

EVALUATION REPORT

Applicant Name:
SAMSUNG Electronics Co., Ltd.

Date of Issue:
May 22, 2023

Address:
129, Samsung-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16677, Rep. of Korea

Location:
HCT CO., LTD.,
74, Seoicheon-ro 578beon-gil, Majang-myeon,
Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA

FCC ID:	A3LSMX810
APPLICANT:	SAMSUNG Electronics Co., Ltd.

Equipment Class(es) : DSS, DTS, UNII, 6CD, DCD
 Rule Part(s) : 15
 Application's Statement : The applicant takes full responsibility that the test data referenced below represents compliance for this FCC ID.
 Differences Brief Description : Hardware and software of this device are identical to the implementation in A3LSMX818U. The operational description includes detailed information about the changes between the devices. The data from that application has been verified through appropriate spot checks to demonstrate compliance for this device as shown in the summary table below.
 Test Reference : KDB 484596 D01 Reference Test Data v01

The detail test data can be found in this documents, Appendix A.

Category	Spot Check	Verdict
Unlicensed EMC	Band Edge	Share
	Spurious Emissions	Share

Reference Detail Section

Reference FCC ID	Equipment Class	Report Title	Section
A3LSMX818U	DSS	Bluetooth Report	*All sections
	DTS	DTS Report , DTS ax Report	*All section (except for 802.11b mode and 802.11g/n Ch. 12, 13)
	NII	UNII Test Report , UNII ax Report	*All sections
	6CD	UNII 6e ax Report	All sections
	DCD	WPT Report	*All sections

* All sections except as noted in the report where some modes are retested in the variant.



Report prepared by : Woong Jin Kim
Engineer of Telecommunication testing center



Approved by : Jong Seok Lee
Manager of Telecommunication testing center

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	May 16, 2023	Initial Release
1	May 22, 2023	Revised the equipment class on page 1.

Appendix A. The Spot check test data

1. Summary of the spot check for Unlicensed EMC

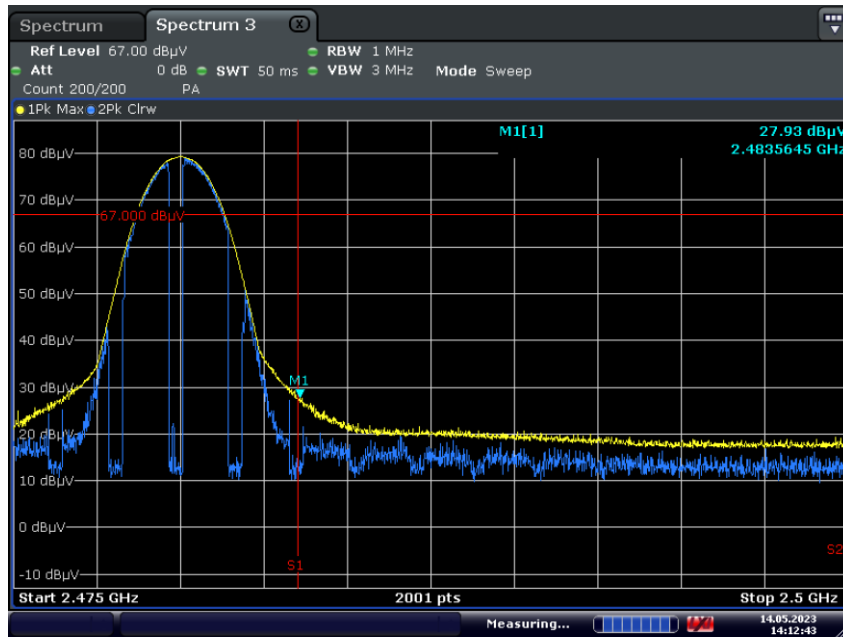
Mod	Test Item	Mod/Channel	Measured Frequency [MHz]	SM-X818U Result [dB μ V/m]		SM-X810 Result [dB μ V/m]		Deviation (dB)	
				Peak	Average	Peak	Average	Peak	Average
BT	Band Edge	Ant.1 3-DH5 / Ch.78	2483.5 MHz ~ 2500 MHz	62.30	37.57	63.03	38.30	0.73	0.73
	RSE	Ant.1 DH5 / Ch.78	7440 MHz	55.05	30.32	54.34	29.61	-0.71	-0.71
DTS	Band Edge	802.11g, 6 Mbps/ Ch.10	2483.5 MHz ~ 2500 MHz	66.97	51.66	66.49	49.36	-0.48	-2.30
	RSE	802.11g, 1 Mbps/ Ch.1	4824 MHz	49.09	36.54	48.14	35.76	-0.95	-0.78
UNII	Band Edge	802.11ac(80M), MCS0 / ch.58	5350~5460 MHz	65.55	51.20	61.64	49.32	-3.91	-1.88
	RSE	802.11n20, MCS0 / ch.169	17535 MHz	63.11	-	65.19	-	2.08	-
DTS _{ax}	Band Edge	802.11ax HE20 52T / Ch.11	2483.5 MHz ~ 2500 MHz	71.69	45.75	70.36	44.26	-1.33	-1.49
	RSE	802.11ax HE20 26T / Ch.11	7386 MHz	51.38	38.96	51.52	39.71	0.14	0.75
UNII _{ax}	Band Edge	802.11ax HE40 SU / Ch.102	5460 MHz ~ 5470 MHz	65.49	-	62.17	-	-3.32	-
	RSE	802.11ax HE20 SU / Ch.48	10480 MHz (2nd)	59.93	-	62.54	-	2.61	-
WIFI 6e (6CD)	Band Edge	802.11ax HE20 106T RU53 / Ch.2	5924.5 MHz(integ)	78.59	64.82	77.48	63.88	-1.11	-0.94
	RSE	802.11ax HE80 SU / Ch.7	17955 MHz (3rd)	58.55	46.09	58.31	45.92	-0.24	-0.17
WPS	Fundamental	Main Coil	150 kHz ~ 3 MHz	19.80		19.50		-0.30	

