

EVALUATION REPORT

Applicant Name:
SAMSUNG Electronics Co., Ltd.

Date of Issue:
July 25, 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:	A3LSMX610
APPLICANT:	SAMSUNG Electronics Co., Ltd.

Equipment Class(es) : DSS, DTS, UNII, 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 A3LSMX616B 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
A3LSMX616B	DSS	[BT] Test Report [BT LE 5.3] Test Report	All sections
	DTS	[DTS] Test Report [DTS] 802.11ax Test Report	All sections
	NII	[UNII] Test Report_Rev.01	All sections
		[UNII] 802.11ax Test Report	See Note
	DCD	[Digitizer] Test Report_Rev.01	All sections

Note:

- All sections were reused except for the channels below.
(HE20: Ch.48, 100, 132/ HE40: Ch.46, 102, 134/ HE80: Ch.42, 106, 138)
- Above channels were tested because the target power was changed.



Report prepared by : Jeong Ho 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	July 25, 2023	Initial Release

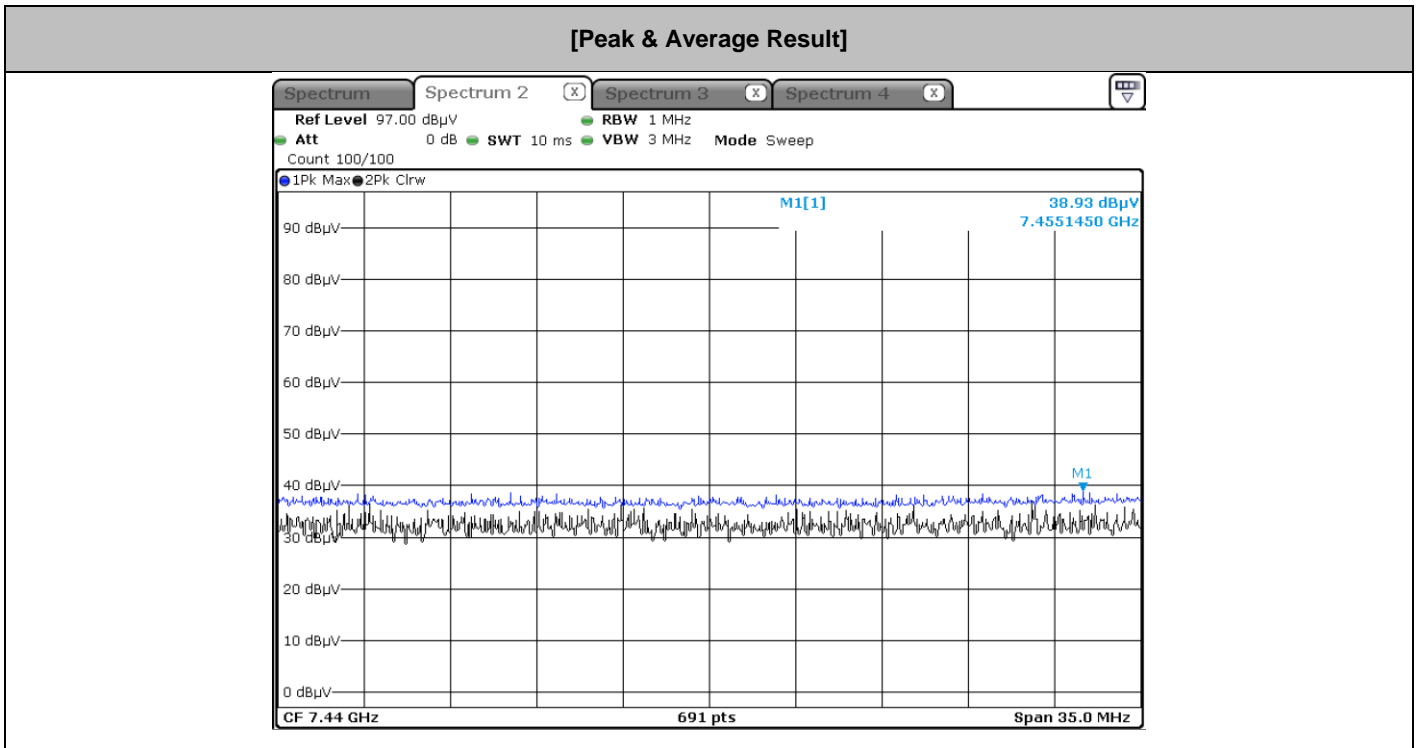
Appendix A. The Spot check test data

1. Summary of the spot check for Unlicensed EMC

Report	Test Item	Mod/Channel	Measured Frequency [MHz]	A3LSMX616B Result [dB μ V/m]		A3LSMX610 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	68.44	43.70	63.91	39.17	-4.53	-4.53
	RSE_Ant.1	2-DH5/ch.78	7440 MHz	51.30	26.56	51.26	26.52	-0.04	-0.04
DTS	Band Edge	802.11n(20M)_MCS8/ch.13	2483.5 MHz~2484.5 MHz (2484 MHz)	71.63	51.36	71.10	51.32	-0.53	-0.04
	RSE (Ant.ALL)	802.11b 1 Mbps/ch.11	7386 MHz	51.01	38.75	51.30	39.26	0.29	0.51
DTS (ax)	Band Edge	802.11HE20(26T_R U8)_MCS0/ch.13	2483.5 MHz~2500 MHz(Integ)	64.71	51.50	65.02	50.93	0.31	-0.57
	RSE (Ant. ALL)	802.11HE20(SU)_MCS0/ch.11	7386 MHz	50.91	39.07	50.88	39.16	-0.03	0.09
BT(LE)	Band Edge_Ant.1	LE 2M 255 byte/ch.39	2483.5 MHz~2500 MHz	69.56	51.60	69.04	51.24	-0.52	-0.36
	RSE_Ant.1	LE 1M 37 byte/ch.39	7440 MHz	51.76	39.30	51.52	39.18	-0.24	-0.12
UNII	Band Edge (Avg)	802.11ac(80M)_MCS0/ch.106	5350 MHz~5460 MHz	-	51.79	-	50.99	-	-0.80
	Band Edge (Peak)	802.11ac(80M)_MCS0/ch.106	5460 MHz ~ 5470 MHz	66.09	-	65.63	-	-0.46	-
	RSE (Ant.ALL)	802.11a_6 Mbps/ch.165	11650 MHz	51.63	39.05	51.67	39.24	0.04	0.19
UNII (ax)	Band Edge (Avg)	802.11 HE40(SU)_MCS0/ch.62	5350 MHz ~ 5460 MHz	-	50.77	-	49.83	-	-0.94
	Band Edge (Peak)	802.11 HE40(SU)_MCS0/ch.102	5460 MHz ~ 5470 MHz	64.77	-	63.19	-	-1.58	-
	RSE (Ant. ALL)	802.11ax HE20(SU)_MCS0/ch.165	17475 MHz	57.79	-	57.85	-	0.06	-
DBS	RSE BT_Ant.1	DH5/ch.78	4960 MHz	61.20	36.47	60.00	35.27	-1.20	-1.20
	RSE 5G_Ant.2	802.11a(20M)_6 Mbps/ch.165	11650 MHz	51.30	38.18	52.06	38.35	0.76	0.17
Digitizer	Field Strength	Fundamental (S-pen digitizer Writing)	562.2 kHz	7.34	-	7.11	-	-0.23	-
	RSE	S-pen digitizer Writing	1.705 MHz ~ 30 MHz	-2.23	-	-2.49	-	-0.26	-

