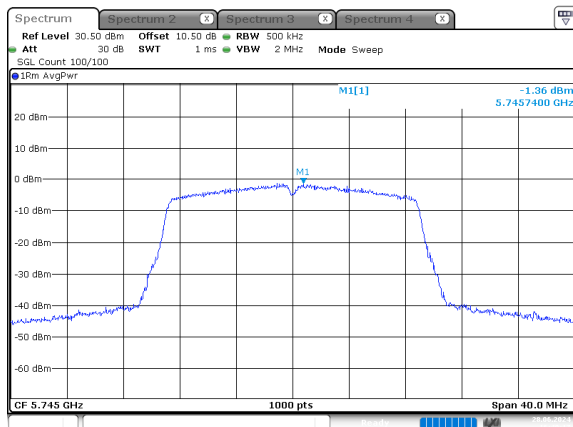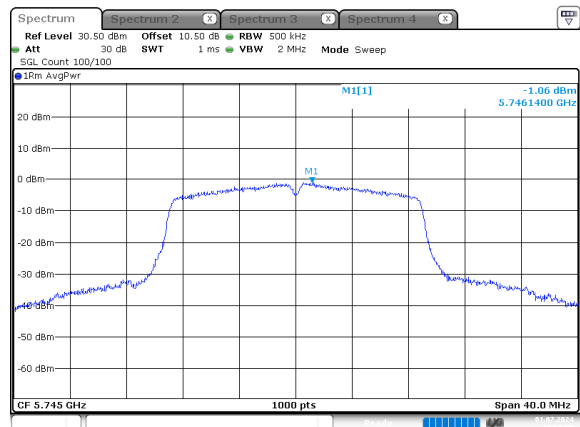### n20_5745MHz_Chain 0

ProjectNo.:2402U81798E-RF Tester:Roy Xiao
Date: 28.JUN.2024 16:40:17

n20_5745MHz_Chain 1

ProjectNo.:2402U81798E-RF Tester:Roy Xiao
Date: 1.JUL.2024 17:59:05

n20_5785MHz_Chain 0
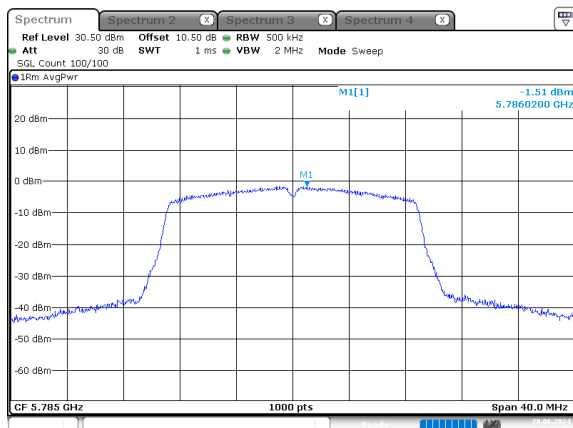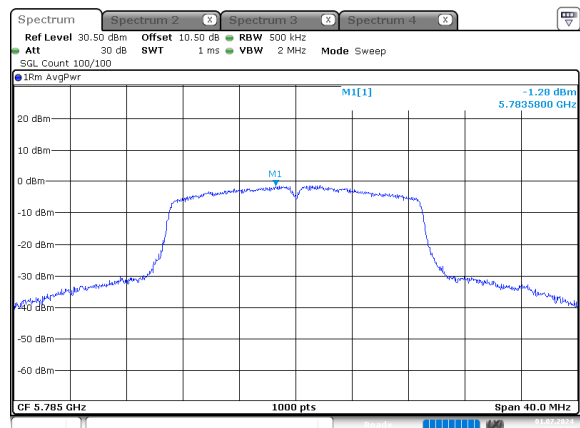