2. Test Plot

BT Band Edge (Ant.1 3-DH5 / Ch.78)

Frequency [MHz]	Measured Value [dBμV]	A.F+C.L+D.F [dB/m]	Pol. [H/V]	D.C.C.F [dB]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	27.93	35.10	H	0	63.03	73.98	10.95	PK
2483.5	27.93	35.10	H	-24.73	38.30	53.98	15.68	AV

[Radiated Restricted Band Edges plot- Peak& Average Result]

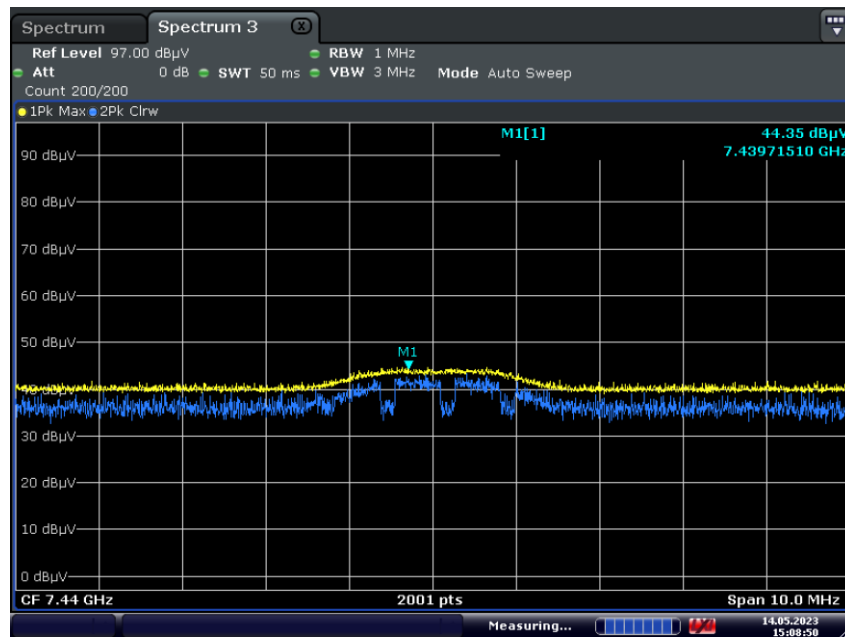


Date: 14.MAY.2023 14:12:44

BT R.S.E Harmonic(Ant.1 DH5 / Ch.78)

Frequency [MHz]	Measured Value [dBμV]	A.F+C.L-A.G+D.F [dB/m]	Pol. [H/V]	Duty Cycle Correction [dB]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
7440	44.35	9.99	V	0	54.34	73.98	19.64	PK
7440	44.35	9.99	V	-24.73	29.61	53.98	24.37	AV

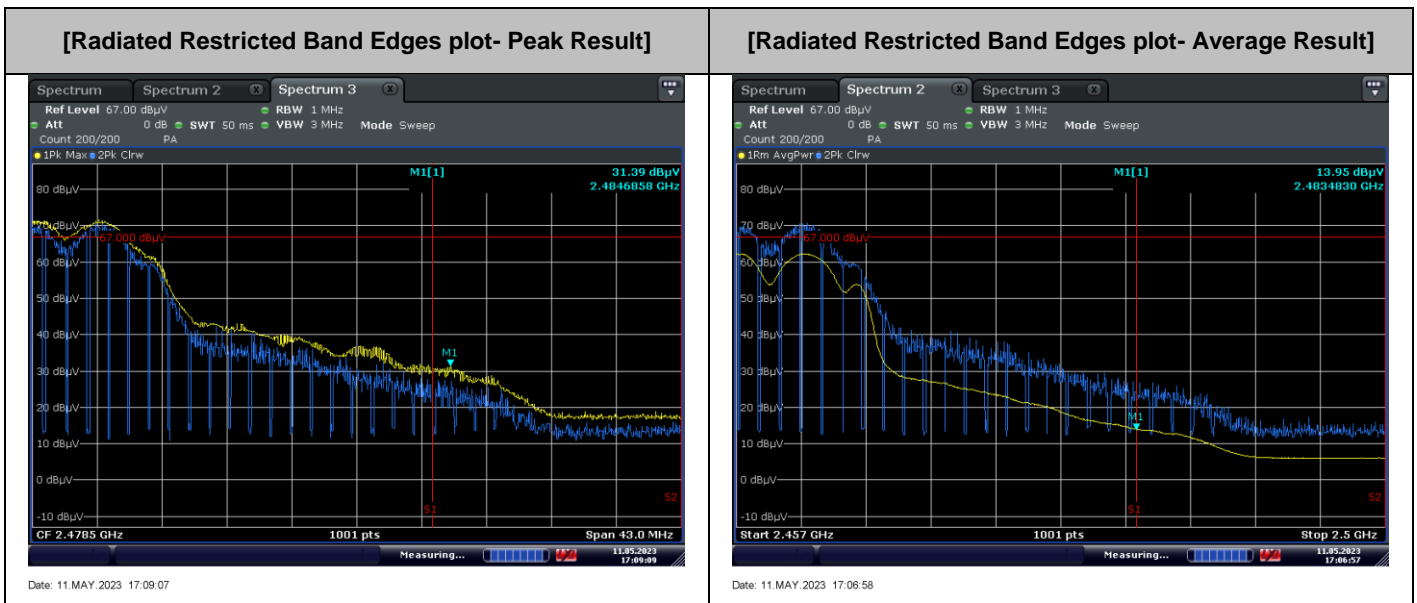
[Radiated Spurious Emissions plot – Peak& Average Result]