BT R.S.E Harmonic(2-DH5/ch.78_ Ant.1)

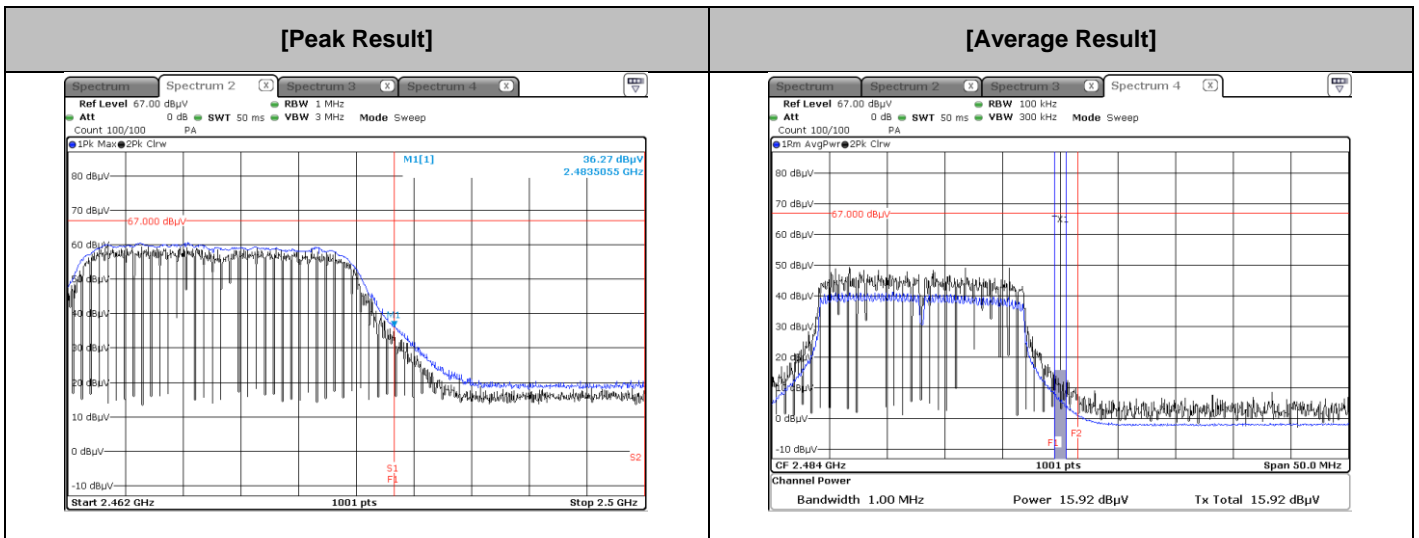
Frequency [MHz]	Measured Value [dBμV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Duty Cycle Correction [dB]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4960	42.57	4.80	H	0.00	47.37	73.98	26.61	PK
4960	42.57	4.80	H	-24.73	22.64	53.98	31.34	AV
7440	38.93	12.33	H	0.00	51.26	73.98	22.72	PK
7440	38.93	12.33	H	-24.73	26.52	53.98	27.46	AV
4960	41.88	4.80	V	0.00	46.68	73.98	27.30	PK
4960	41.88	4.80	V	-24.73	21.95	53.98	32.03	AV
7440	37.69	12.33	V	0.00	50.02	73.98	23.96	PK
7440	37.69	12.33	V	-24.73	25.28	53.98	28.70	AV



DTS Band Edge (802.11n(20M)_ MCS8/ch.13)

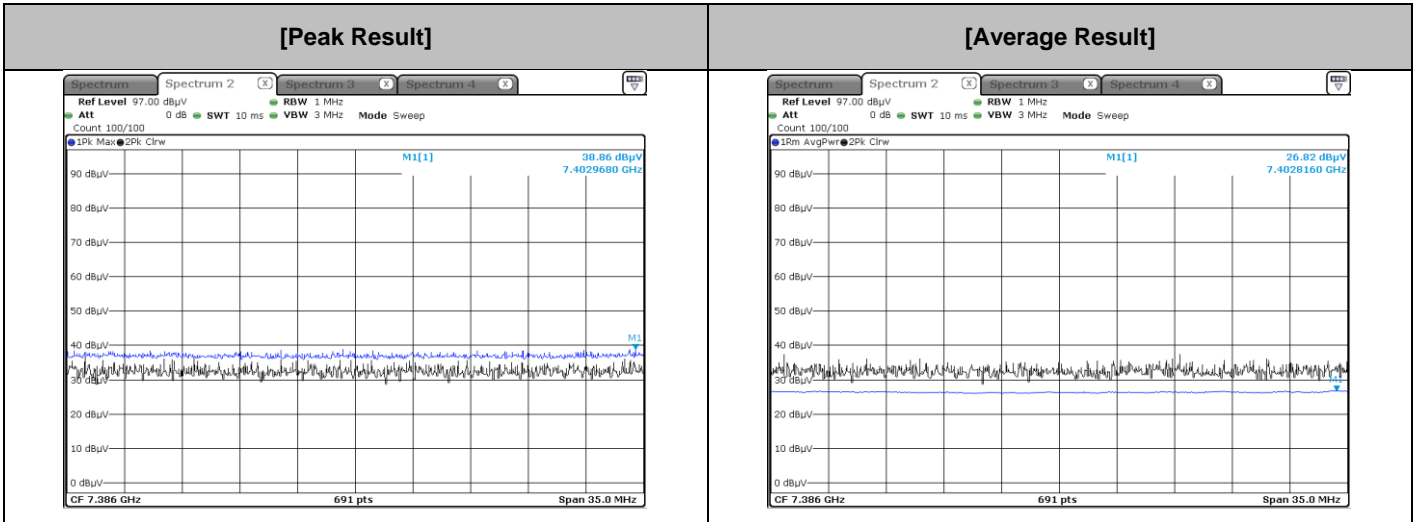
Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor[dB]	A.F+C.L+D.F [dB/m]	ANT. POL. [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	36.27	0.00	34.83	H	71.10	73.98	2.89	PK
#2483.5~2484.5	15.92	0.57	34.83	H	51.32	53.98	2.67	AV
2484.5	14.77	0.57	34.83	H	50.17	53.98	3.82	AV
2483.5	35.35	0.00	34.83	V	70.18	73.98	3.81	PK
#2483.5~2484.5	15.02	0.57	34.83	V	50.42	53.98	3.57	AV
2484.5	14.02	0.57	34.83	V	49.42	53.98	4.57	AV

