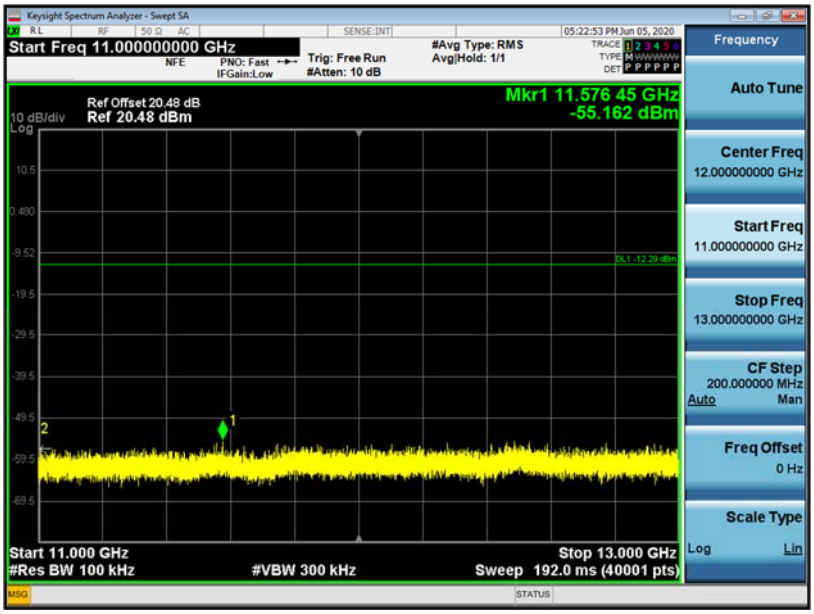
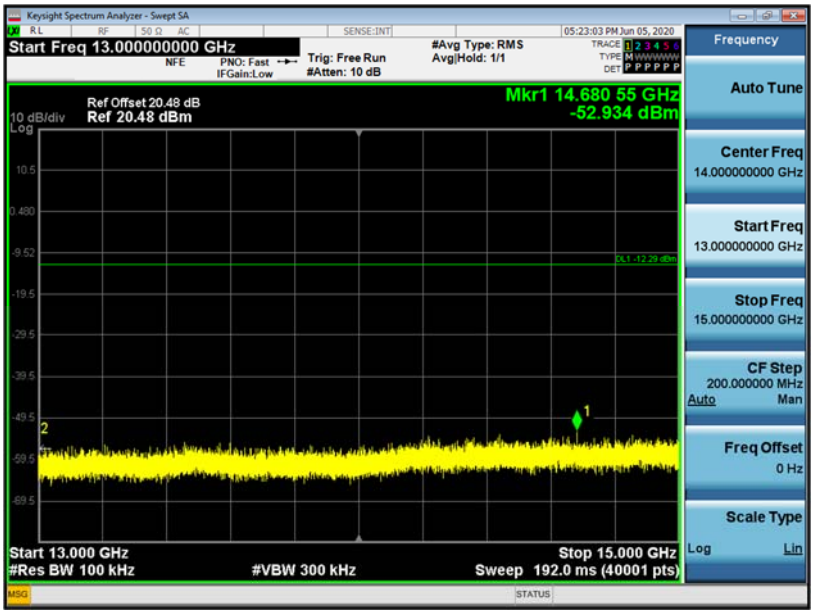
11 GHz ~ 13 GHz

Conducted Spurious Emission (High-CH 39)



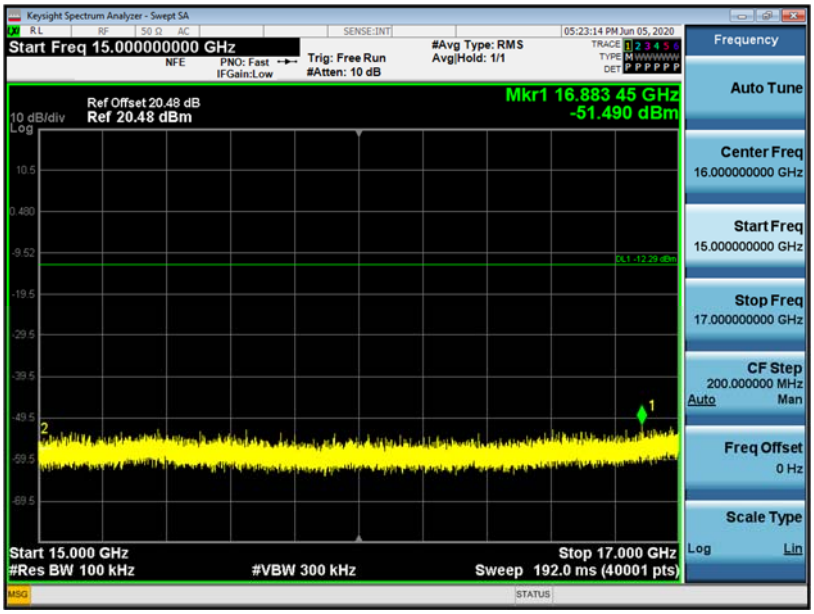
13 GHz ~ 15 GHz

Conducted Spurious Emission (High-CH 39)



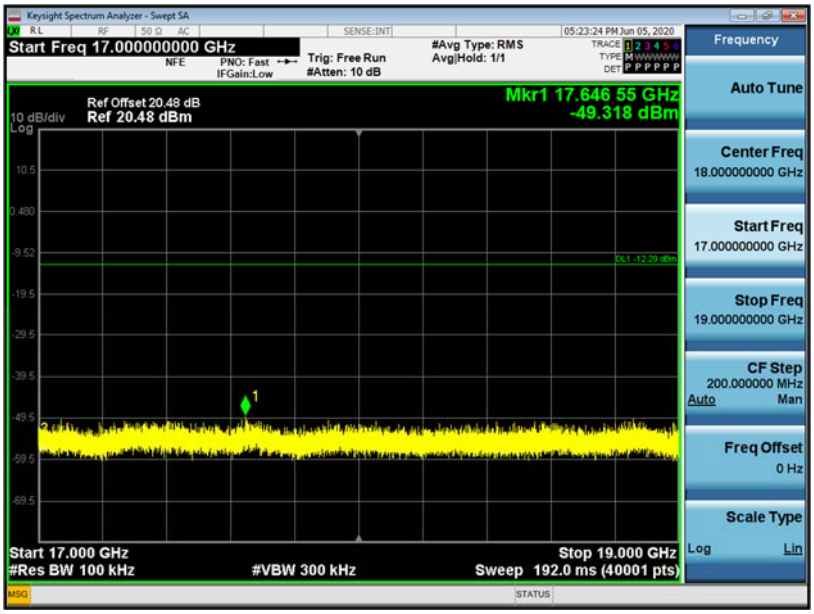
15 GHz ~ 17 GHz

Conducted Spurious Emission (High-CH 39)



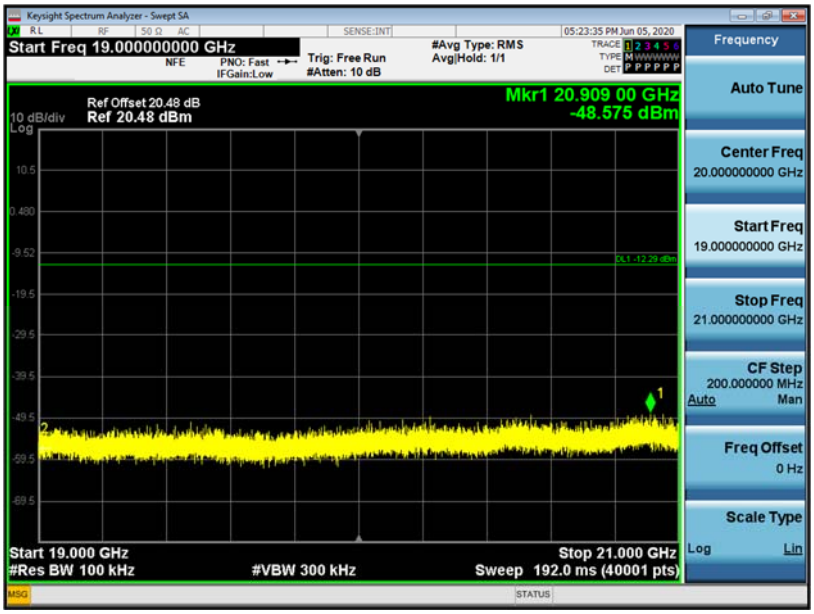
17 GHz ~ 19 GHz

Conducted Spurious Emission (High-CH 39)