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Date: 28.JUN.2024 16:41:26

n20_5785MHz_Chain 1

ProjectNo.:2402U81798E-RF Tester:Roy Xiao
Date: 1.JUL.2024 17:59:53

n20_5825MHz_Chain 0

ProjectNo.:2402U81798E-RF Tester:Roy Xiao
Date: 28.JUN.2024 16:43:00

n20_5825MHz_Chain 1

ProjectNo.:2402U81798E-RF Tester:Roy Xiao
Date: 1.JUL.2024 18:02:46

n40_5755MHz_Chain 0
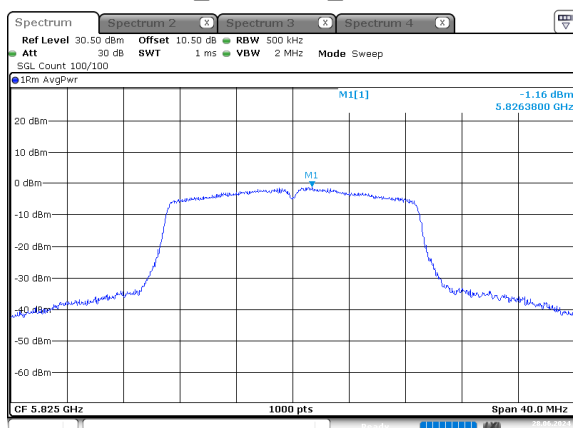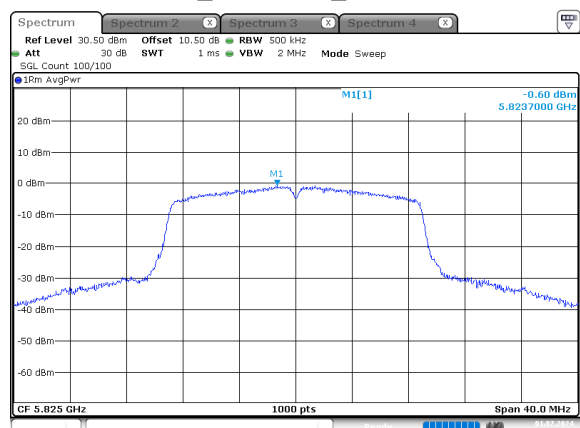

