.34 -7.94 -20.42 -15.12 -20.74 -15.94	Limit Line dBuV 54.99 64.99 51.60 61.60 49.18 59.18	Read Level dBuV 19.90 36.30 10.40 25.70 7.20 22.00	LISN Factor dB 10.20 10.20 10.18 10.18 10.09 10.09	Cable Loss dB 10.55 10.55 10.60 10.60 11.15 11.15	Average QP Average QP Average QP	
1 2 * 3 4 5 6 7	Freq MHz 0.17 0.25 0.25 0.34 0.34 0.42	Level dBuV 40.65 57.05 31.18 46.48 28.44 43.24 26.63 21.22	Over Limit dB -14.34 -7.94 -20.42 -15.12 -20.74 -15.94 -20.88	Limit Line dBuV 54.99 64.99 51.60 61.60 49.18 59.18 47.51	Read Level dBuV 19.90 36.30 10.40 25.70 7.20 22.00 5.00	LISN Factor dB 10.20 10.20 10.18 10.18 10.09 10.09 10.09	Cable Loss dB 10.55 10.60 10.60 11.15 11.15 11.53	Average QP Average QP Average QP Average	
1 2 * 3 4 5 6 7 8	Freq MHz 0.17 0.25 0.25 0.34 0.34 0.42 0.42	Level dBuV 40.65 57.05 31.18 46.48 28.44 43.24 26.63 41.33 25.06	Over Limit dB -14.34 -7.94 -20.42 -15.12 -20.74 -15.94 -20.88 -16.18	Limit Line dBuV 54.99 64.99 51.60 61.60 49.18 59.18 47.51 57.51	Read Level dBuV 19.90 36.30 10.40 25.70 7.20 22.00 5.00 19.70	LISN Factor dB 10.20 10.20 10.18 10.18 10.09 10.09 10.10 10.10	Cable Loss dB 10.55 10.60 10.60 11.15 11.15 11.53 11.53 11.65	Remark Average QP Average QP Average QP Average QP	
1 2 * 3 4 5 6 7 8 9	Freq MHz 0.17 0.25 0.25 0.34 0.34 0.42 0.42 0.54	Level dBuV 40.65 57.05 31.18 46.48 28.44 43.24 26.63 41.33 25.06 40.66	Over Limit dB -14.34 -7.94 -20.42 -15.12 -20.74 -15.94 -20.88 -16.18 -20.94	Limit Line dBuV 54.99 64.99 51.60 61.60 49.18 59.18 47.51 57.51 46.00	Read Level dBuV 19.90 36.30 10.40 25.70 7.20 22.00 5.00 19.70 3.30 3.80	LISN Factor dB 10.20 10.20 10.18 10.09 10.09 10.10 10.10 10.11	Cable Loss dB 10.55 10.60 10.60 11.15 11.15 11.53 11.53 11.65	Remark Average QP Average QP Average QP Average QP Average OP	
1 2 * 3 4 5 6 7 8 9 10	Freq MHz 0.17 0.25 0.25 0.34 0.34 0.42 0.42 0.54 0.54 0.54	Level dBuV 40.65 57.05 31.18 46.48 28.44 43.24 26.63 41.33 25.06 40.66 26.37	Over Limit dB -14.34 -7.94 -20.42 -15.12 -20.74 -15.94 -20.88 -16.18 -20.94 -15.34 -19.63	Limit Line dBuV 54.99 64.99 51.60 61.60 49.18 59.18 47.51 57.51 46.00 56.00	Read Level dBuV 19.90 36.30 10.40 25.70 7.20 22.00 5.00 19.70 3.30 18.90 6.00	LISN Factor dB 10.20 10.20 10.18 10.09 10.09 10.10 10.10 10.11 10.11	Cable Loss dB 10.55 10.60 10.60 11.15 11.15 11.53 11.63 11.65 11.65	Remark Average QP Average QP Average QP Average QP Average QP Average	
1 2 * 3 4 5 6 7 8 9 10 11 12	Freq MHz 0.17 0.25 0.25 0.34 0.34 0.42 0.42 0.54 0.54 0.54 1.25 1.25	Level dBuV 40.65 57.05 31.18 46.48 28.44 43.24 26.63 41.33 25.06 40.66 26.37 40.57	Over Limit dB -14.34 -7.94 -20.42 -15.12 -20.74 -15.94 -20.88 -16.18 -20.94 -15.34 -15.34 -15.43	Limit Line dBuV 54.99 64.99 51.60 61.60 49.18 59.18 47.51 57.51 46.00 56.00 46.00 56.00	Read Level dBuV 19.90 36.30 10.40 25.70 7.20 22.00 5.00 19.70 3.30 18.90 6.00 20.20	LISN Factor dB 10.20 10.20 10.18 10.09 10.09 10.10 10.10 10.11 10.11 10.14 10.14	Cable Loss dB 10.55 10.60 10.60 11.15 11.15 11.53 11.65 11.65 10.23 10.23	Remark Average QP Average QP Average QP Average QP Average QP Average QP	





Note:

1. Level(dBµV) = Read Level(dBµV) + LISN Factor(dB) + Cable Loss(dB)

2. Over Limit(dB) = Level(dBµV) – Limit Line(dBµV)