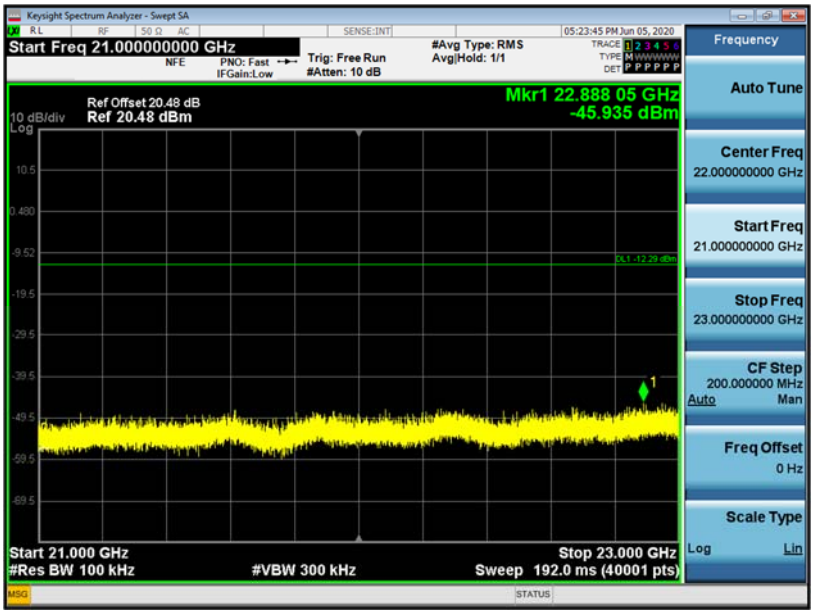
19 GHz ~ 21 GHz

Conducted Spurious Emission (High-CH 39)



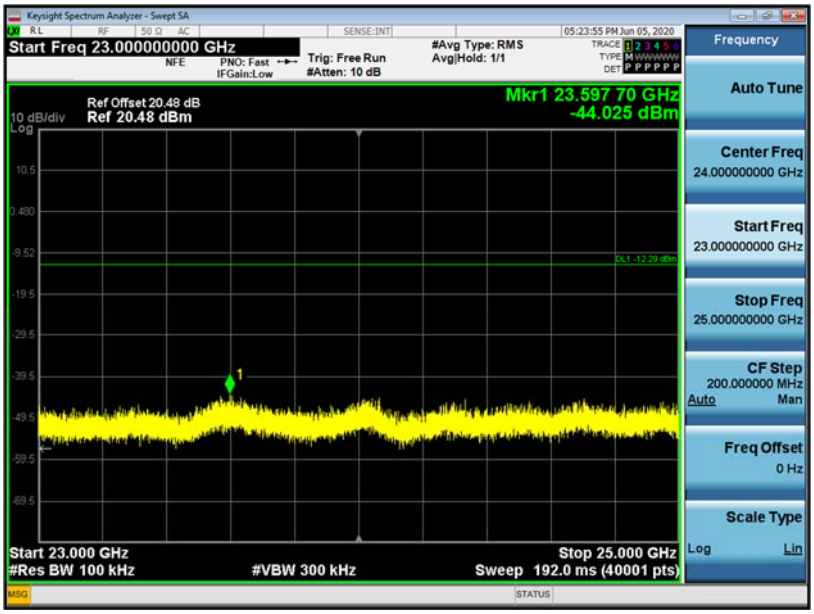
21 GHz ~ 23 GHz

Conducted Spurious Emission (High-CH 39)



23 GHz ~ 25 GHz

Conducted Spurious Emission (High-CH 39)



▣ 2M Bit/s (255 Byte) Test Plots -BandEdge

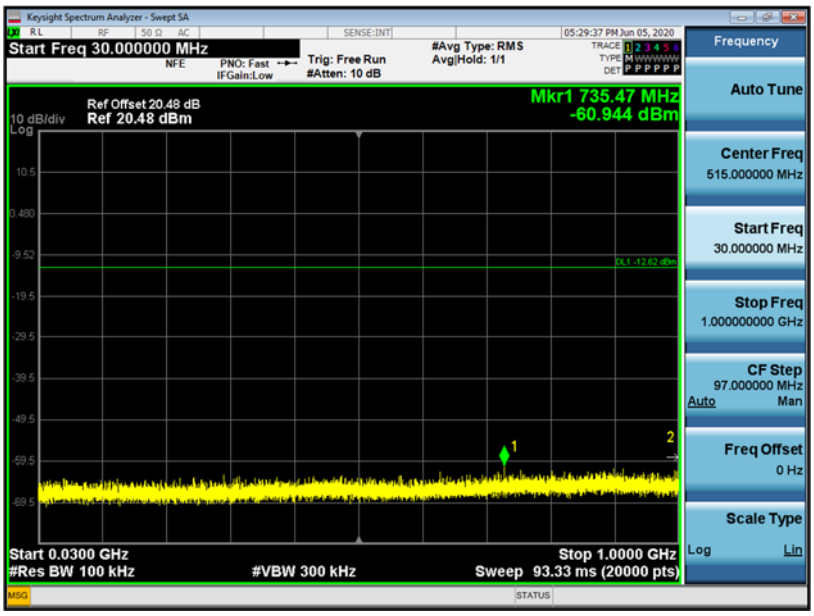
Low-CH 0

High-CH 39

▣ 2M Bit/s (255 Byte) Test Plots -Conducted Spurious Emission

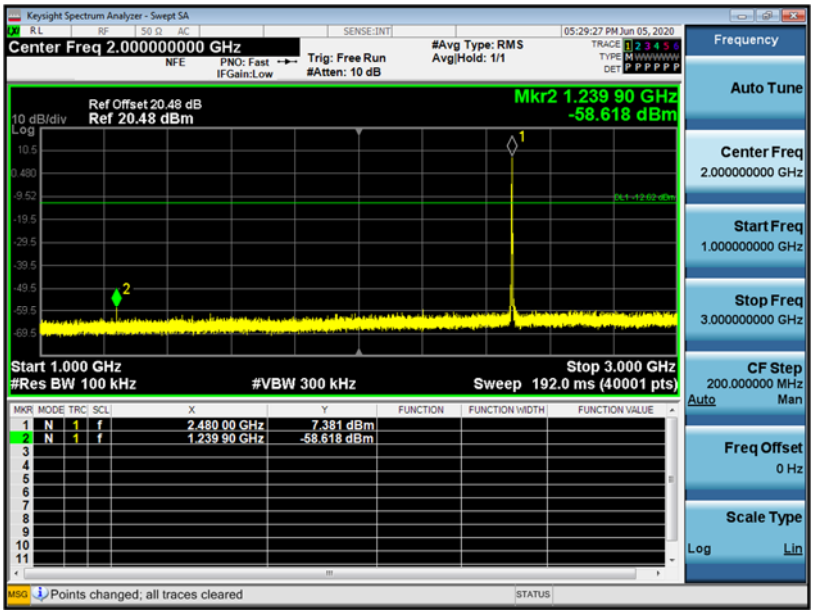
30 MHz ~ 1 GHz

Conducted Spurious Emission (High-CH 39)



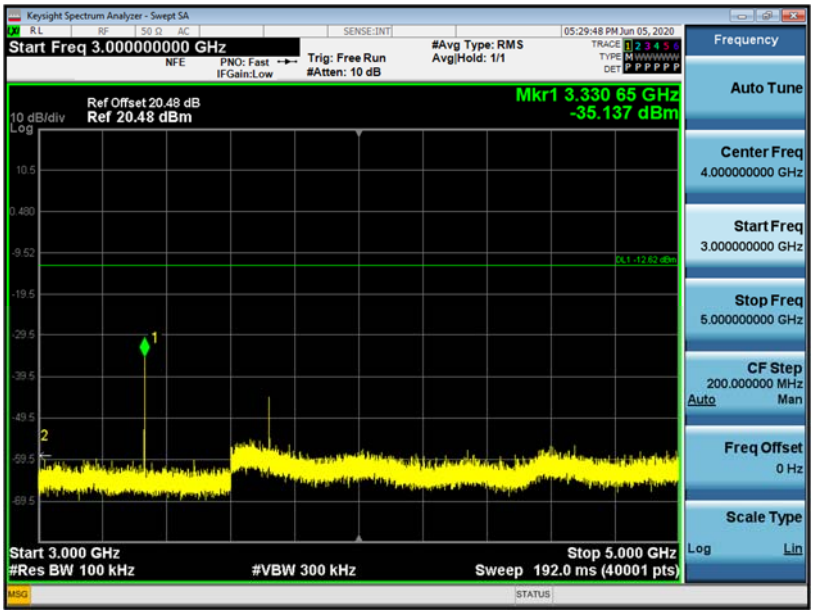
1 GHz ~ 3 GHz

Conducted Spurious Emission (High-CH 39)