Date: 14.MAY.2023 15:08:50

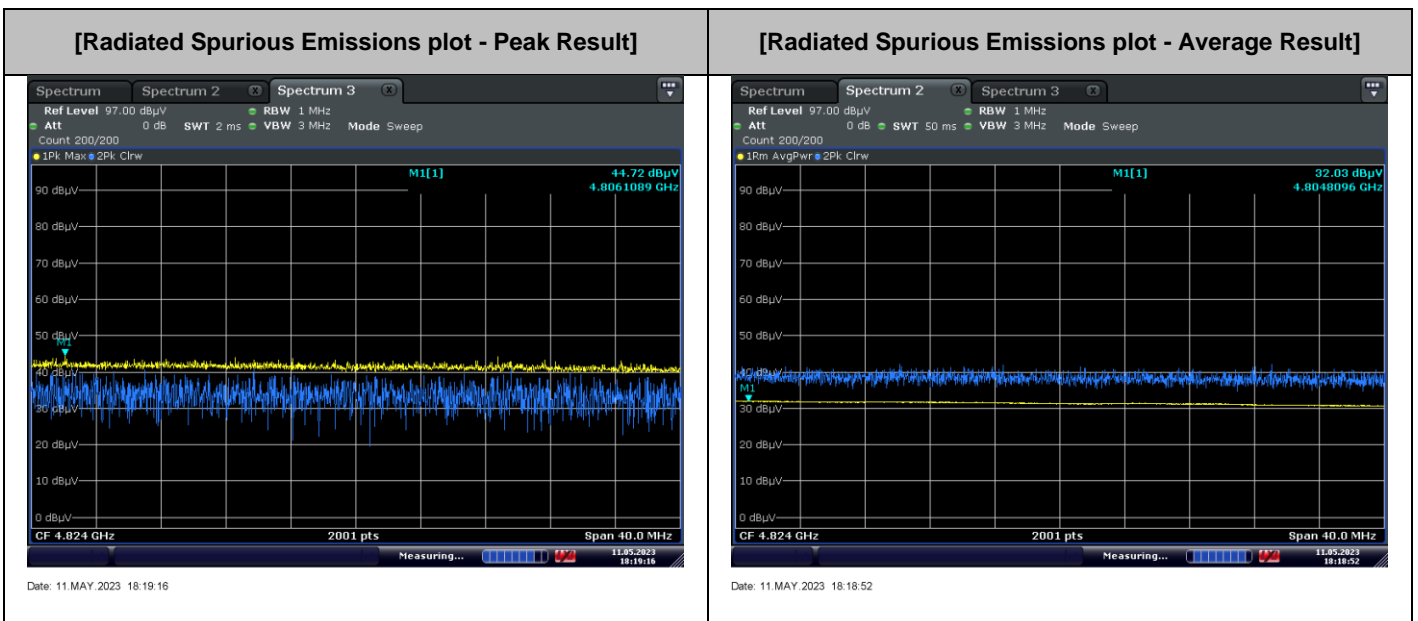
DTS Band Edge (802.11g, 6 Mbps/ Ch.10)

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor[dB]	A.F+C.L+D.F [dB/m]	Pol. [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	31.39	0.00	35.10	H	66.49	73.98	7.49	PK
2483.5	13.95	0.32	35.10	H	49.36	53.98	4.62	AV
2483.5	31.22	0.00	35.10	V	66.32	73.98	7.66	PK
2483.5	13.89	0.32	35.10	V	49.30	53.98	4.68	AV



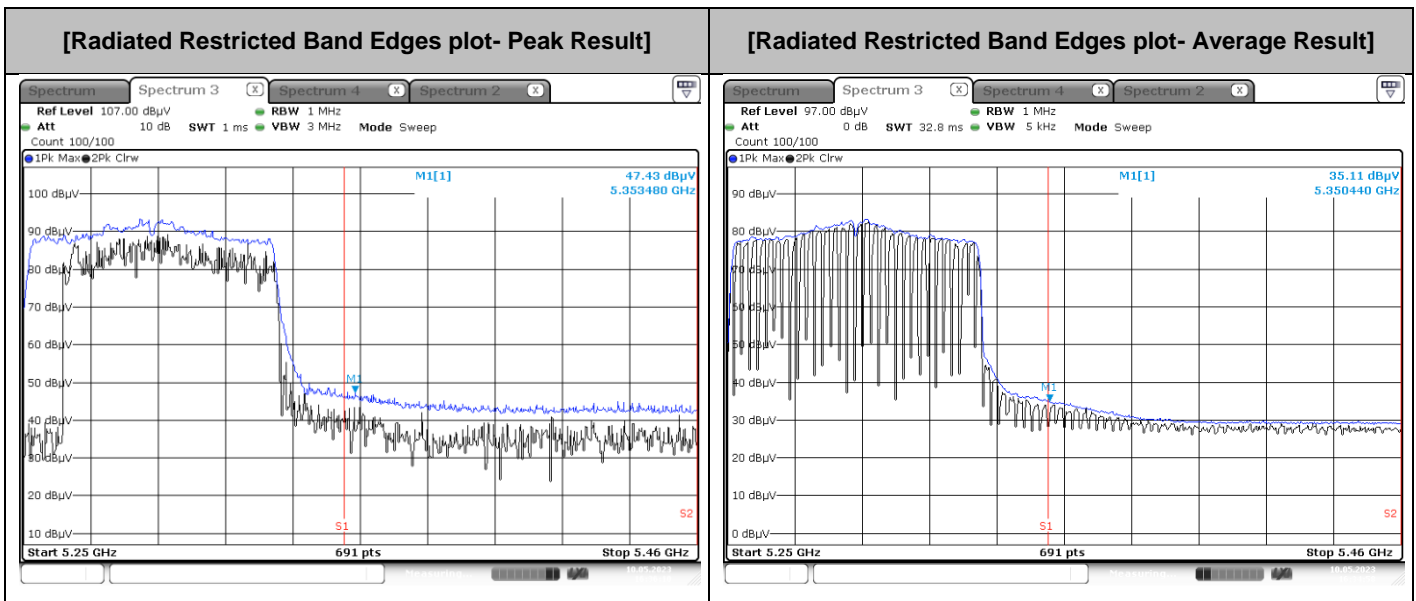
DTS R.S.E Harmonic(802.11g, 6 Mbps/ Ch.1)