ProjectNo.:2402U81798E-RF Tester:Roy Xiao
Date: 28.JUN.2024 16:47:43

n40_5755MHz_Chain 1

ProjectNo.:2402U81798E-RF Tester:Roy Xiao
Date: 1.JUL.2024 18:03:54

n40_5795MHz_Chain 0

ProjectNo.:2402U81798E-RF Tester:Roy Xiao
Date: 28.JUN.2024 16:50:53

n40_5795MHz_Chain 1

ProjectNo.:2402U81798E-RF Tester:Roy Xiao
Date: 1.JUL.2024 18:04:43

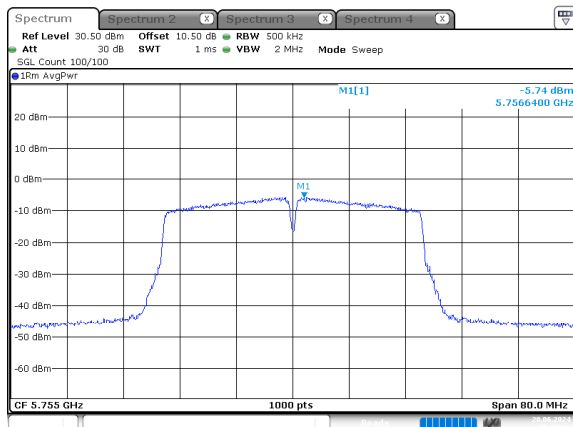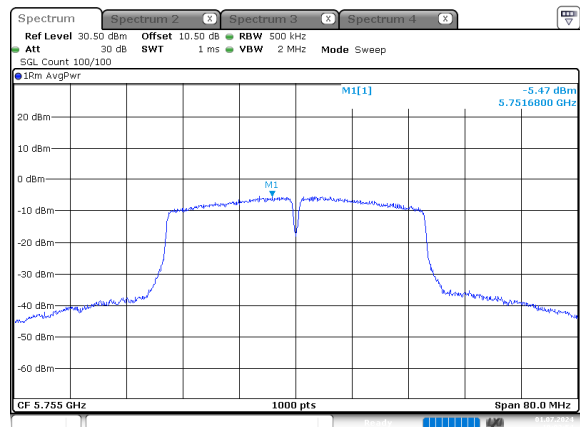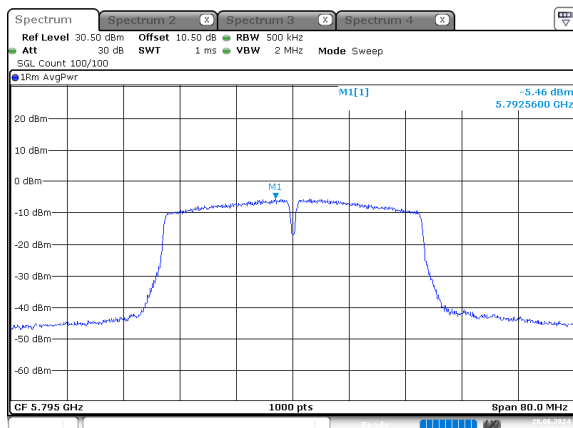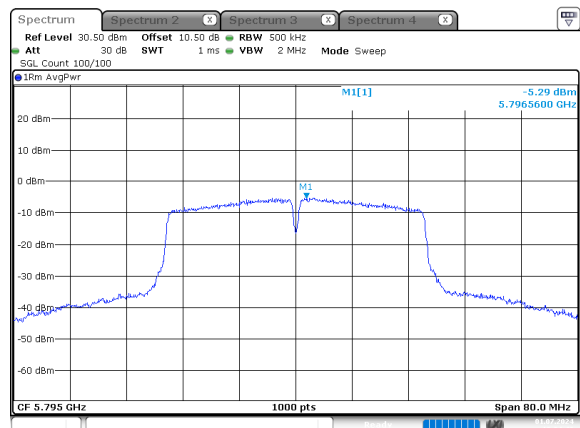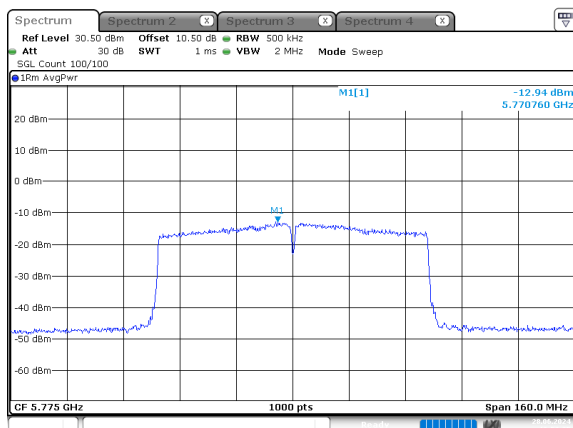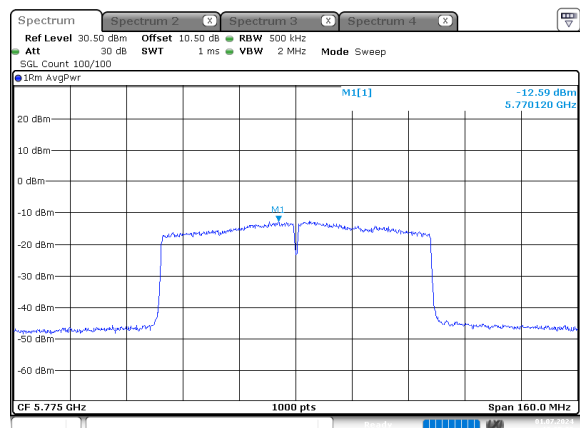### ac80_5775MHz_Chain 0

ProjectNo.:2402U81798E-RF Tester:Roy Xiao
Date: 28.JUN.2024 16:53:36

ac80_5775MHz_Chain 1

ProjectNo.:2402U81798E-RF Tester:Roy Xiao
Date: 1.JUL.2024 18:05:39

5.8 Duty Cycle

Serial No.:	2N6D-2	Test Date:	2024/06/27
Test Site:	RF	Test Mode:	Transmitting
Tester:	Roy Xiao	Test Result:	/

Environmental Conditions:

Temperature: (°C)	26.9	Relative Humidity: (%)	57	ATM Pressure: (kPa)	100.5

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101589	2023/10/18	2024/10/17
Eastsheep	Coaxial Attenuator	5W-N-JK-6G-10dB	F-08-EM504	2024/06/07	2025/06/07

 * *Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:
Note: Test only was performed at Chain 0.

5.2G

Mode	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)	Duty Cycle Factor (dB)	1/Ton (Hz)	VBW Setting (kHz)
a_5200MHz_Chain 0	1.391	1.446	96.20	0.17	719.0	1.000
n20_5200MHz_Chain 0	1.299	1.354	95.94	0.18	770.0	1.000
n40_5190MHz_Chain 0	0.625	0.679	92.05	0.36	1600.0	2.000
ac80_5210MHz_Chain 0	0.324	0.377	85.94	0.66	3086.0	5.000