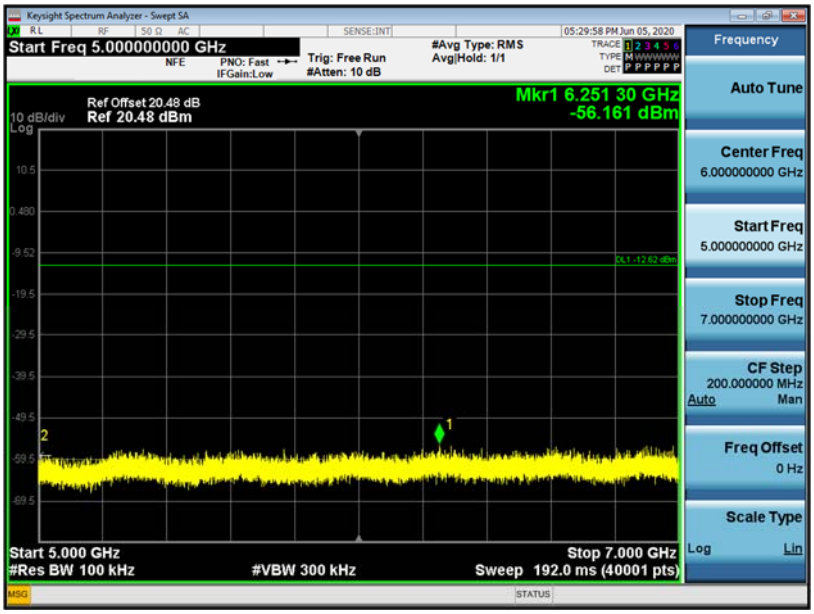
3 GHz ~ 5 GHz

Conducted Spurious Emission (High-CH 39)



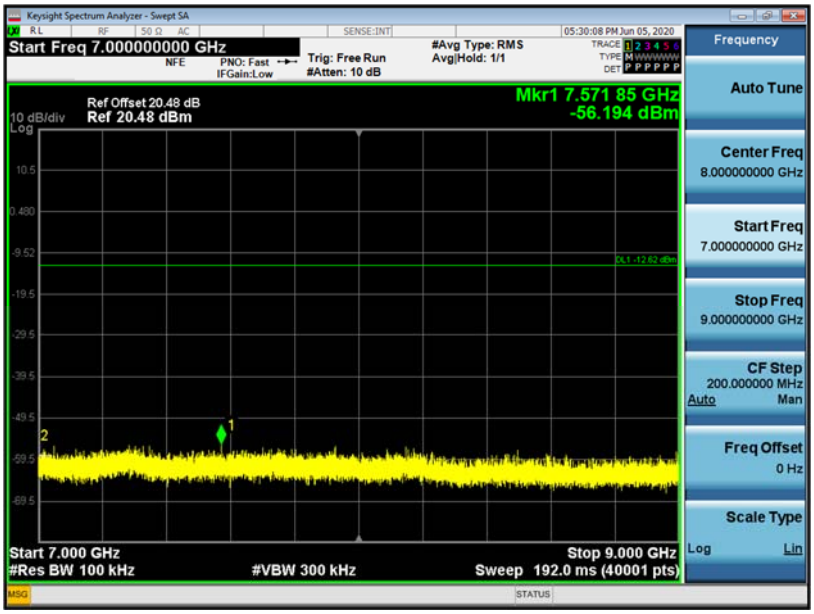
5 GHz ~ 7 GHz

Conducted Spurious Emission (High-CH 39)



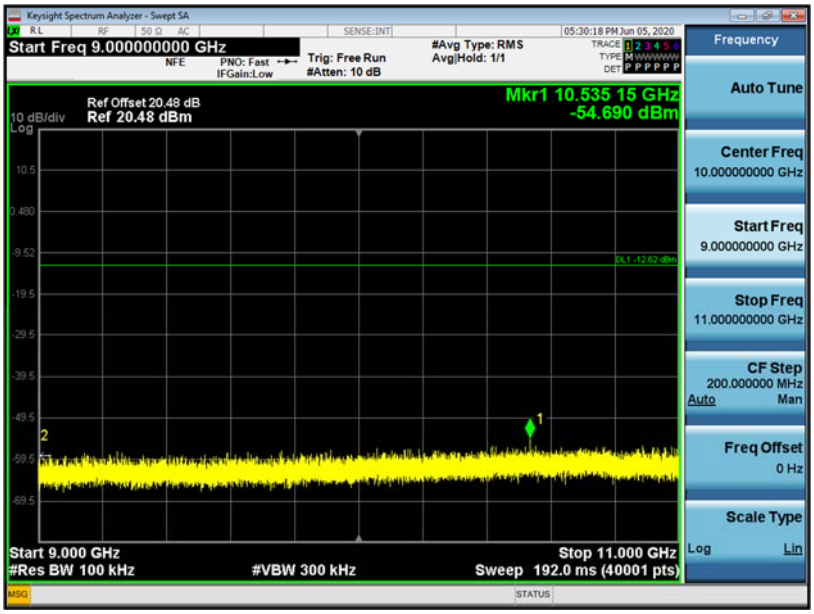
7 GHz ~ 9 GHz

Conducted Spurious Emission (High-CH 39)



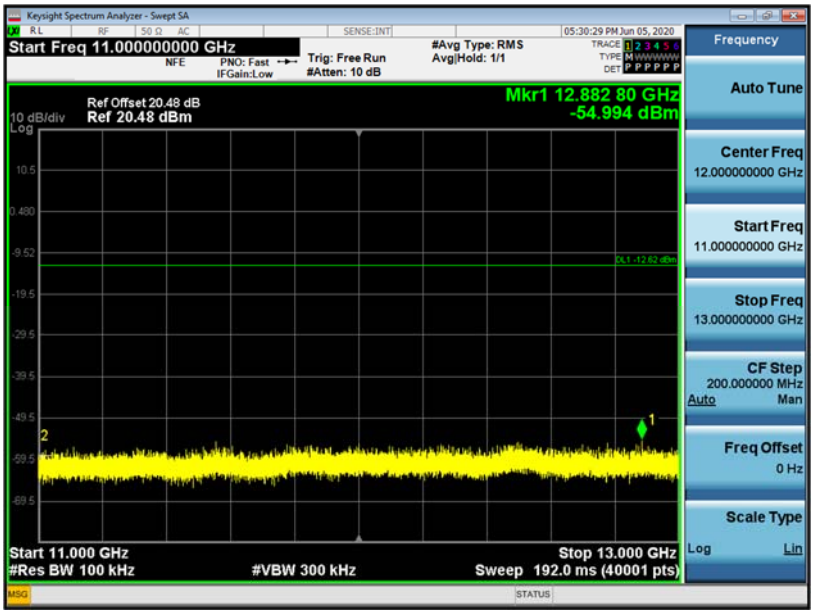
9 GHz ~ 11 GHz

Conducted Spurious Emission (High-CH 39)



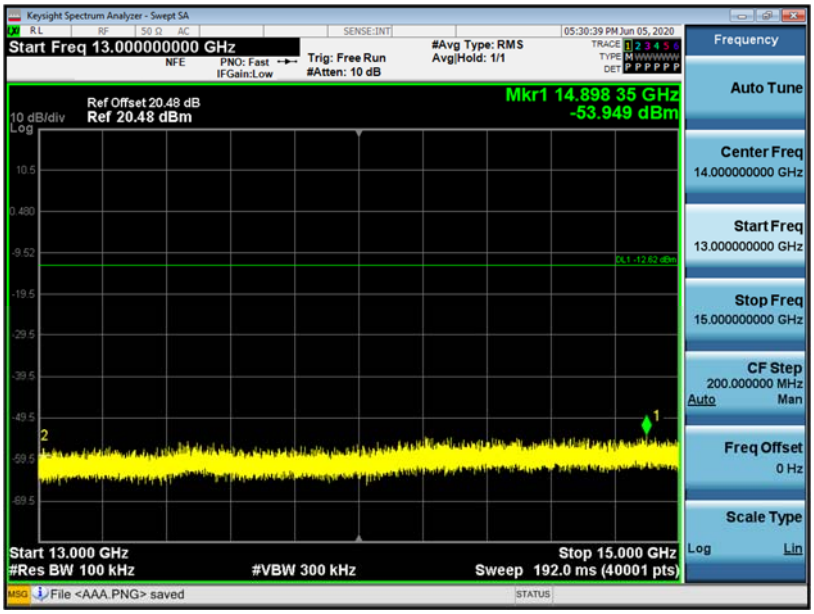
11 GHz ~ 13 GHz

Conducted Spurious Emission (High-CH 39)