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor[dB]	A.F+C.L-A.G+D.F [dB/m]	Pol. [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4824	44.69	0.00	3.42	V	48.11	73.98	25.87	PK
4824	32.01	0.32	3.42	V	35.74	53.98	18.24	AV
4824	44.72	0.00	3.42	H	48.14	73.98	25.84	PK
4824	32.03	0.32	3.42	H	35.76	53.98	18.22	AV



UNII Band Edge (802.11ac(80M), MCS0 / ch.58)

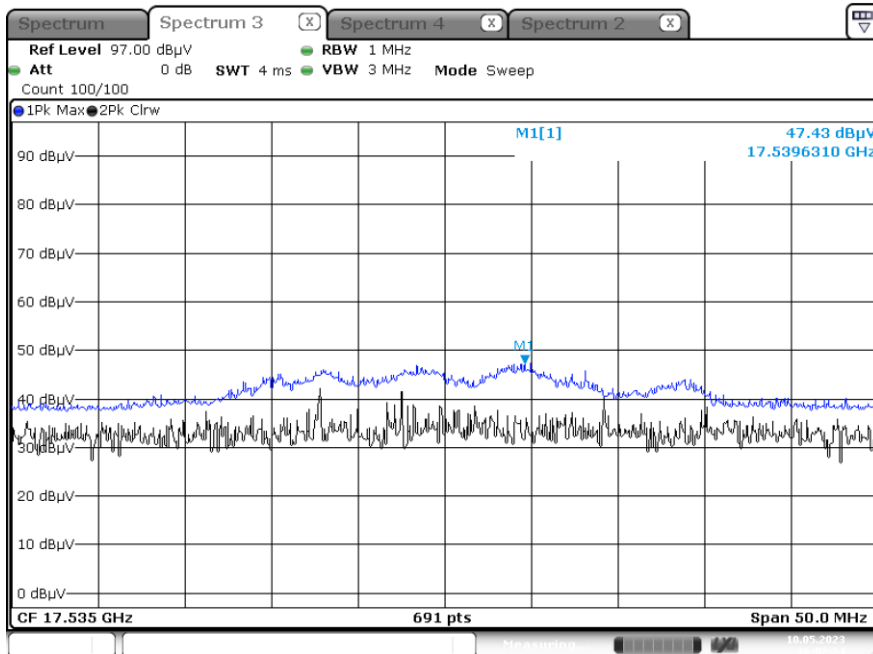
Frequency [MHz]	Measured Value [dBμV]	A.F+C.L-A.G +ATT+D.F [dB/m]	Pol. [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350	47.43	14.21	H	61.64	73.98	12.34	PK
5350	35.11	14.21	H	49.32	53.98	4.66	AV
5350	46.92	14.21	V	61.13	73.98	12.85	PK
5350	34.43	14.21	V	48.64	53.98	5.34	AV



UNII R.S.E Harmonic(802.11n20, MCS0 / ch.169)

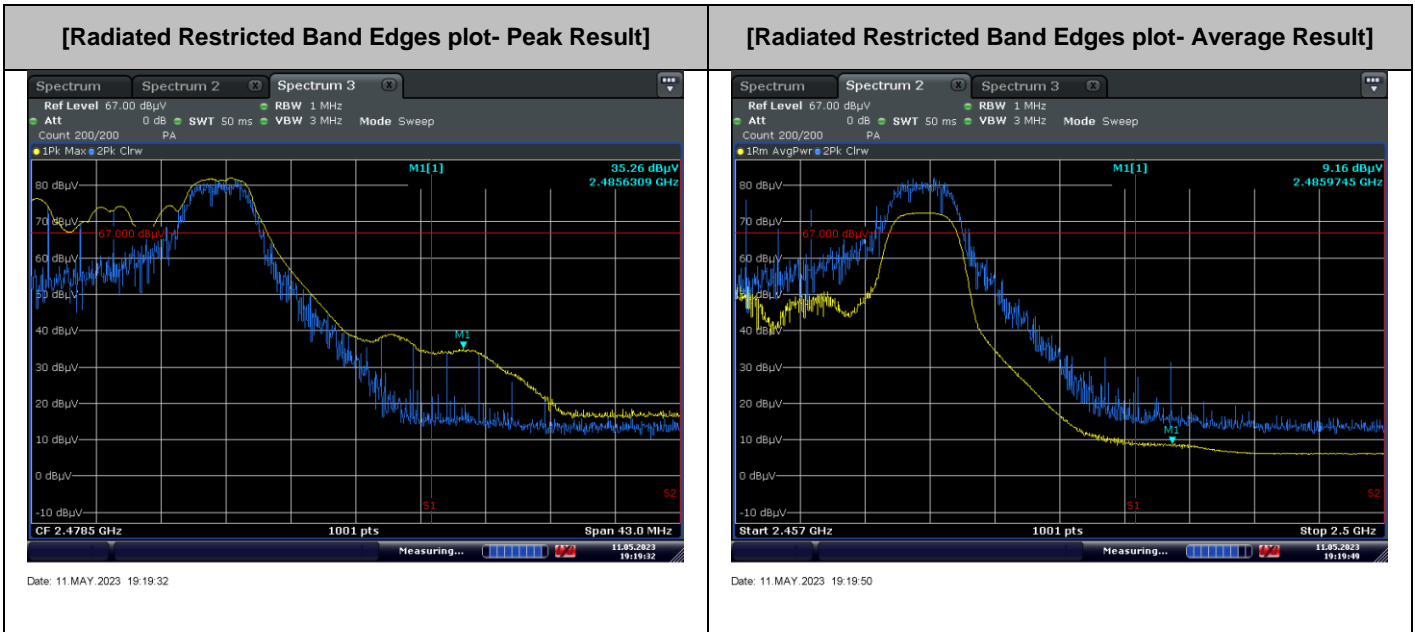
Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	Pol. [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11690	45.49	10.09	V	55.58	73.98	18.40	PK
11690	31.16	10.09	V	41.25	53.98	12.73	AV
17535	47.00	17.76	V	64.76	68.20	3.44	PK
11690	45.08	10.09	H	55.17	73.98	18.81	PK
11690	30.77	10.09	H	40.86	53.98	13.12	AV
17535	47.43	17.76	H	65.19	68.20	3.01	PK