Duty Cycle = Ton/(Ton+Toff)*100%

5.2G

a_5200MHz_Chain 0
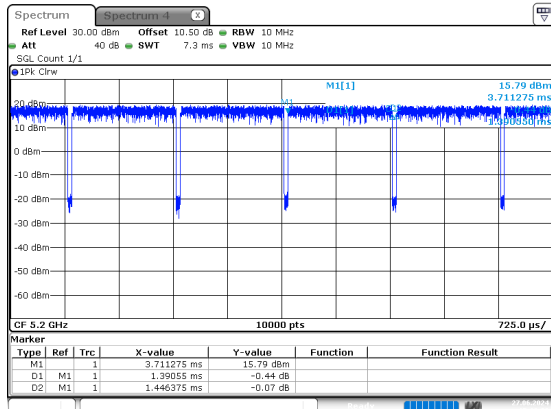
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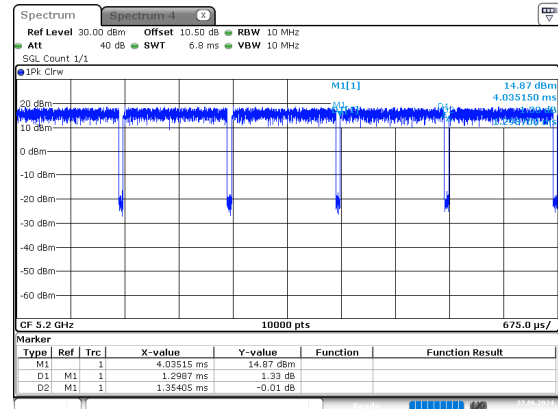
n40_5190MHz_Chain 0
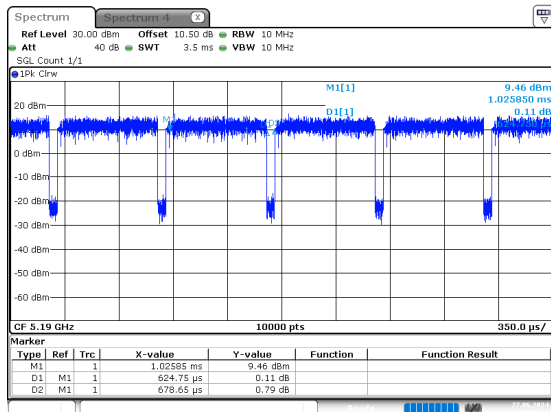
ac80_5210MHz_Chain 0
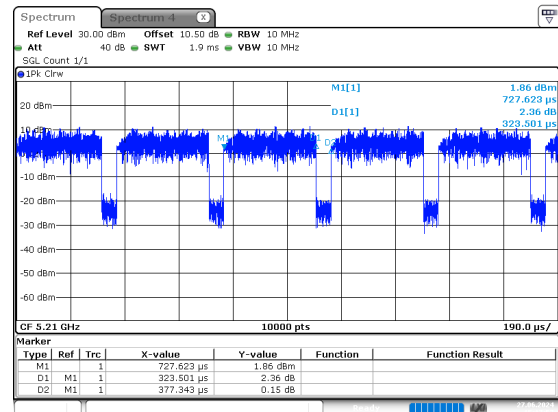
APPENDIX A - EUT PHOTOGRAPHS

Please refer to the attachment 2402U81798E-RF-EXP EUT EXTERNAL PHOTOGRAPHS and 2402U81798E-RF-INP EUT INTERNAL PHOTOGRAPHS.

APPENDIX B - TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2402U81798E-RF-00B-TSP TEST SETUP PHOTOGRAPHS.

APPENDIX C - RF EXPOSURE EVALUATION

Maximum Permissible Exposure (MPE)

Applicable Standard

According to subpart §1.1310,15.247(i) and 15.407(f)systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minutes)
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f²)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

Calculation formula:

Prediction of power density at the distance of the applicable MPE limit
S = PG/4πR² = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

Calculated Data:

Mode	Frequency (MHz)	Antenna Gain		Conducted output power including Tune-up Tolerance		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
		(dBi)	(numeric)	(dBm)	(mW)			
BT	2402-2480	4.85	3.05	12	15.85	20.00	0.010	1.0
BLE	2402-2480	4.85	3.05	7	5.01	20.00	0.003	1.0
2.4G WiFi	2412-2462	5.94	3.93	24	251.19	20.00	0.196	1.0
5G WiFi	5150-5250	4.69	2.94	14	25.12	20.00	0.015	1.0
	5250-5350	5.17	3.29	16	39.81	20.00	0.026	1.0
	5470-5725	5.55	3.59	16	39.81	20.00	0.028	1.0
	5725-5850	4.86	3.06	16	39.81	20.00	0.024	1.0