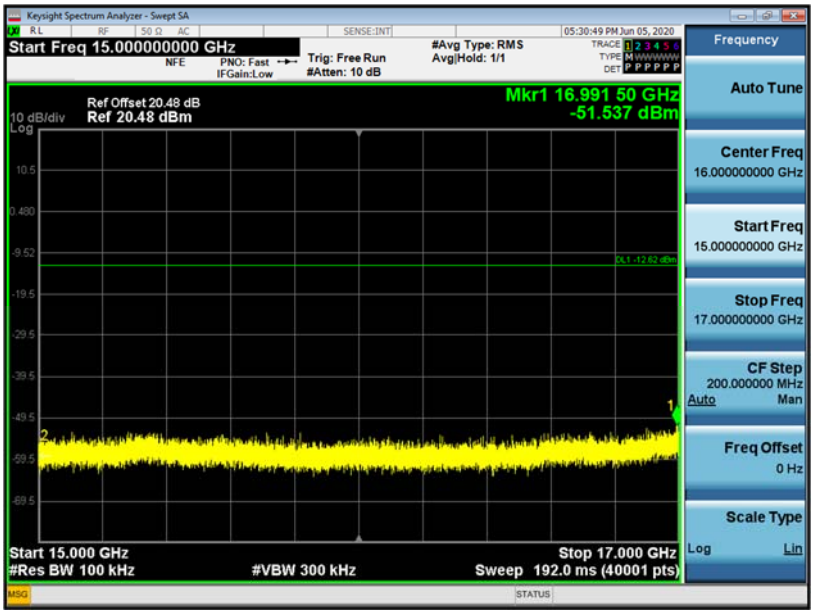
13 GHz ~ 15 GHz

Conducted Spurious Emission (High-CH 39)



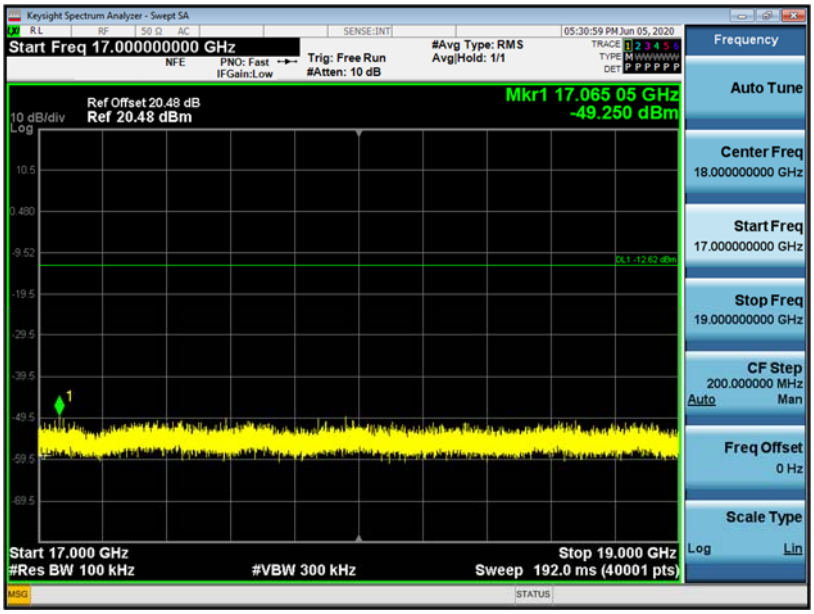
15 GHz ~ 17 GHz

Conducted Spurious Emission (High-CH 39)



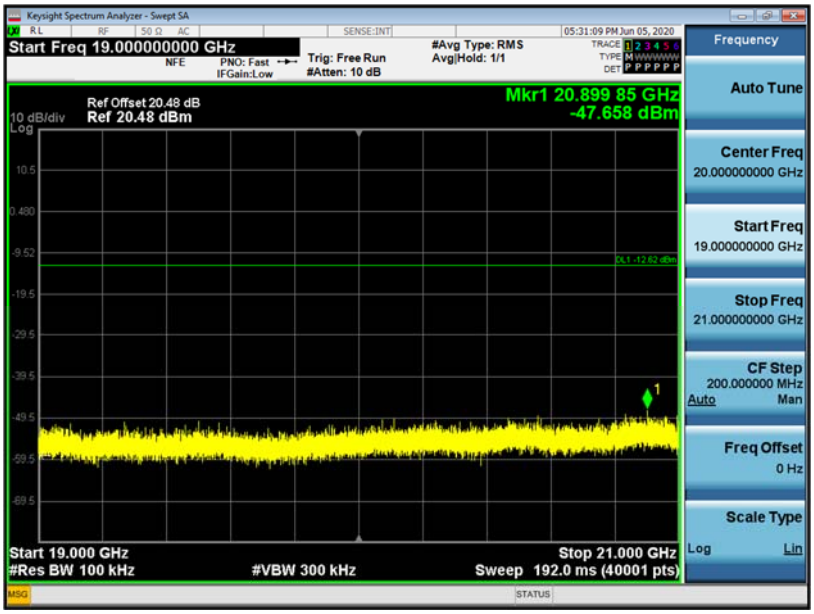
17 GHz ~ 19 GHz

Conducted Spurious Emission (High-CH 39)



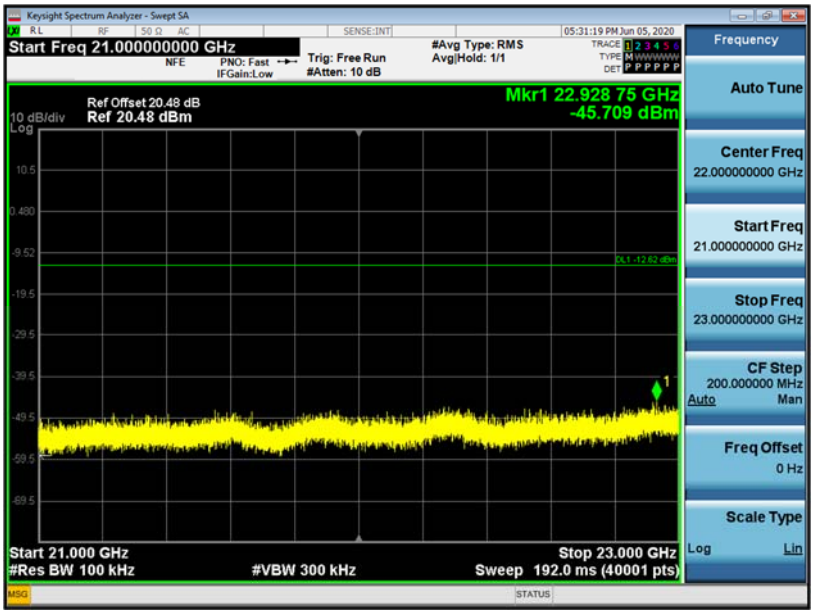
19 GHz ~ 21 GHz

Conducted Spurious Emission (High-CH 39)



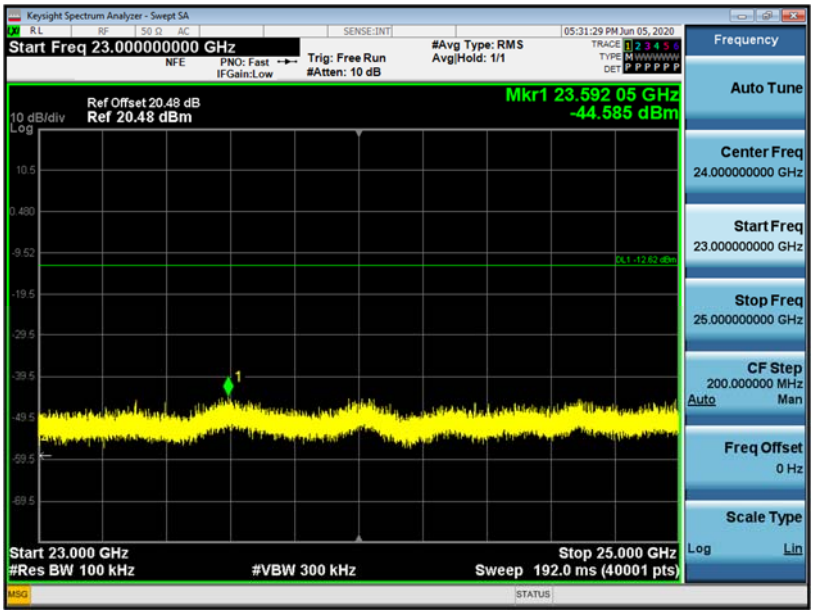
21 GHz ~ 23 GHz

Conducted Spurious Emission (High-CH 39)



23 GHz ~ 25 GHz

Conducted Spurious Emission (High-CH 39)



9.6 RADIATED SPURIOUS EMISSIONS

Frequency Range : 9 kHz – 30MHz

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBuV/m	dBm/m	dBm	(H/V)	dBuV/m	dBuV/m	dB
No Critical peaks found							

Note:

1. The reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
2. Distance extrapolation factor = 40log (specific distance / test distance) (dB)
3. Limit line = specific Limits (dBuV) + Distance extrapolation factor
4. Radiated test is performed with hopping off.

Frequency Range : Below 1 GHz

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBuV/m	dBm/m	dBm	(H/V)	dBuV/m	dBuV/m	dB
No Critical peaks found							

Note:

1. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.