[Radiated Spurious Emissions plot – Peak Result]



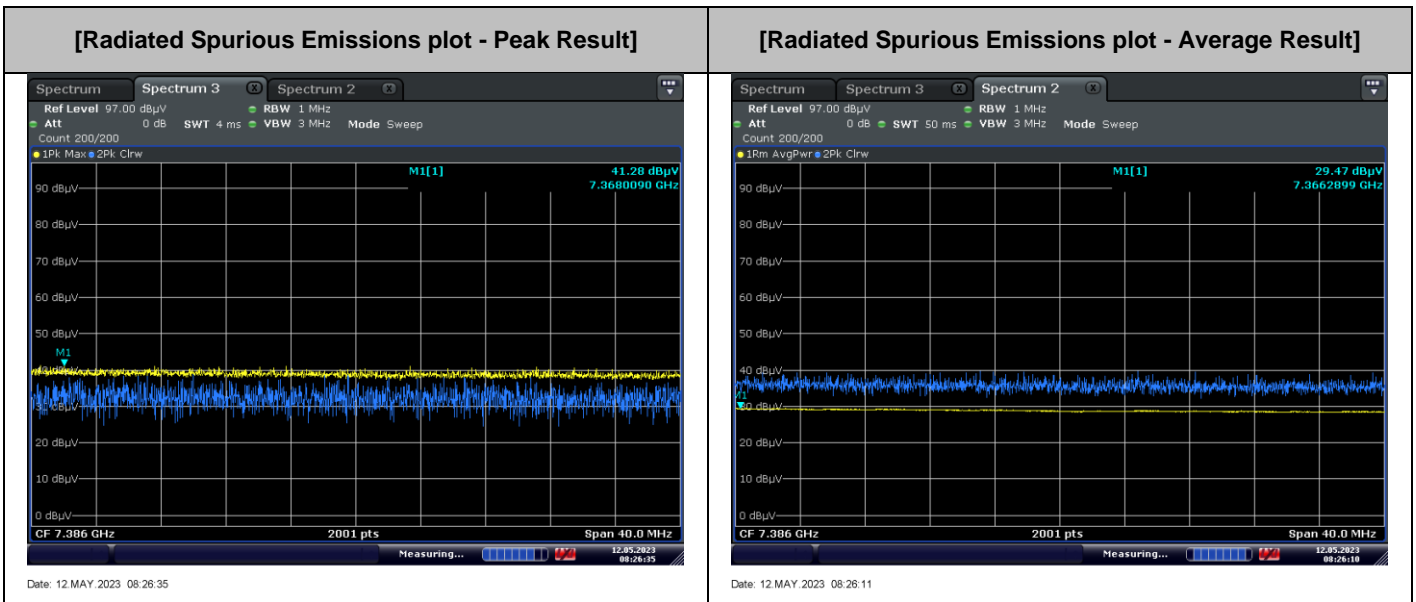
DTS ax Band Edge (802.11ax HE20 52T / Ch.11)

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor[dB]	A.F+C.L+D.F [dB/m]	Pol. [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	35.260	0.00	35.10	H	70.36	73.98	3.62	PK
2483.5	9.160	0.00	35.10	H	44.26	53.98	9.72	AV
2483.5	34.990	0.00	35.10	V	70.09	73.98	3.89	PK
2483.5	8.940	0.00	35.10	V	44.04	53.98	9.94	AV



DTS ax R.S.E Harmonic(802.11ax HE20 26T / Ch.11)

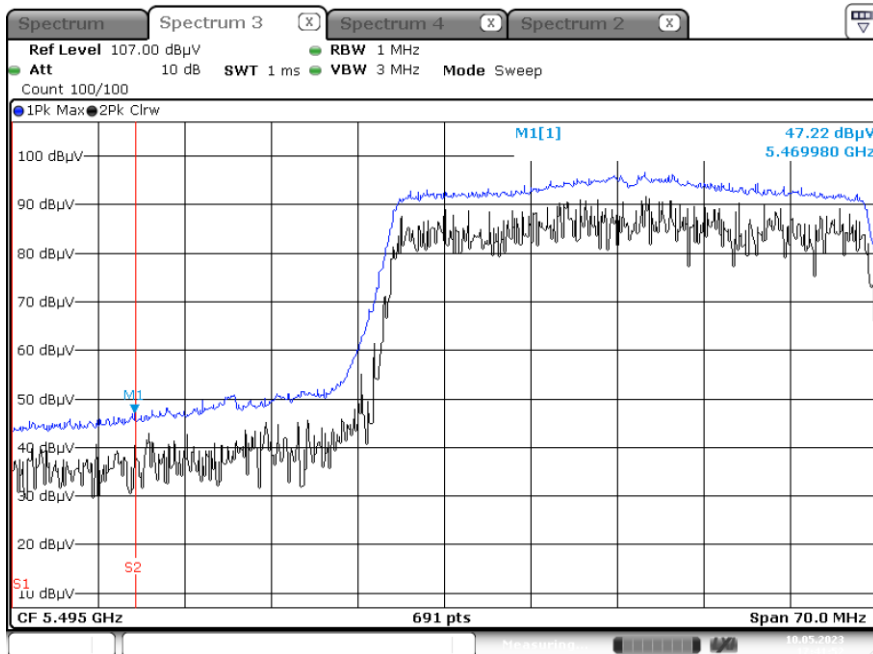
Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor[dB]	A.F+C.L-A.G+D.F [dB/m]	Pol. [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
7386	41.21	0.00	10.24	V	51.45	73.98	22.53	PK
7386	29.34	0.00	10.24	V	39.58	53.98	14.40	AV
7386	41.28	0.00	10.24	H	51.52	73.98	22.46	PK
7386	29.47	0.00	10.24	H	39.71	53.98	14.27	AV