Note : integration method Used (ANSI C63.10 Section11.13.3)



DTS R.S.E Harmonic(802.11b_1 Mbps/ch.11_ Ant. ALL)

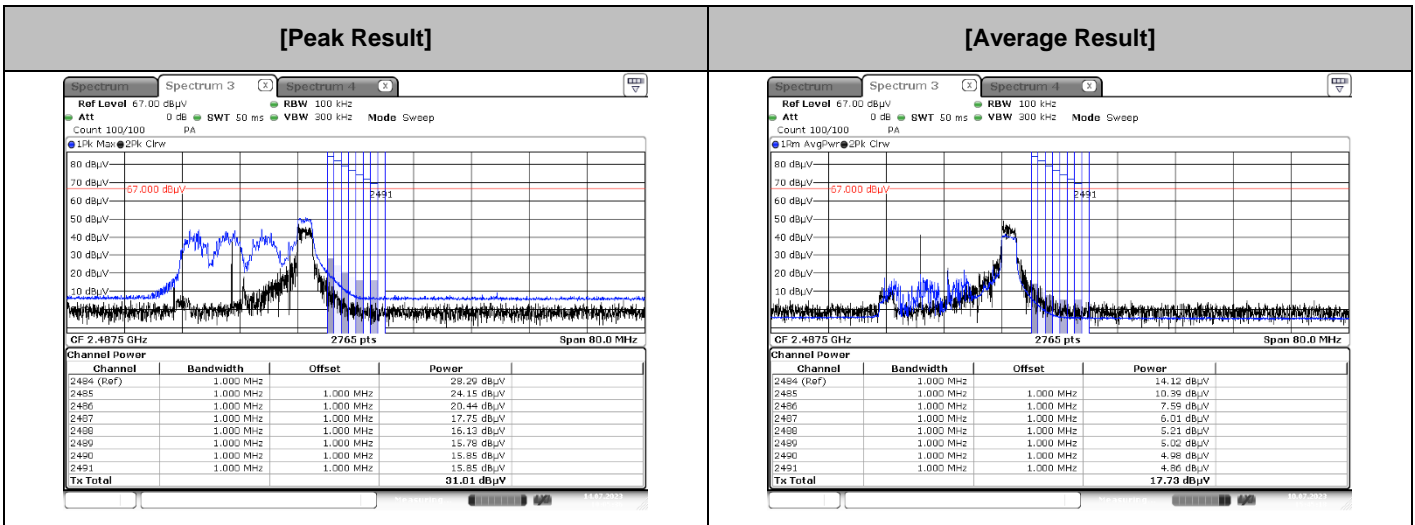
Frequency [MHz]	Measured Value [dBμV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4924	42.62	4.84	H	47.46	73.98	26.52	PK
4924	31.03	4.84	H	35.87	53.98	18.11	AV
7386	38.86	12.44	H	51.30	73.98	22.68	PK
7386	26.82	12.44	H	39.26	53.98	14.72	AV
4924	41.91	4.84	V	46.75	73.98	27.23	PK
4924	30.24	4.84	V	35.08	53.98	18.90	AV
7386	38.10	12.44	V	50.54	73.98	23.44	PK
7386	26.03	12.44	V	38.47	53.98	15.51	AV



DTS ax Band Edge (802.11HE20(26T_RU8)_ MCS0/ch.13)

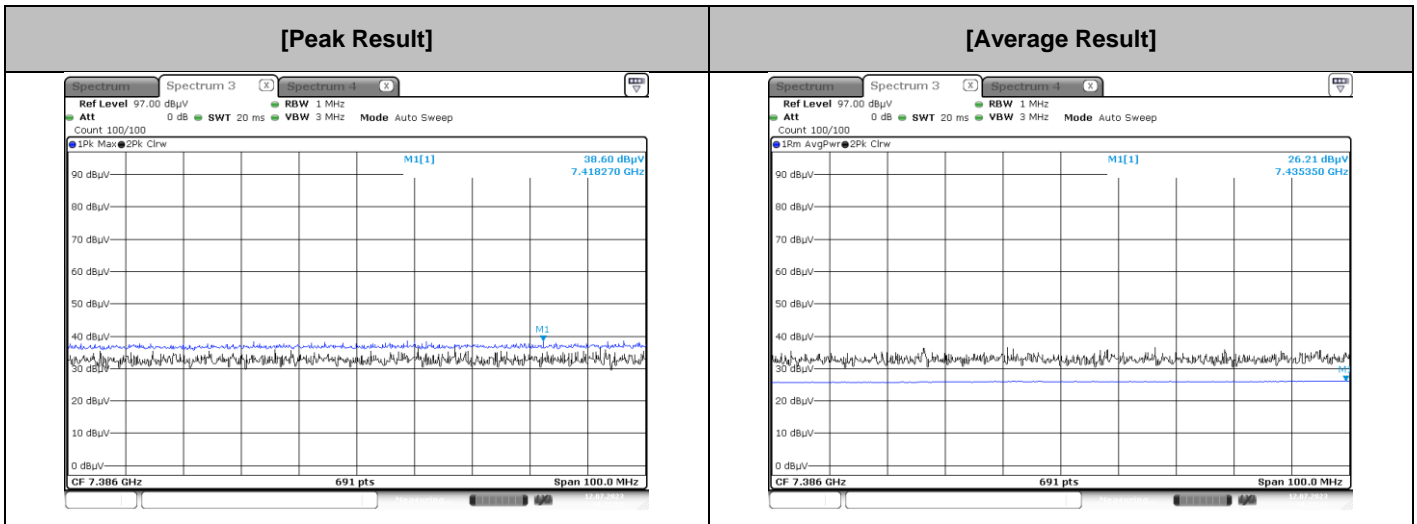
Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor[dB]	A.F.+CL+ ATT-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
#2483.5	28.29	0.00	36.73	H	65.02	73.98	8.96	PK
#2483.5	14.12	0.08	36.73	H	50.93	53.98	3.05	AV
#2483.5	27.58	0.00	36.73	V	64.31	73.98	9.67	PK
#2483.5	13.99	0.08	36.73	V	50.80	53.98	3.18	AV

Note : integration method Used (ANSI C63.10 Section11.13.3)