Frequency Range : Above 1 GHz

Mode : 500k Bit/s (255 Byte)

Operation Mode: CH Low

Frequency [MHz]	Reading [dBuV]	Duty Cycle Correction [dB]	AN.+CL-AMP G [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	44.96	0.00	2.17	V	47.13	73.98	26.85	PK
4804	34.05	0.71	2.17	V	36.93	53.98	17.05	AV
7206	44.28	0.00	8.97	V	53.25	73.98	20.73	PK
7206	34.69	0.71	8.97	V	44.37	53.98	9.61	AV
4804	43.85	0.00	2.17	H	46.02	73.98	27.96	PK
4804	33.89	0.71	2.17	H	36.77	53.98	17.21	AV
7206	44.45	0.00	8.97	H	53.42	73.98	20.56	PK
7206	35.99	0.71	8.97	H	45.67	53.98	8.31	AV

Operation Mode: CH Mid

Frequency [MHz]	Reading [dBuV]	Duty Cycle Correction [dB]	AN.+CL-AMP G [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4880	43.59	0.00	2.66	V	46.25	73.98	27.73	PK
4880	32.04	0.71	2.66	V	35.41	53.98	18.57	AV
7320	43.91	0.00	9.04	V	52.95	73.98	21.03	PK
7320	35.32	0.71	9.04	V	45.07	53.98	8.91	AV
4880	43.18	0.00	2.66	H	45.84	73.98	28.14	PK
4880	32.00	0.71	2.66	H	35.37	53.98	18.61	AV
7320	44.04	0.00	9.04	H	53.08	73.98	20.90	PK
7320	35.96	0.71	9.04	H	45.71	53.98	8.27	AV

Operation Mode: CH High

Frequency [MHz]	Reading [dBuV]	Duty Cycle Correction [dB]	AN.+CL-AMP G [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	42.55	0.00	1.54	V	44.09	73.98	29.89	PK
4960	31.28	0.71	1.54	V	33.53	53.98	20.45	AV
7440	42.99	0.00	9.82	V	52.81	73.98	21.17	PK
7440	33.87	0.71	9.82	V	44.40	53.98	9.58	AV
4960	43.46	0.00	1.54	H	45.00	73.98	28.98	PK
4960	31.98	0.71	1.54	H	34.23	53.98	19.75	AV
7440	43.67	0.00	9.82	H	53.49	73.98	20.49	PK
7440	34.08	0.71	9.82	H	44.61	53.98	9.37	AV

Mode : 2M Bit/s (255 Byte)

Operation Mode: CH Low

Frequency [MHz]	Reading [dBuV]	Duty Cycle Correction [dB]	AN.+CL-AMP G [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	44.61	0.00	2.17	V	46.78	73.98	27.20	PK
4804	32.54	2.45	2.17	V	37.16	53.98	16.82	AV
7206	43.46	0.00	8.97	V	52.43	73.98	21.55	PK
7206	33.29	2.45	8.97	V	44.71	53.98	9.27	AV
4804	45.07	0.00	2.17	H	47.24	73.98	26.74	PK
4804	32.71	2.45	2.17	H	37.33	53.98	16.65	AV
7206	43.55	0.00	8.97	H	52.52	73.98	21.46	PK
7206	33.60	2.45	8.97	H	45.02	53.98	8.96	AV

Operation Mode: CH Mid

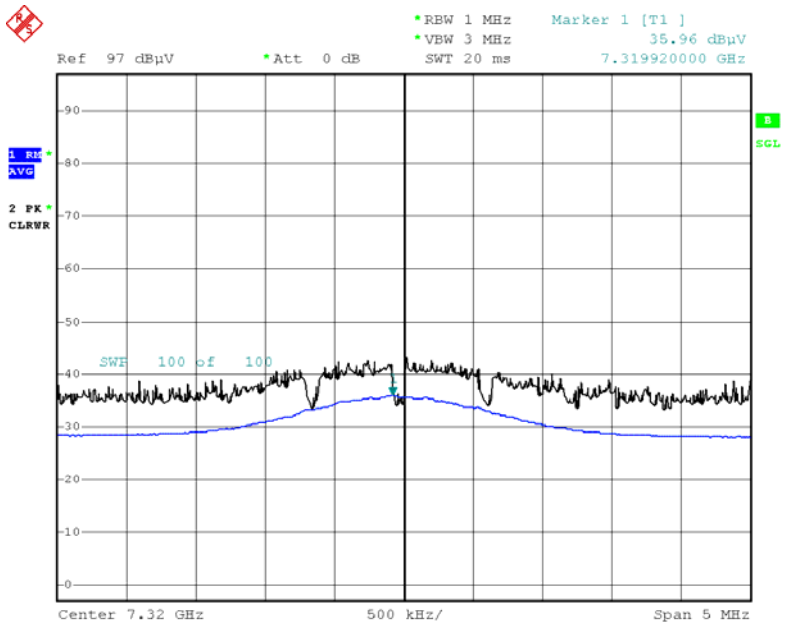
Frequency [MHz]	Reading [dBuV]	Duty Cycle Correction [dB]	AN.+CL-AMP G [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4880	42.53	0.00	2.66	V	45.19	73.98	28.79	PK
4880	30.99	2.45	2.66	V	36.10	53.98	17.88	AV
7320	43.81	0.00	9.04	V	52.85	73.98	21.13	PK
7320	33.16	2.45	9.04	V	44.65	53.98	9.33	AV
4880	43.64	0.00	2.66	H	46.30	73.98	27.68	PK
4880	30.97	2.45	2.66	H	36.08	53.98	17.90	AV
7320	43.90	0.00	9.04	H	52.94	73.98	21.04	PK
7320	33.32	2.45	9.04	H	44.81	53.98	9.17	AV

Operation Mode: CH High

Frequency [MHz]	Reading [dBuV]	Duty Cycle Correction [dB]	AN.+CL-AMP G [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	43.26	0.00	1.54	V	44.80	73.98	29.18	PK
4960	31.00	2.45	1.54	V	34.99	53.98	18.99	AV
7440	42.34	0.00	9.82	V	52.16	73.98	21.82	PK
7440	31.42	2.45	9.82	V	43.69	53.98	10.29	AV
4960	42.68	0.00	1.54	H	44.22	73.98	29.76	PK
4960	30.86	2.45	1.54	H	34.85	53.98	19.13	AV
7440	42.31	0.00	9.82	H	52.13	73.98	21.85	PK
7440	32.46	2.45	9.82	H	44.73	53.98	9.25	AV

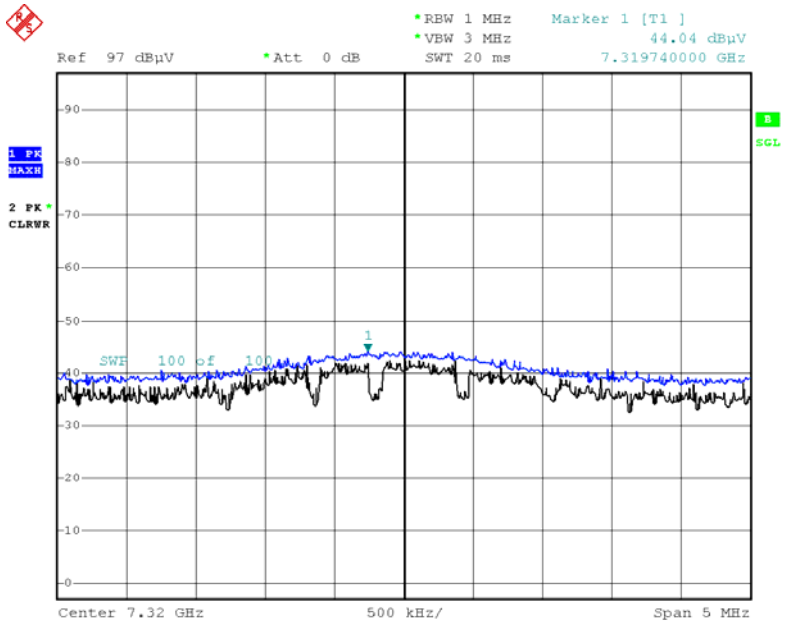
▣ 500k Bit/s (255 Byte) Test Plots (Worst case : X-H)

Radiated Spurious Emissions plot – Average Reading (Ch.19 3rd Harmonic)