UNII ax Band Edge (802.11ax HE40 SU / Ch.102)

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF -AG+ATT [dB/m]	Pol. [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	44.99	14.98	H	59.97	73.98	14.01	PK
5460	28.59	14.98	H	43.57	53.98	10.41	AV
5470	47.22	14.95	H	62.17	68.20	6.03	PK
5460	44.75	14.98	V	59.73	73.98	14.25	PK
5460	28.32	14.98	V	43.30	53.98	10.68	AV
5470	47.02	14.95	V	61.97	68.20	6.23	PK

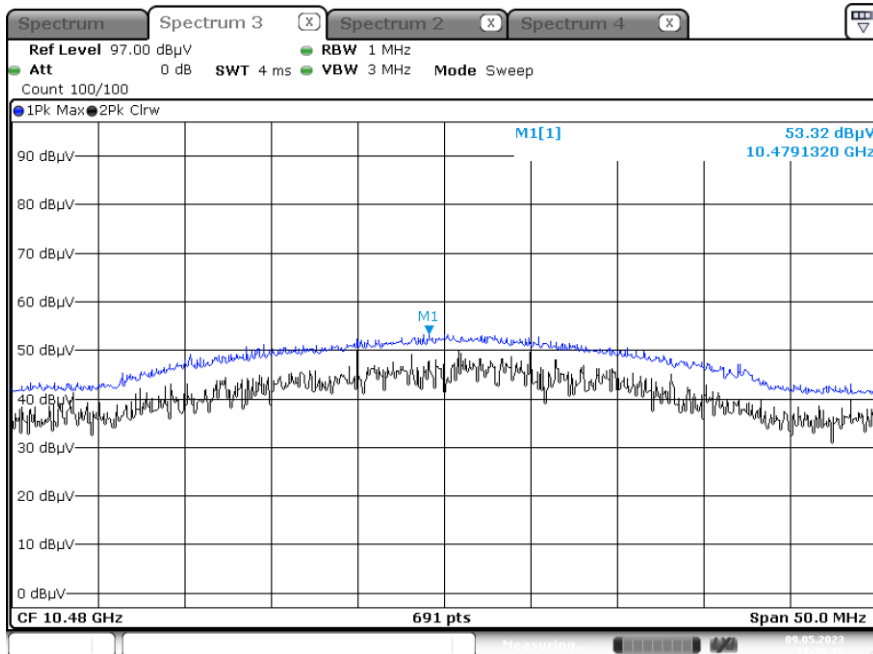
[Radiated Restricted Band Edges plot- Peak Result]



UNII ax R.S.E Harmonic(802.11ax HE20 SU / Ch.48)

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	Pol. [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10480	53.32	9.22	V	62.54	68.20	5.66	PK
15720	43.46	13.27	V	56.73	73.98	17.25	PK
15720	26.44	13.27	V	39.71	53.98	14.27	AV
10480	52.85	9.22	H	62.07	68.20	6.13	PK
15720	43.22	13.27	H	56.49	73.98	17.49	PK
15720	26.32	13.27	H	39.59	53.98	14.39	AV

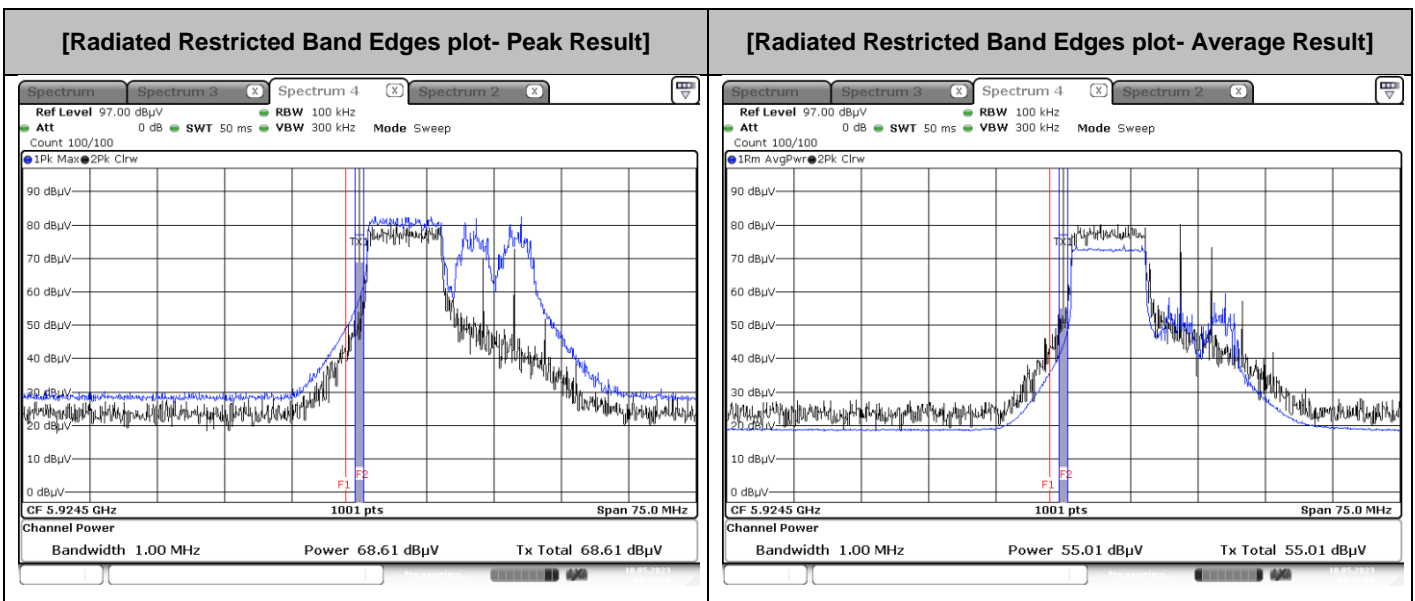
[Radiated Spurious Emissions plot – Peak Result]