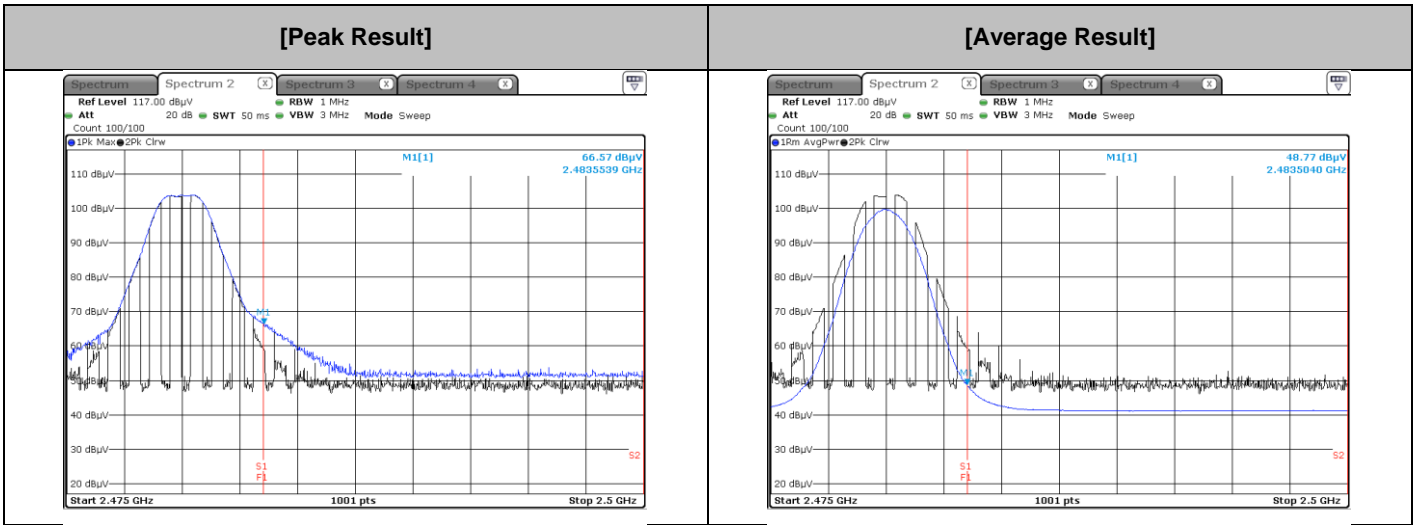
DTS ax R.S.E Harmonic(802.11HE20(SU)_ MCS0/ch.11_ Ant. ALL)

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor[dB]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4924	41.21	0.00	4.14	V	45.35	73.98	28.63	PK
4924	29.15	0.67	4.14	V	33.96	53.98	20.02	AV
7386	38.60	0.00	12.28	V	50.88	73.98	23.10	PK
7386	26.21	0.67	12.28	V	39.16	53.98	14.82	AV
4924	41.31	0.00	4.14	H	45.45	73.98	28.53	PK
4924	29.19	0.67	4.14	H	34.00	53.98	19.98	AV
7386	38.55	0.00	12.28	H	50.83	73.98	23.15	PK
7386	26.05	0.67	12.28	H	39.00	53.98	14.98	AV



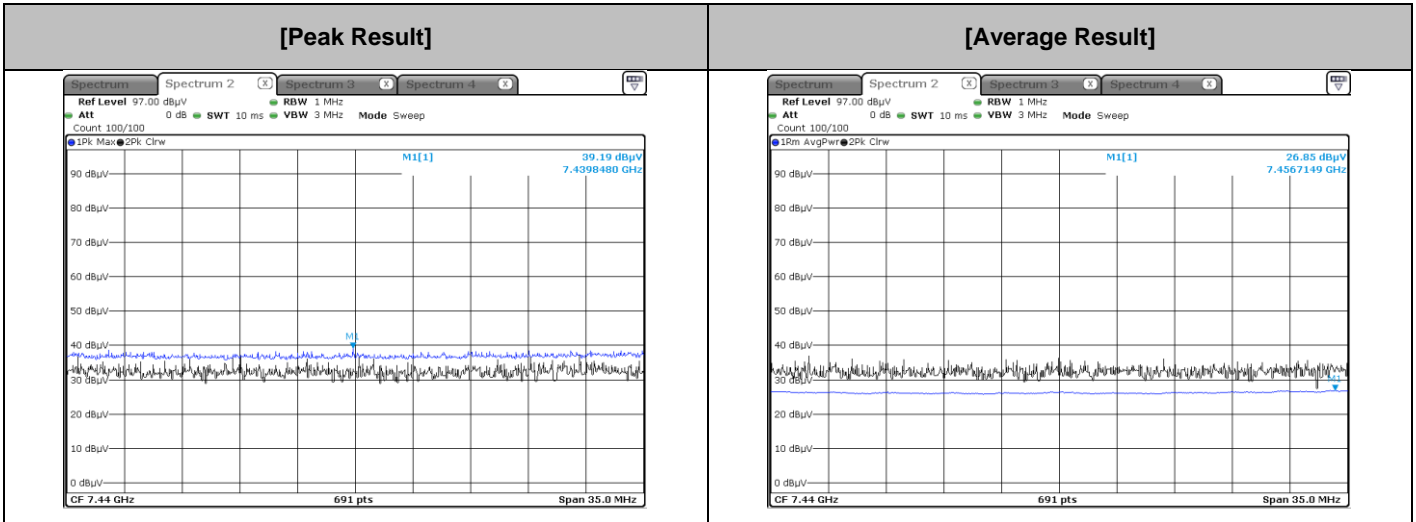
BT LE Band Edge (2M 255 byte/ch.39_ Ant.1)

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor[dB]	A.F+C.L+ATT -A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
2483.5	66.57	0.00	2.47	H	69.04	73.98	4.95	PK
2483.5	48.77	0.00	2.47	H	51.24	53.98	2.74	AV
2483.5	66.19	0.00	2.47	V	68.66	73.98	5.33	PK
2483.5	47.62	0.00	2.47	V	50.09	53.98	3.90	AV