Date: 8.JUN.2020 13:46:42

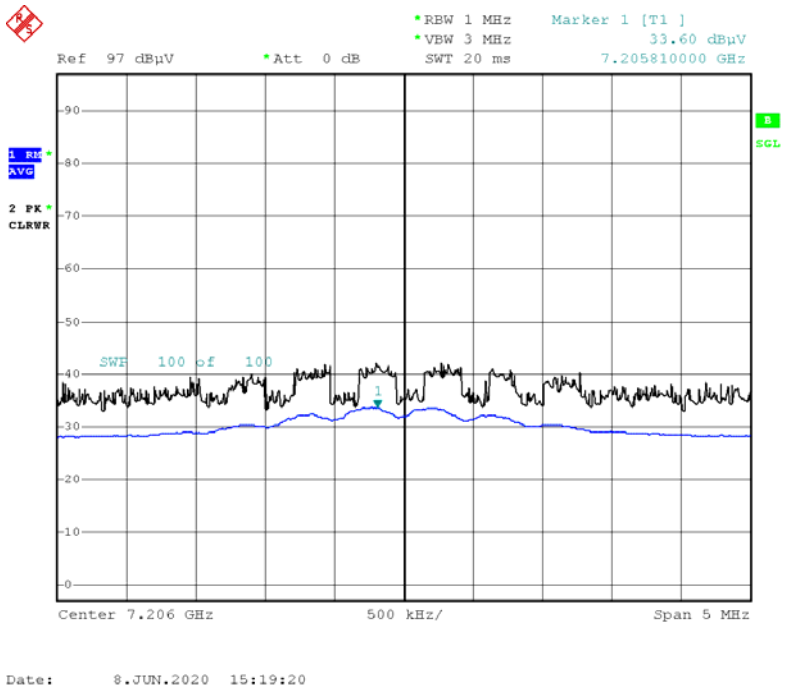
Radiated Spurious Emissions plot – Peak Reading (Ch.19 3rd Harmonic)



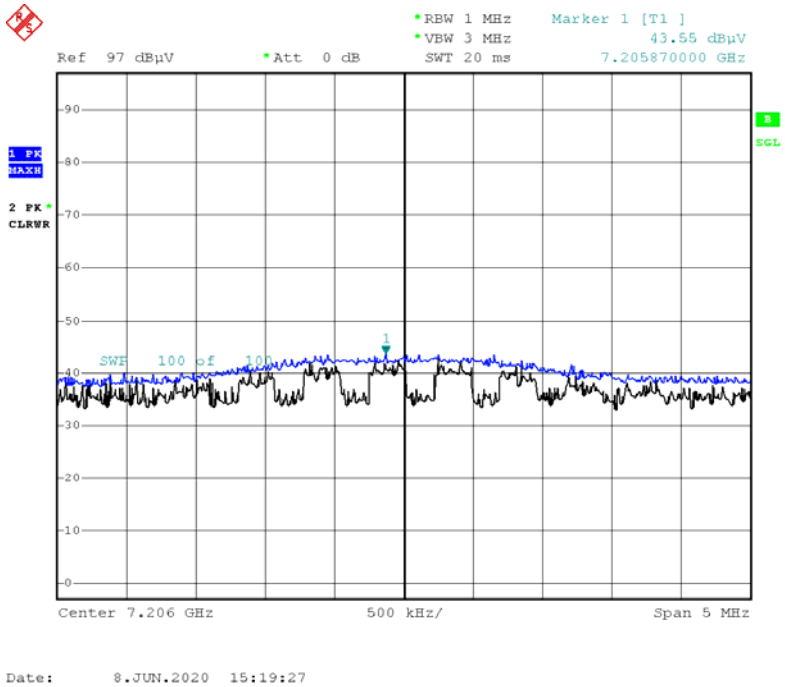
Date: 8.JUN.2020 13:46:51

▣ 2M Bit/s 255 Byte Test Plots (Worst case : X-H)

Radiated Spurious Emissions plot – Average Reading (Ch.0 3rd Harmonic)



Radiated Spurious Emissions plot – Peak Reading (Ch.0 3rd Harmonic)



Note:

Plot of worst case are only reported.

9.7 RADIATED RESTRICTED BAND EDGES

Mode : 500k Bit/s (255 Byte)

Operating Frequency 2402 MHz & 2480 MHz

Channel No. 0 & 39

Frequency [MHz]	Reading [dBuV/m]	Duty Cycle Factor [dB]	※ A.F.+CL [dB]	Ant. Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	18.11	0.00	35.60	H	53.71	73.98	20.27	PK
2390.0	1.86	0.71	35.60	H	38.16	53.98	15.82	AV
2390.0	18.11	0.00	35.60	V	53.71	73.98	20.27	PK
2390.0	1.86	0.71	35.60	V	38.16	53.98	15.82	AV
2483.5	19.03	0.00	35.96	H	55.00	73.98	18.98	PK
2483.5	3.33	0.71	35.96	H	39.99	53.98	13.99	AV
2483.5	18.65	0.00	35.96	V	54.61	73.98	19.37	PK
2483.5	3.26	0.71	35.96	V	39.92	53.98	14.06	AV

Mode : 2M Bit/s (37 Byte)

Operating Frequency 2402 MHz & 2480 MHz

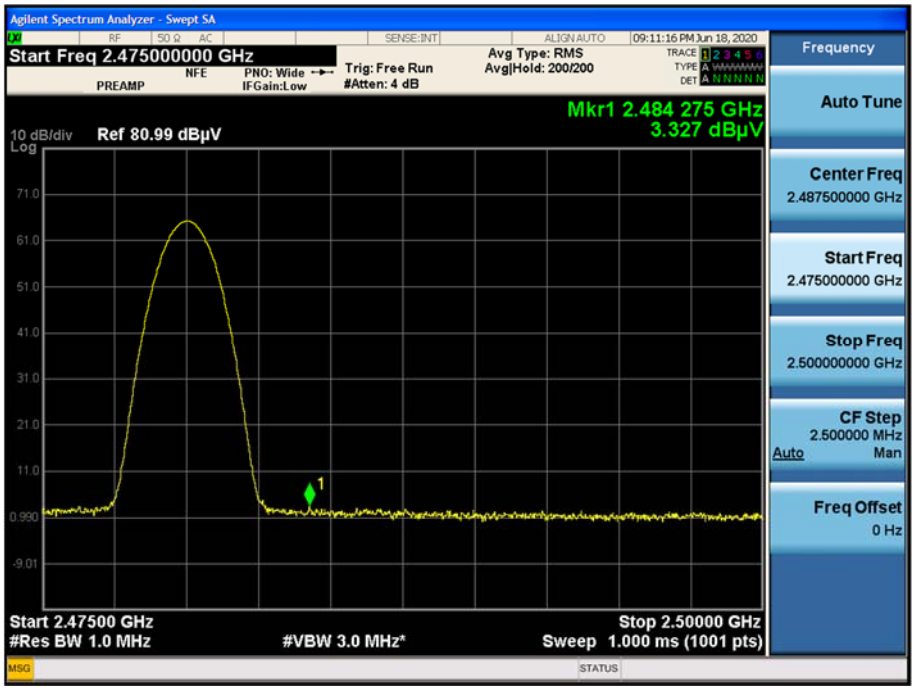
Channel No. 0 & 39

Frequency [MHz]	Reading [dBuV/m]	Duty Cycle Factor [dB]	※ A.F.+CL [dB]	Ant. Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	18.55	0.00	35.60	H	54.15	73.98	19.83	PK
2390.0	1.90	2.45	35.60	H	39.94	53.98	14.04	AV
2390.0	18.18	0.00	35.60	V	53.78	73.98	20.20	PK
2390.0	1.87	2.45	35.60	V	39.91	53.98	14.07	AV
2483.5	19.96	0.00	35.96	H	55.92	73.98	18.06	PK
2483.5	6.01	2.45	35.96	H	44.41	53.98	9.57	AV
2483.5	19.58	0.00	35.96	V	55.54	73.98	18.44	PK
2483.5	5.98	2.45	35.96	V	44.39	53.98	9.59	AV

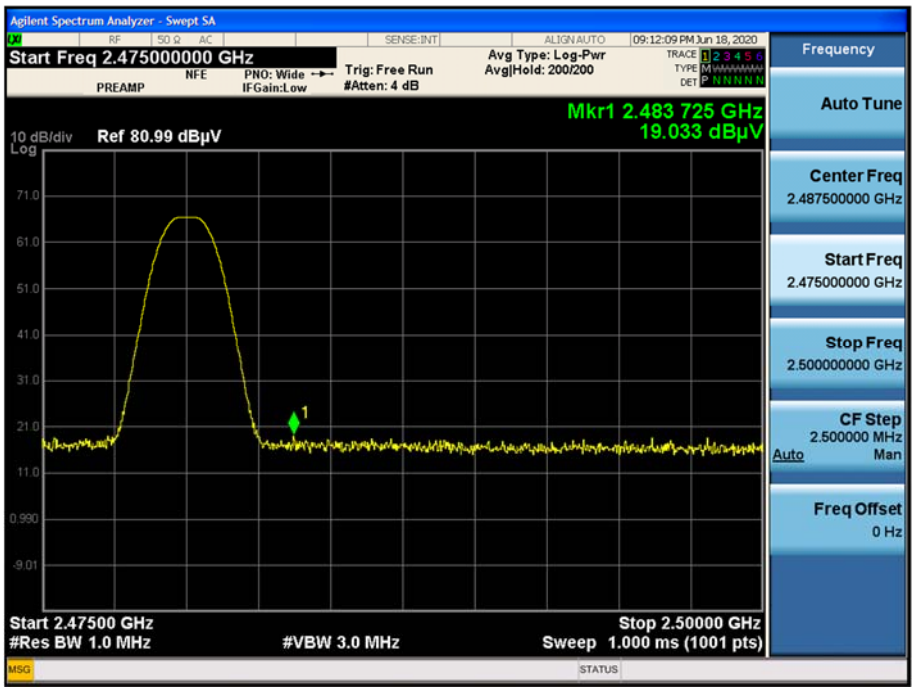
Note: All data Worst case Duty Cycle Correction Factor applied.