WIFI 6e (6CD) Band Edge (802.11ax HE20 106T RU53 / Ch.2)

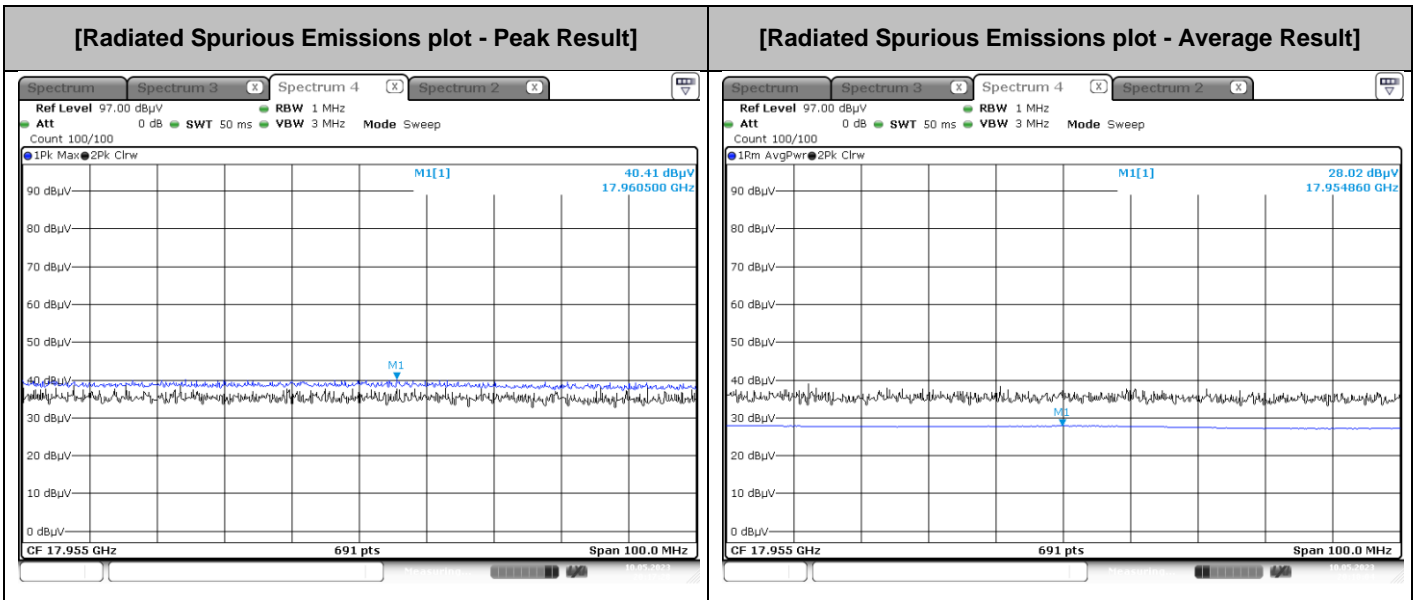
Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor[dB]	A.F+C.L+D.F -A.G+ATT [dB/m]	Pol. [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
#5924.5	68.61	0.00	8.87	H	77.48	88.23	10.75	PK
#5924.5	55.01	0.00	8.87	H	63.88	68.23	4.35	AV
#5923.5	61.71	0.00	8.87	H	70.58	88.23	17.65	PK
#5923.5	48.46	0.00	8.87	H	57.33	68.23	10.90	AV
5460 - 5923	70.22	0.00	8.87	H	79.09	88.23	9.14	PK
5460 - 5923	46.47	0.00	8.87	H	55.34	68.23	12.89	AV
5350 - 5460	42.10	0.00	7.99	H	50.09	73.98	23.89	PK
5350 - 5460	28.67	0.00	7.99	H	36.66	53.98	17.32	AV
#5924.5	68.01	0.00	8.87	V	76.88	88.23	11.35	PK
#5924.5	54.51	0.00	8.87	V	63.38	68.23	4.85	AV
#5923.5	61.51	0.00	8.87	V	70.38	88.23	17.85	PK
#5923.5	47.95	0.00	8.87	V	56.82	68.23	11.41	AV
5460 - 5923	70.01	0.00	8.87	V	78.88	88.23	9.35	PK
5460 - 5923	46.22	0.00	8.87	V	55.09	68.23	13.14	AV
5350 - 5460	41.98	0.00	7.99	V	49.97	73.98	24.01	PK
5350 - 5460	28.62	0.00	7.99	V	36.61	53.98	17.37	AV

Note : # integration method Used (KDB 789033 D02 v02r01 Section 3) d) (ii)



WIFI 6e (6CD) R.S.E Harmonic(802.11ax HE80 SU / Ch.7)

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor[dB]	A.F+C.L-A.G+D.F [dB/m]	Pol. [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11970	42.95	0.00	8.95	V	51.90	73.98	22.08	PK
11970	30.65	0.00	8.95	V	39.60	53.98	14.38	AV
17955	40.32	0.00	17.90	V	58.22	73.98	15.76	PK
17955	27.95	0.00	17.90	V	45.85	53.98	8.13	AV
11970	43.01	0.00	8.95	H	51.96	73.98	22.02	PK
11970	30.68	0.00	8.95	H	39.63	53.98	14.35	AV
17955	40.41	0.00	17.90	H	58.31	73.98	15.67	PK
17955	28.02	0.00	17.90	H	45.92	53.98	8.06	AV