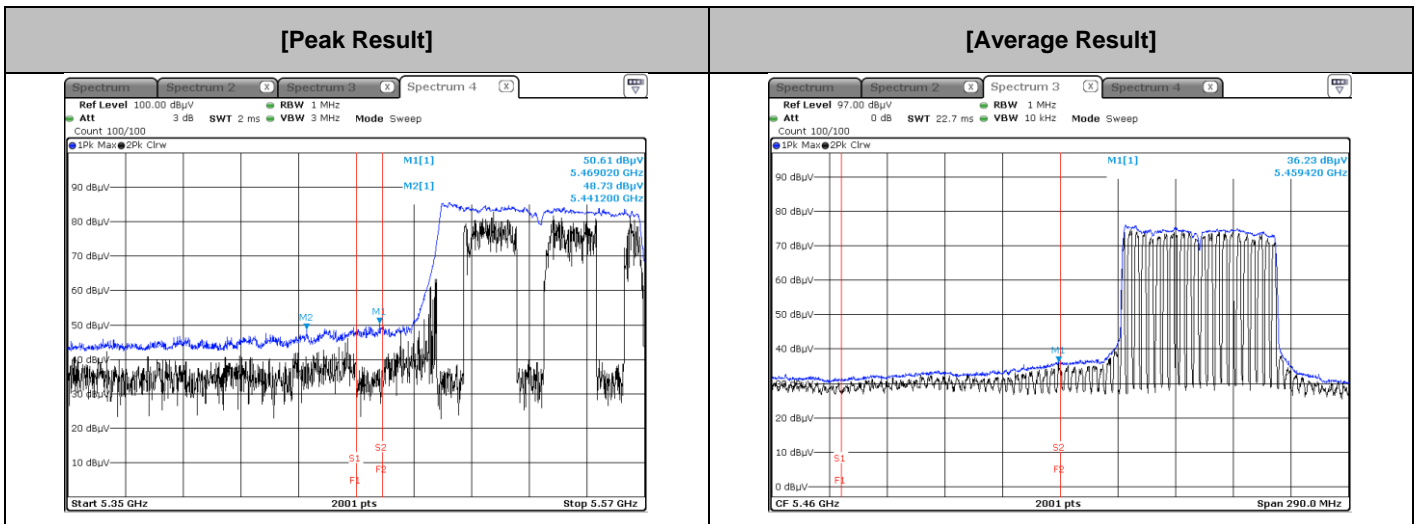
BT LE R.S.E Harmonic(1M 37 byte/ch.39_Ant..1)

Frequency [MHz]	Measured Value [dBμV]	Duty Cycle Factor[dB]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4960	43.79	0.00	4.80	H	48.59	73.98	25.39	PK
4960	31.13	0.00	4.80	H	35.93	53.98	18.05	AV
7440	39.19	0.00	12.33	H	51.52	73.98	22.46	PK
7440	26.85	0.00	12.33	H	39.18	53.98	14.80	AV
4960	42.77	0.00	4.80	V	47.57	73.98	26.41	PK
4960	30.92	0.00	4.80	V	35.72	53.98	18.26	AV
7440	38.92	0.00	12.33	V	51.25	73.98	22.73	PK
7440	26.77	0.00	12.33	V	39.10	53.98	14.88	AV



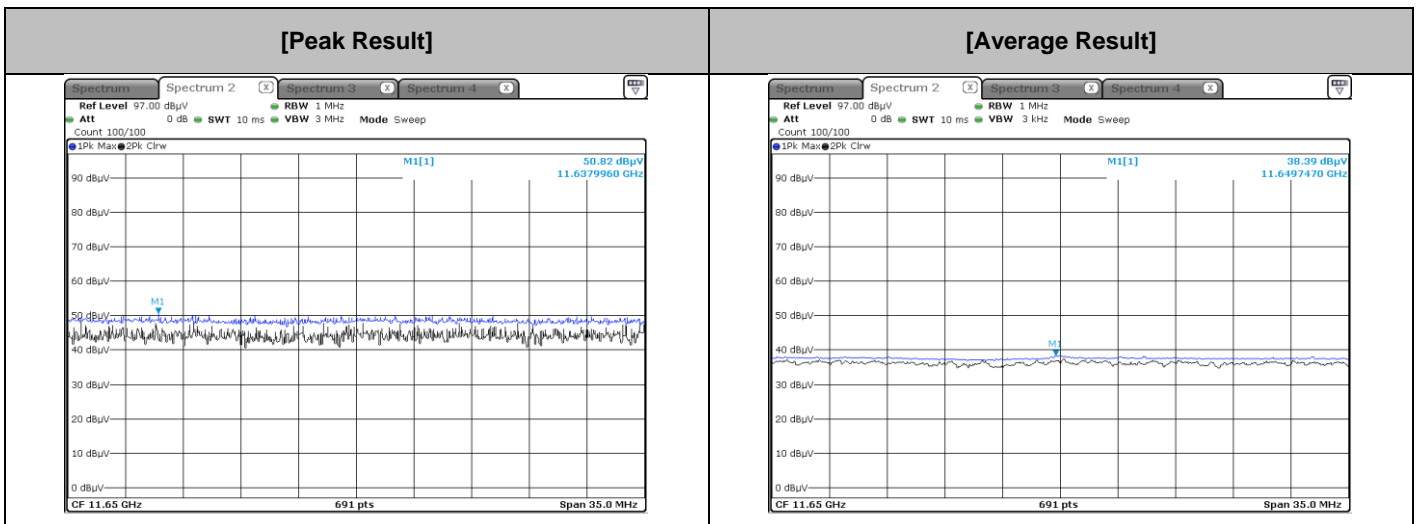
UNII Band Edge (802.11ac(80M)_ MCS0/ch.106)

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF -AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	48.73	14.76	H	63.49	73.98	10.49	PK
5460	36.23	14.76	H	50.99	53.98	2.99	AV
5470	50.61	15.02	H	65.63	68.20	2.57	PK
5460	48.59	14.76	V	63.35	73.98	10.63	PK
5460	35.63	14.76	V	50.39	53.98	3.59	AV
5470	49.92	15.02	V	64.94	68.20	3.26	PK



UNII R.S.E Harmonic(802.11a_ 6 Mbps/ch.165_ Ant. ALL)

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11650	50.82	0.85	V	51.67	73.98	22.31	PK
11650	38.39	0.85	V	39.24	53.98	14.74	AV
17475	48.68	2.45	V	51.13	68.20	17.07	PK
11650	49.55	0.85	H	50.40	73.98	23.58	PK
11650	37.56	0.85	H	38.41	53.98	15.57	AV
17475	47.62	2.45	H	50.07	68.20	18.13	PK



UNII ax Band Edge (802.11 HE40(SU)_MCS0/ch.62)