▣ Mode : 500k Bit/s (255 Byte) Test Plots

Radiated Restricted Band Edges plot – Average Reading (Ch.39, X-H)

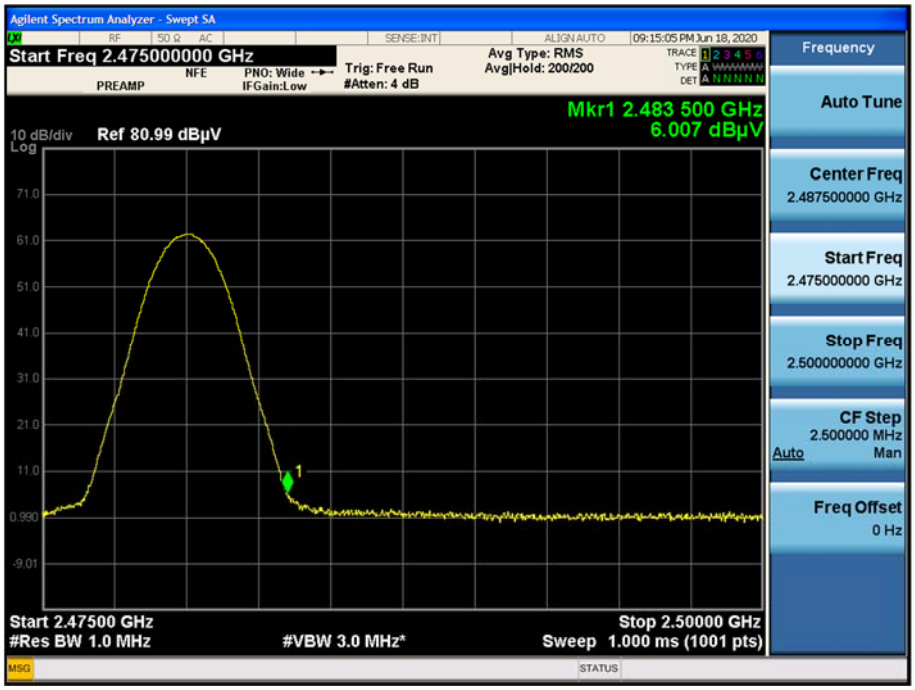


Radiated Restricted Band Edges plot – Peak Reading (Ch.39, X-H)

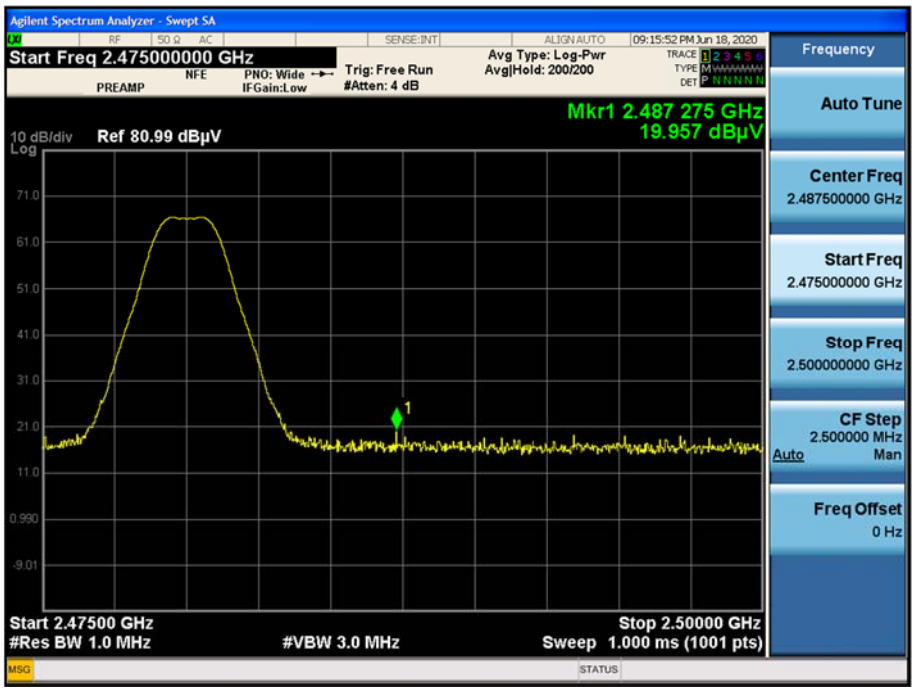


▣ Mode : 2M Bit/s (255 Byte) Test Plots

Radiated Restricted Band Edges plot – Average Reading (Ch.39, X-H)



Radiated Restricted Band Edges plot – Peak Reading (Ch.39, X-H)



Note:

Plot of worst case are only reported.

9.8 RECEIVER SPURIOUS EMISSIONS

Frequency Range : Below 1 GHz

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBuV/m	dBm/m	dBm	(H/V)	dBuV/m	dBuV/m	dB
No Critical peaks found							

Note:

1. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.

Frequency Range : Above 1 GHz

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBuV/m	dBm/m	dBm	(H/V)	dBuV/m	dBuV/m	dB
No Critical peaks found							

9.9 POWERLINE CONDUCTED EMISSIONS

Conducted Emissions (Line 1)

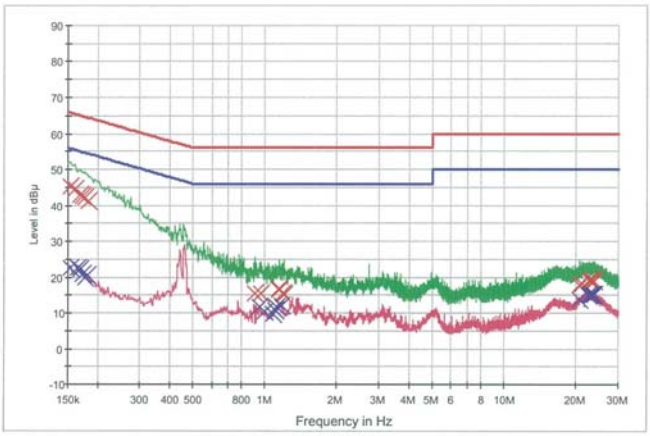
Test 1 / 2

HCT TEST Report

Common Information

EUT:	LGSBWAC95
Manufacturer:	LG
Test Site:	SHIELD ROOM
Operating Conditions:	BTLE_N

FCC CLASS B



Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.154000	45.3	9.000	On	N	9.7	20.4	65.8
0.160000	44.7	9.000	On	N	9.7	20.8	65.5
0.168000	43.0	9.000	On	N	9.7	22.0	65.1
0.172000	42.6	9.000	On	N	9.7	22.2	64.9
0.176000	42.1	9.000	On	N	9.7	22.5	64.7
0.184000	41.1	9.000	On	N	9.7	23.2	64.3
0.904000	15.5	9.000	On	N	9.7	40.5	56.0
0.962000	15.4	9.000	On	N	9.7	40.6	56.0
1.148000	16.7	9.000	On	N	9.7	39.3	56.0
1.154000	16.5	9.000	On	N	9.7	39.5	56.0
1.192000	15.5	9.000	On	N	9.7	40.5	56.0
1.202000	15.2	9.000	On	N	9.7	40.8	56.0
20.754000	17.8	9.000	On	N	10.0	42.2	60.0
21.240000	18.3	9.000	On	N	10.0	41.7	60.0
22.750000	19.0	9.000	On	N	10.0	41.0	60.0
22.798000	19.2	9.000	On	N	10.0	40.8	60.0
23.492000	19.2	9.000	On	N	10.0	40.8	60.0
23.746000	18.9	9.000	On	N	10.0	41.1	60.0