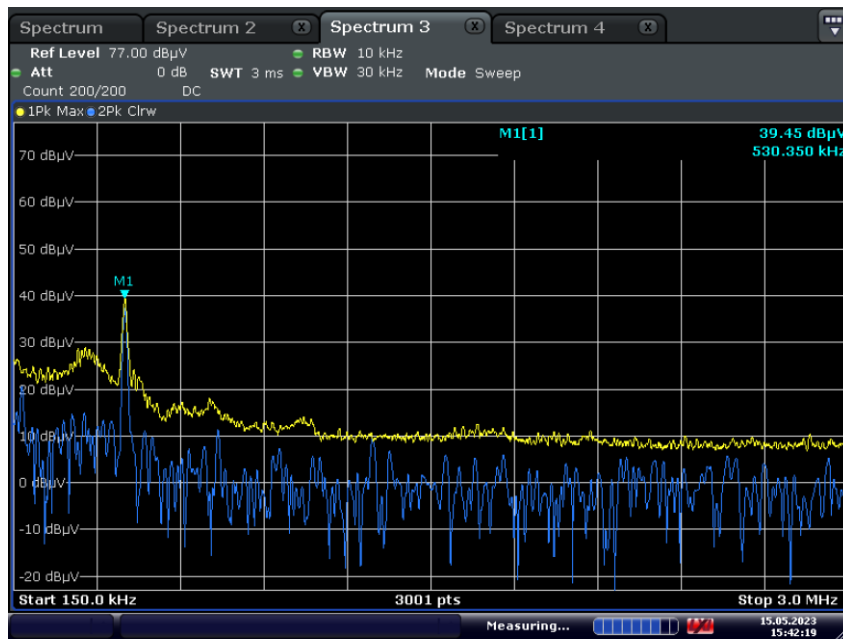


WPT Fundamental(Main Coil)

Fundamental

Frequency [kHz]	Measured Value [dB μ V]@3 m	Ant. Factor [dB/m]	Cable Loss [dB]	Distance Correction [dB]	Result Level [dB μ V/m] @300 m	Limit [dB μ V/m]	Margin [dB]
530.35	39.45	19.50	0.55	-40.00	19.5	33.11	13.61

[WPT plot]



Date: 15.MAY.2023 15:42:20

3. List of test equipment

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Controller(Antenna mast)	CO3000	Innco system	CO3000-4p	N/A	N/A
Antenna Position Tower	MA4640/800-XP-EP	Innco system	N/A	N/A	N/A
Controller	EM2090	Emco	060520	N/A	N/A
Turn Table	N/A	Ets	N/A	N/A	N/A
Amp & Filter Bank Switch Controller	FBSM-01B	TNM system	TM19050002	N/A	N/A
Loop Antenna	FMZB 1513	Rohde & Schwarz	1513-333	03/17/2024	Biennial
Hybrid Antenna	VULB 9168	Schwarzbeck	9168-0895	08/16/2024	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	9120D-1300	01/18/2024	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	9120D-2296	05/18/2024	Biennial
Horn Antenna(15 GHz ~ 40 GHz)	BBHA9170	Schwarzbeck	BBHA9170342	09/29/2024	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	9120D-1191	11/18/2023	Biennial
Horn Antenna(15 GHz ~ 40 GHz)	BBHA9170	Schwarzbeck	BBHA9170124	03/28/2025	Biennial
Spectrum Analyzer	FSV(10 Hz ~ 40 GHz)	Rohde & Schwarz	101055	05/12/2024	Annual
Amp & Filter Bank Switch Controller	FBSM-01A	TNM system	0	N/A	N/A
Band Reject Filter	WRCJV2400/2483.5-2370/2520-60/12SS	Wainwright Instruments	2	01/05/2024	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	5	06/13/2023	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	6	06/13/2023	Annual
Band Reject Filter	WRCJV5100/5850-40/50-8EEK	Wainwright Instruments	1	02/09/2024	Annual
ATT(3 dB) + LNA2(6~18 GHz)	18B-03, CBL06185030	WEINSCHEL CERNEK	N/A	12/05/2023	Annual
ATT(10 dB) + LNA1(0.1~18 GHz)	56-10, CBLU1183540B-01	Api tech, CERNEK	N/A	12/05/2023	Annual
High Pass Filter	WHKX10-2700-3000-18000-40SS	Wainwright Instruments	N/A	12/05/2023	Annual
High Pass Filter	WHKX8-6090-7000-18000-40SS	Wainwright Instruments	N/A	12/05/2023	Annual
Thru	COAXIAL ATTENUATOR	T&M SYSTEM	N/A	12/05/2023	Annual
Power Amplifier	CBL18265035	CERNEK	22966	12/01/2023	Annual
Power Amplifier	CBL26405040	CERNEK	25956	03/02/2024	Annual
Bluetooth Tester	TC-3000C	TESCOM	3000C000175	03/28/2024	Annual
Spectrum Analyzer	FSP(9 kHz ~ 30 GHz)	Rohde & Schwarz	836650/016	09/06/2023	Annual
Spectrum Analyzer	FSVA40(10 Hz ~ 40 GHz)	Rohde & Schwarz	101502	03/17/2024	Annual
Spectrum Analyzer	FSW	Rohde & Schwarz	101736	05/17/2023	Annual

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Signal Analyzer	N9030A	Keysight	MY52350879	01/02/2024	Annual
HPF(3~18GHz)+LNA1(1~18GHz)	FMSR-05B	TNM system	F6	01/17/2024	Annual
ATT(10dB) + LNA1(1~18GHz)	FMSR -05B	TNM system	None	01/17/2024	Annual
ATT(3dB) + LNA1(1~18GHz)	FMSR -05B	TNM system	None	01/17/2024	Annual
LNA1(1~18GHz)	FMSR -05B	TNM system	25540	01/17/2024	Annual
HPF(7~18GHz)+LNA2(6~18GHz)	FMSR -05B	TNM system	28550	01/17/2024	Annual
Thru(30MHz ~ 18GHz)	FMSR -05B	TNM system	None	01/17/2024	Annual

Note:

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
3. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5(Version : 2017).