Note:
The Conducted output power including Tune-up Tolerance provided by manufacturer.
BT and BLE can`t transmit simultaneously, 2.4G WiFi and 5G WiFi can`t transmit simultaneously, 2.4G WiFi or 5G WiFi can transmit simultaneously with BT or BLE:

$$\sum_i \frac{S_i}{S_{Limit,i}}$$

$=S_{BT}/S_{limit-BT}+ S_{2.4G\ WiFi}/S_{limit-\ 2.4G\ WiFi}$

$=0.010/1+0.196/1$

$=0.206$

< 1.0

Result: The device meet FCC MPE at 20 cm distance

Exemption Limits For Routine Evaluation-RF Exposure Evaluation

Applicable Standard

According to RSS-102 Issue 5 Amendment 1 February 2021, § 4Table 4, RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

Table 4: RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m²)	Reference Period (minutes)
0.003-10[21]	83	90	-	Instantaneous*
0.1-10	-	$0.73/f$	-	6**
1.1-10	$87/f^{0.5}$	-	-	6**
10-20	27.46	0.0728	2	6
20-48	$58.07/f^{0.25}$	$0.1540/f^{0.25}$	$8.944/f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	$3.142\,f^{0.3417}$	$0.008335\,f^{0.3417}$	$0.02619 f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000/f^{1.2}$
150000-300000	$0.158\,f^{0.5}$	$4.21 \times 10^{-4}\,f^{0.5}$	$6.67 \times 10^{-5}\,f$	$616000/f^{1.2}$

Note: f is frequency in MHz.
*Based on nerve stimulation (NS).
** Based on specific absorption rate (SAR).

According to RSS-102 Issue 5 Amendment 1 February 2021, § 4Table 6, RF Field Strength Limits for Devices Used by the Controlled Use Devices (Controlled Environment)

Table 6: RF Field Strength Limits for Controlled Use Devices (Controlled Environment)

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m²)	Reference Period (minutes)
0.003-10[23]	170	180	-	Instantaneous*
0.1-10	-	$1.6/f$	-	6**
1.29-10	$193/f^{0.5}$	-	-	6**
10-20	61.4	0.163	10	6
20-48	$129.8/f^{0.25}$	$0.3444/f^{0.25}$	$44.72/f^{0.5}$	6
48-100	49.33	0.1309	6.455	6
100-6000	$15.60\,f^{0.25}$	$0.04138\,f^{0.25}$	$0.6455 f^{0.5}$	6
6000-15000	137	0.364	50	6
15000-150000	137	0.364	50	$616000/f^{1.2}$
150000-300000	$0.354\,f^{0.5}$	$9.40 \times 10^{-4}\,f^{0.5}$	$3.33 \times 10^{-4}\,f$	$616000/f^{1.2}$

Note: f is frequency in MHz.
*Based on nerve stimulation (NS).
** Based on specific absorption rate (SAR).

MPE Calculation

Predication of MPE limit at a given distance
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

Calculated Data:

Mode	Frequency (MHz)	Antenna Gain	Conducted output power including Tune-up Tolerance	EIRP		Evaluation Distance (cm)	Power Density (W/m^2)	MPE Limit (W/m^2)
		(dBi)	(dBm)	(dBm)	(mW)			
BT	2402-2480	4.85	12	16.85	48.42	20.00	0.096	5.35
BLE	2402-2480	4.85	7	11.85	15.31	20.00	0.030	5.35
2.4G WiFi	2412-2462	5.94	24	29.94	986.28	20.00	1.963	5.37
5G WiFi	5150-5250	4.69	14	18.69	73.96	20.00	0.147	9.01
	5250-5350	5.17	16	21.17	130.92	20.00	0.261	9.13
	5470-5725	5.55	16	21.55	142.89	20.00	0.284	9.39
	5725-5850	4.86	16	20.86	121.90	20.00	0.243	9.69

Note:
The Maximum Conducted Power including Tune-up Tolerance was declared by manufacturer
For Simultaneous transmission:
BT and BLE can`t transmit simultaneously, 2.4G WiFi and 5G WiFi can`t transmit simultaneously, 2.4G WiFi or 5G WiFi can transmit simultaneously with BT or BLE:

$$\sum_i \frac{S_i}{S_{Limit,i}}$$

$= S_{BT}/S_{limit-BT} + S_{2.4G\ WiFi}/S_{limit-\ 2.4G\ WiFi}$

$=0.096/5.35+1.963/5.37$

$=0.383$

< 1.0

Result: The device meet MPE requirement at 20cm distance

***** END OF REPORT *****