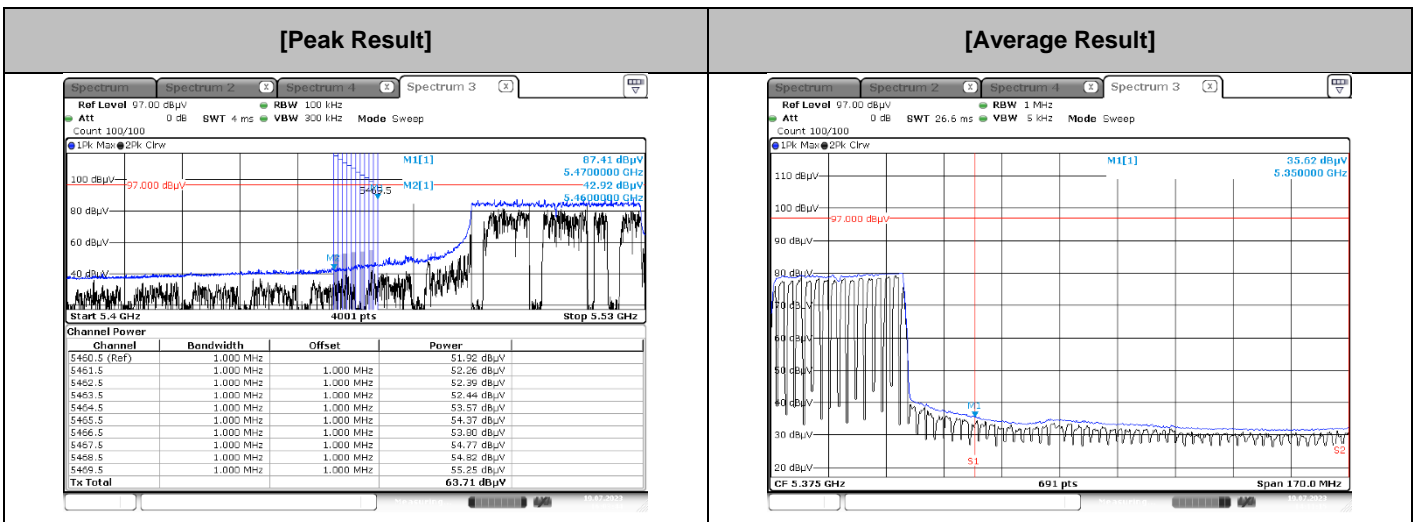
Average

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF -AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350	51.36	14.21	H	65.57	73.98	8.41	PK
5350	35.62	14.21	H	49.83	53.98	4.15	AV
5350	51.01	14.21	V	65.22	73.98	8.76	PK
5350	35.12	14.21	V	49.33	53.98	4.65	AV

UNII ax Band Edge (802.11 HE40(SU)_MCS0/ch.102)

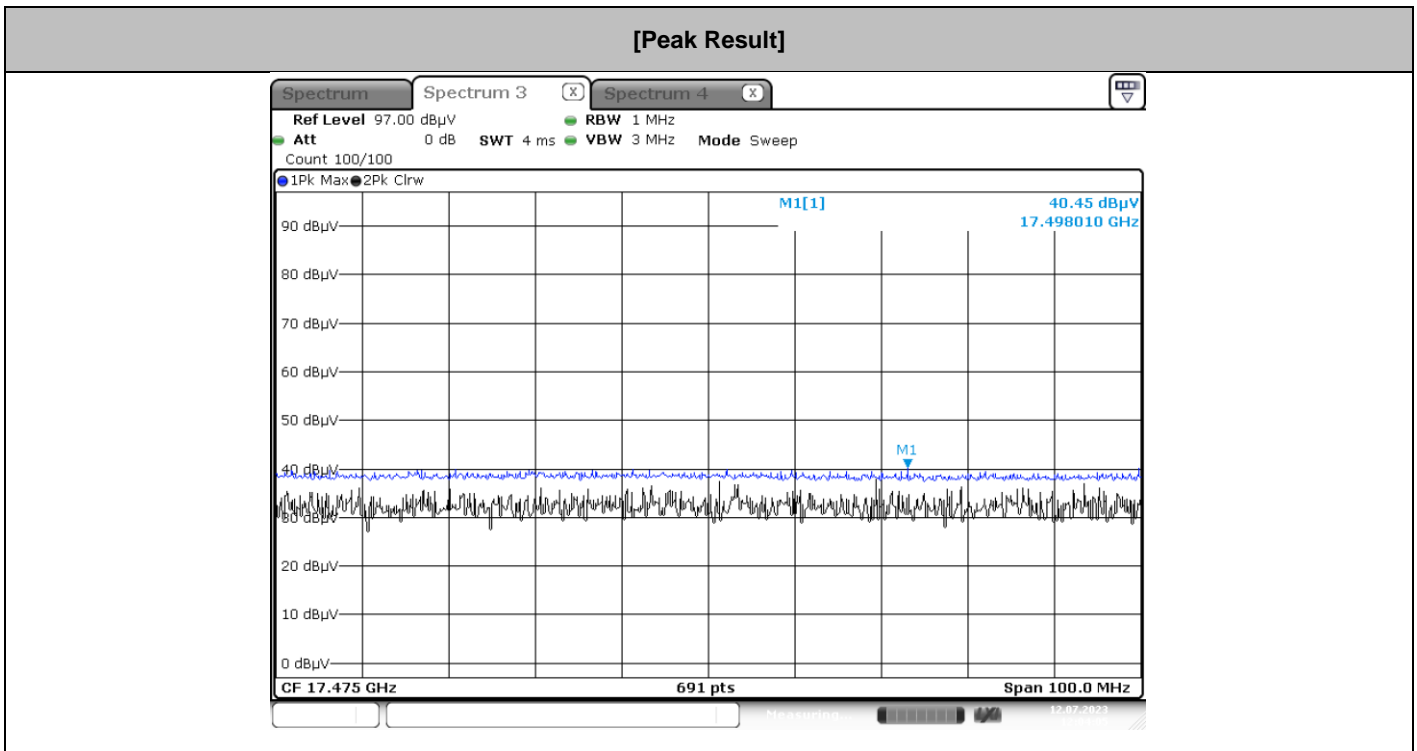
Peak

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF -AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	57.02	7.99	H	65.01	73.98	8.97	PK
5460	40.17	7.99	H	48.16	53.98	5.82	AV
# 5470	55.25	7.94	H	63.19	68.20	5.01	PK
5460	56.85	7.99	V	64.84	73.98	9.14	PK
5460	39.95	7.99	V	47.94	53.98	6.04	AV
# 5470	54.75	7.94	V	62.69	68.20	5.51	PK



UNII ax R.S.E Harmonic(802.11ax HE20(SU)_MCS0/ch.165_ Ant. ALL)