2020-06-09 오후 7:26:15

Test 2 / 2

Final Result 2

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.154000	22.6	9.000	On	N	9.7	33.2	55.8
0.164000	22.7	9.000	On	N	9.7	32.6	55.3
0.168000	22.2	9.000	On	N	9.7	32.9	55.1
0.172000	20.7	9.000	On	N	9.7	34.1	54.9
0.176000	19.9	9.000	On	N	9.7	34.8	54.7
0.180000	20.6	9.000	On	N	9.7	33.8	54.5
0.948000	11.7	9.000	On	N	9.7	34.3	46.0
1.000000	10.3	9.000	On	N	9.7	35.7	46.0
1.080000	9.6	9.000	On	N	9.7	36.4	46.0
1.104000	10.6	9.000	On	N	9.7	35.4	46.0
1.120000	11.7	9.000	On	N	9.7	34.3	46.0
1.174000	11.9	9.000	On	N	9.7	34.1	46.0
20.754000	13.9	9.000	On	N	10.0	36.1	50.0
22.286000	15.1	9.000	On	N	10.0	34.9	50.0
22.912000	15.2	9.000	On	N	10.0	34.8	50.0
23.254000	15.2	9.000	On	N	10.0	34.8	50.0
23.492000	15.2	9.000	On	N	10.0	34.8	50.0
23.832000	15.0	9.000	On	N	10.0	35.0	50.0

2020-06-09 오후 7:26:15

Conducted Emissions (Line 2)

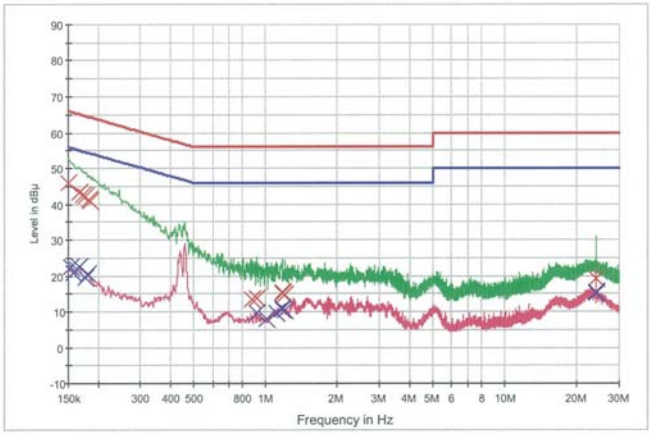
Test 1 / 2

HCT TEST Report

Common Information

EUT:	LGSBWAC95
Manufacturer:	LG
Test Site:	SHIELD ROOM
Operating Conditions:	BTLE_L1

FCC CLASS B



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	45.9	9.000	On	L1	9.7	20.1	66.0
0.166000	43.3	9.000	On	L1	9.7	21.9	65.2
0.172000	42.6	9.000	On	L1	9.7	22.2	64.9
0.176000	42.1	9.000	On	L1	9.7	22.6	64.7
0.182000	41.3	9.000	On	L1	9.7	23.1	64.4
0.186000	40.9	9.000	On	L1	9.7	23.3	64.2
0.882000	13.3	9.000	On	L1	9.7	42.7	56.0
0.920000	13.8	9.000	On	L1	9.7	42.2	56.0
0.924000	13.7	9.000	On	L1	9.7	42.3	56.0
1.172000	15.4	9.000	On	L1	9.7	40.6	56.0
1.178000	15.2	9.000	On	L1	9.7	40.8	56.0
1.200000	14.9	9.000	On	L1	9.7	41.1	56.0
23.908000	19.1	9.000	On	L1	10.0	40.9	60.0
23.920000	19.2	9.000	On	L1	10.0	40.8	60.0
23.978000	19.2	9.000	On	L1	10.0	40.8	60.0
23.984000	19.2	9.000	On	L1	10.0	40.8	60.0
23.990000	19.1	9.000	On	L1	10.0	40.9	60.0
24.010000	19.0	9.000	On	L1	10.0	41.0	60.0

2020-06-09 오후 7:38:23

Test 2 / 2

Final Result 2

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.154000	22.5	9.000	On	L1	9.7	33.3	55.8
0.158000	21.0	9.000	On	L1	9.7	34.6	55.6
0.162000	21.7	9.000	On	L1	9.7	33.6	55.4
0.166000	22.6	9.000	On	L1	9.7	32.6	55.2
0.176000	19.6	9.000	On	L1	9.7	35.1	54.7
0.180000	20.5	9.000	On	L1	9.7	33.9	54.5
0.920000	9.6	9.000	On	L1	9.7	36.4	46.0
1.010000	8.0	9.000	On	L1	9.7	38.0	46.0
1.102000	9.6	9.000	On	L1	9.7	36.4	46.0
1.172000	10.9	9.000	On	L1	9.7	35.1	46.0
1.176000	10.8	9.000	On	L1	9.7	35.2	46.0
1.200000	10.3	9.000	On	L1	9.7	35.7	46.0
23.908000	15.3	9.000	On	L1	10.0	34.7	50.0
23.920000	15.1	9.000	On	L1	10.0	34.9	50.0
23.978000	15.3	9.000	On	L1	10.0	34.7	50.0
23.984000	15.3	9.000	On	L1	10.0	34.7	50.0
24.010000	15.2	9.000	On	L1	10.0	34.8	50.0
24.022000	15.3	9.000	On	L1	10.0	34.7	50.0

2020-06-09 오후 7:38:23

10. LIST OF TEST EQUIPMENT

Conducted Test

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Rohde & Schwarz	ENV216 / LISN	09/11/2019	Annual	102245
Rohde & Schwarz	ESCI / Test Receiver	06/05/2020	Annual	100033
ESPAC	SU-642 /Temperature Chamber	03/18/2020	Annual	0093008124
Agilent	N9020A / Signal Analyzer	05/11/2020	Annual	MY51110085
Agilent	N9030A / Signal Analyzer	05/06/2020	Annual	MY53310623
Agilent	N1911A / Power Meter	04/07/2020	Annual	MY45101406
Agilent	N1921A / Power Sensor	03/23/2020	Annual	MY55220026
Agilent	87300B / Directional Coupler	11/11/2019	Annual	3116A03621
Hewlett Packard	11667B / Power Splitter	05/25/2020	Annual	05001
Hewlett Packard	E3632A / DC Power Supply	06/12/2020	Annual	KR75303960
Weinschel	2-20 / Attenuator(20 dB)	07/02/2019	Annual	BR0592
Rohde & Schwarz	EMC32 / Software	N/A	N/A	N/A
HCT CO., LTD.	FCC WLAN&BT&BLE Conducted Test Software v3.0	N/A	N/A	N/A
Rohde & Schwarz	CBT / Bluetooth Tester	05/12/2020	Annual	100422

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.

Radiated Test

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Innco system	CO3000 / Controller(Antenna mast)	N/A	N/A	CO3000-4p
Innco system	MA4640/800-XP-EP / Antenna Position Tower	N/A	N/A	N/A
Emco	2090 / Controller	N/A	N/A	060520
Ets	Turn Table	N/A	N/A	N/A
Rohde & Schwarz	Loop Antenna	05/18/2020	Biennial	1513-175
Schwarzbeck	VULB 9160 / Hybrid Antenna	08/09/2018	Biennial	3368
Schwarzbeck	VULB 9168 / Hybrid Antenna	08/31/2018	Biennial	00895
Schwarzbeck	BBHA 9120D / Horn Antenna	11/18/2019	Biennial	9120D-1191
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	11/29/2019	Biennial	BBHA9170541
Rohde & Schwarz	FSP(9 kHz ~ 30 GHz) / Spectrum Analyzer	09/11/2019	Annual	836650/016
Rohde & Schwarz	FSV40-N / Spectrum Analyzer	09/26/2019	Annual	101068-SZ
Wainwright Instruments	WRCJV2400/2483.5-2370/2520-60/12SS / Band Reject Filter	01/21/2020	Annual	2
Wainwright Instruments	WRCJV5100/5850-40/50-8EEK / Band Reject Filter	02/10/2020	Annual	1
CERNEX WEINSCHEL	CBLU1183540B-01/Broadband Bench Top LNA 56-10 / Attenuator(10 dB)	12/24/2019	Annual	N/A
CERNEX Api tech.	CBL06185030 / Broadband Low Noise Amplifier 18B-03 / Attenuator (3 dB)	12/24/2019	Annual	N/A
Wainwright Instruments	WHKX10-2700-3000-18000-40SS / High Pass Filter	12/24/2019	Annual	N/A
Wainwright Instruments	WHKX8-6090-7000-18000-40SS / High Pass Filter	12/24/2019	Annual	N/A
T&M SYSTEM	COAXIAL ATTENUATOR / Thru	12/24/2019	Annual	N/A
CERNEX	CBL18265035 / Power Amplifier	12/26/2019	Annual	22966
CERNEX	CBL26405040 / Power Amplifier	03/23/2020	Annual	25956
TESCOM	TC-3000C / Bluetooth Tester	03/18/2020	Annual	3000C000276

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)..

11. ANNEX A_ TEST SETUP PHOTO

Please refer to test setup photo file no. as follows;

No.	Description
1	HCT-RF-2006-FI005-P