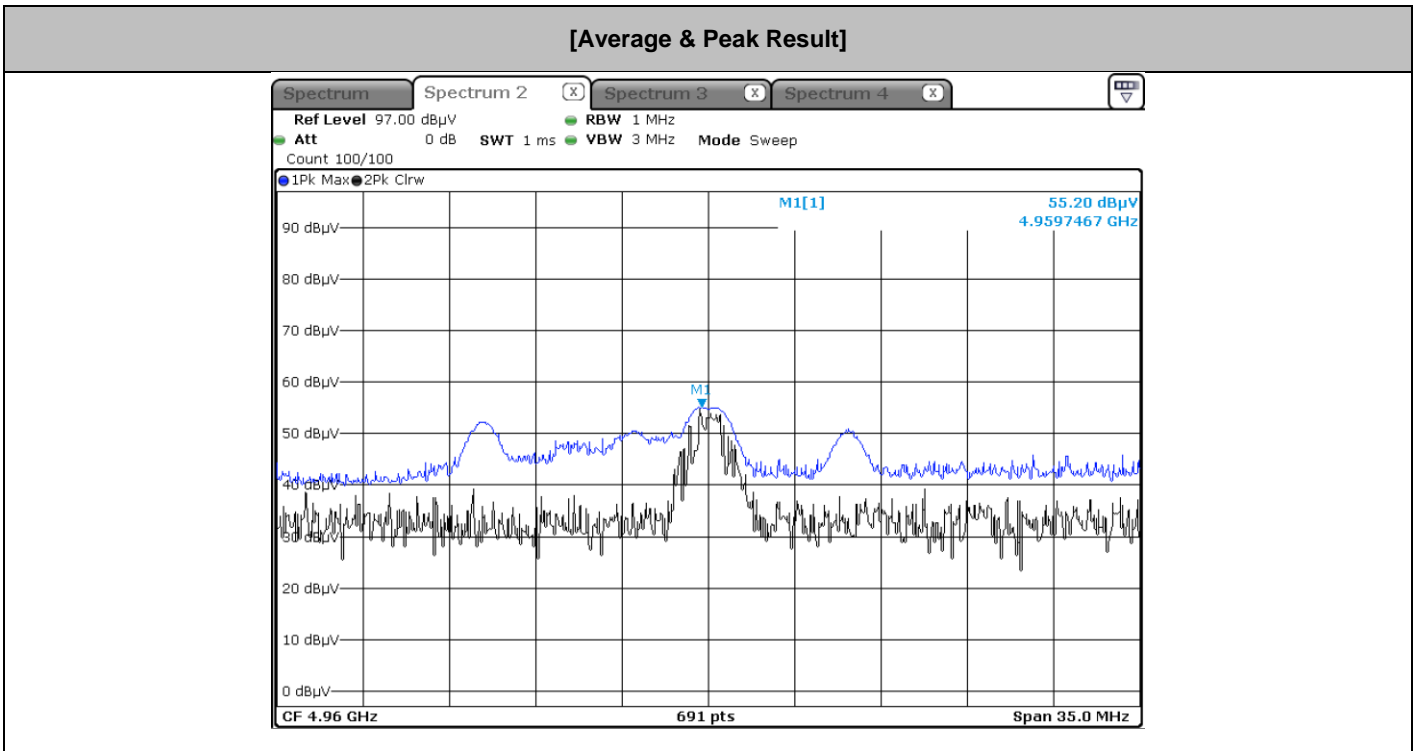
Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11650	42.02	10.07	V	52.09	73.98	21.89	PK
11650	29.31	10.07	V	39.38	53.98	14.60	AV
17475	40.45	17.40	V	57.85	68.20	10.35	PK
11650	41.98	10.07	H	52.05	73.98	21.93	PK
11650	29.22	10.07	H	39.29	53.98	14.69	AV
17475	40.22	17.40	H	57.62	68.20	10.58	PK



DBS R.S.E BT (802.11a(20M)_Ant..2_6 Mbps_ch.165 + BT Ant..1_DH5_ch.78)

Frequency [MHz]	Measured Value [dBμV]	A.F+C.L-A.G+D.F [dB/m]	ANT. POL [H/V]	Duty Cycle Correction [dB]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4960	55.20	4.80	H	0.00	60.00	73.98	13.98	PK
4960	55.20	4.80	H	-24.73	35.27	53.98	18.71	AV
7440	38.90	12.33	H	0.00	51.23	73.98	22.75	PK
7440	38.90	12.33	H	-24.73	26.49	53.98	27.49	AV
4960	54.11	4.80	V	0.00	58.91	73.98	15.07	PK
4960	54.11	4.80	V	-24.73	34.18	53.98	19.80	AV
7440	38.07	12.33	V	0.00	50.40	73.98	23.58	PK
7440	38.07	12.33	V	-24.73	25.66	53.98	28.32	AV

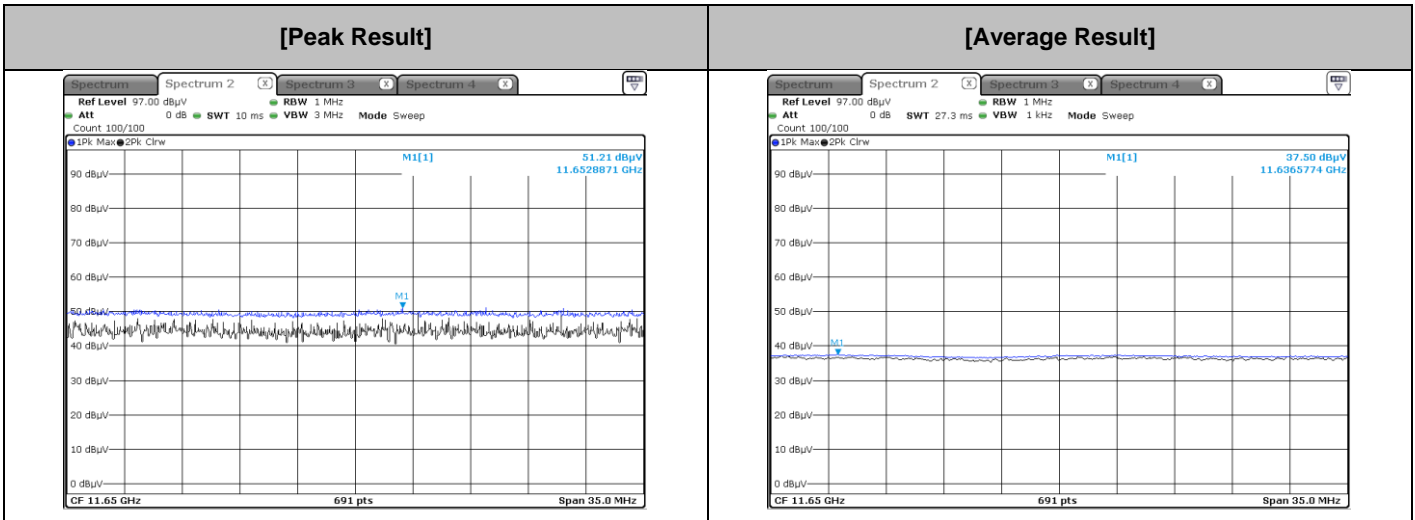
■ Test Plot



DBS R.S.E UNII (802.11a(20M)_Ant..2_6 Mbps_ch.165 + BT Ant..1_DH5_ch.78)

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	Pol. [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11650	51.21	0.85	V	52.06	73.98	21.92	PK
11650	37.50	0.85	V	38.35	53.98	15.63	AV
17475	48.66	2.45	V	51.11	68.20	17.09	PK
11650	50.92	0.85	H	51.77	73.98	22.21	PK
11650	35.02	0.85	H	35.87	53.98	18.11	AV
17475	47.31	2.45	H	49.76	68.20	18.44	PK

■ Test Plot

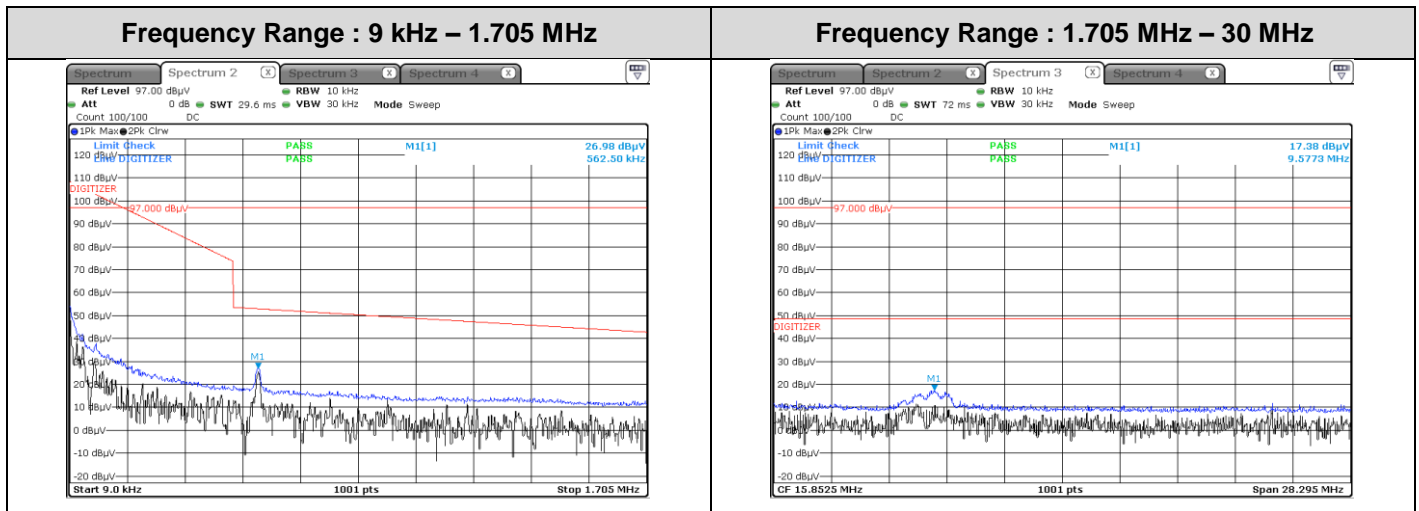


WPT Fundamental(S-pen digitizer Writing)

Fundamental

Frequency (kHz)	Reading Level (dB μ V/m)@3m	Ant.Factor (dB/m)	Cable Loss (dB)	Distance Correction (dB)	Result Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
562.2	26.98	19.50	0.63	-40.00	7.11	32.61	25.50
9436	17.38	19.50	0.63	-40.00	-2.49	29.54	32.03

Test Plot



3. List of test equipment

Radiated Test

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	EM1000	Audix	060520	N/A	N/A
Turn Table	N/A	Audix	N/A	N/A	N/A
Loop Antenna	FMZB 1513	Rohde & Schwarz	1513-333	03/17/2024	Biennial
Hybrid Antenna	VULB 9168	Schwarzbeck	760	02/24/2025	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	02299	03/24/2024	Biennial
Horn Antenna (15GHz ~ 40 GHz)	BBHA9170	Schwarzbeck	BBHA9170342	09/29/2024	Biennial
Spectrum Analyzer	FSV40	Rohde & Schwarz	100901	03/27/2024	Annual
Signal Analyzer	N9030A	Agilent	MY52350879	01/02/2024	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	5	06/12/2024	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	6	06/12/2024	Annual
Band Reject Filter	WRCJV2400/2483.5-2370/2520-60/12SS	Wainwright Instruments	2	01/05/2024	Annual
Band Reject Filter	WRCJV5100/5850-40/50-8EEK	Wainwright Instruments	1	02/09/2024	Annual
RF Switching System	FMSR-04B (3G HPF+LNA)	T&M SYSTEM	S2L1	16/01/2024	Annual
RF Switching System	FMSR-04B (10dB ATT+LNA)	T&M SYSTEM	S2L2	16/01/2024	Annual
RF Switching System	FMSR-04B (3dB ATT+LNA)	T&M SYSTEM	S2L3	16/01/2024	Annual
RF Switching System	FMSR-04B (LNA)	T&M SYSTEM	S2L4	16/01/2024	Annual
RF Switching System	FMSR-04B (7G HPF+LNA)	T&M SYSTEM	S2L5	16/01/2024	Annual
Power Amplifier	CBL18265035	CERNEX	22966	12/01/2023	Annual
Power Amplifier	CBL26405040	CERNEX	25956	03/02/2024	Annual
Amp & Filter Bank Switch Controller	FBSM-01B	T&M system	TM19050002	N/A	N/A
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

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Spectrum Analyzer	FSV(10 Hz ~ 40 GHz)	Rohde & Schwarz	101055	05/12/2024	Annual
High Pass Filter(7 GHz ~ 18 GHz)	WHKX10-7150-8000-18000-50SS	Wainwright Instruments	1	03/02/2024	Annual
Bluetooth Tester	TC-3000C	TESCOM	3000C000175	03/28/2024	Annual
RF Switching System	FMSR-05B (HPF(3~18GHz) + LNA1(1~18GHz))	T&M system	S1L1	01/17/2024	Annual
RF Switching System	FMSR -05B (ATT(10dB) + LNA1(1~18GHz))	T&M system	S1L2	01/17/2024	Annual
RF Switching System	FMSR -05B (ATT(3dB) + LNA1(1~18GHz))	T&M system	S1L3	01/17/2024	Annual
RF Switching System	FMSR -05B (LNA1(1~18GHz))	T&M system	S1L4	01/17/2024	Annual
RF Switching System	FMSR -05B (HPF(7~18GHz) + LNA2(6~18GHz))	T&M system	S1L5	01/17/2024	Annual
RF Switching System	FMSR -05B (Thru(30MHz ~ 18GHz))	T&M system	S1L6	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).