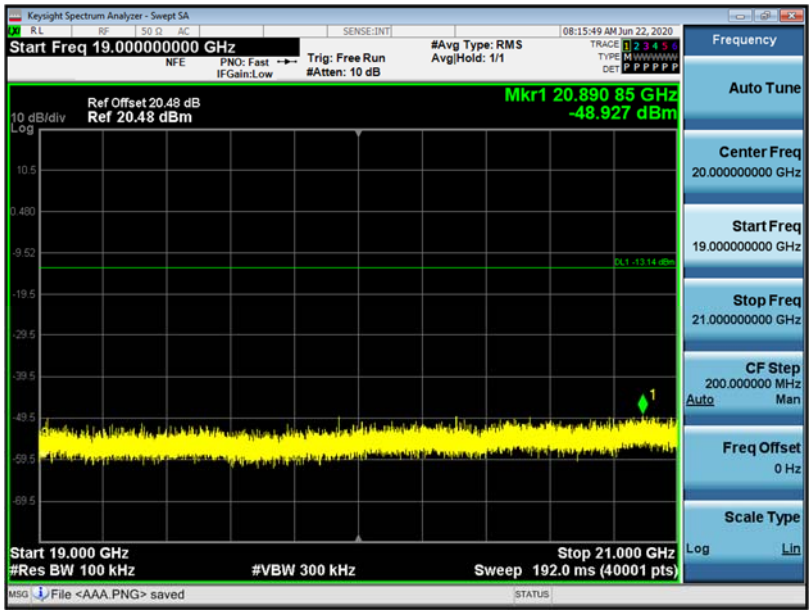
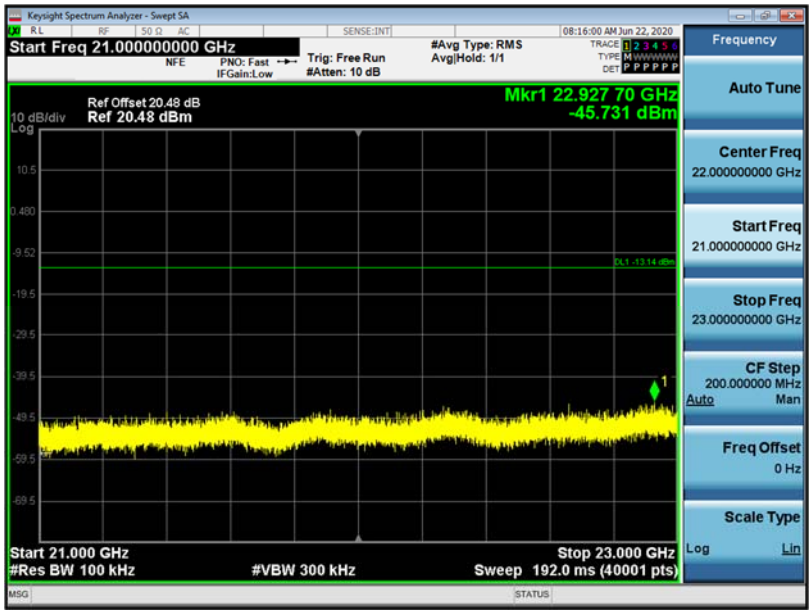
19 GHz ~ 21 GHz

Conducted Spurious Emission (Low-CH 0)



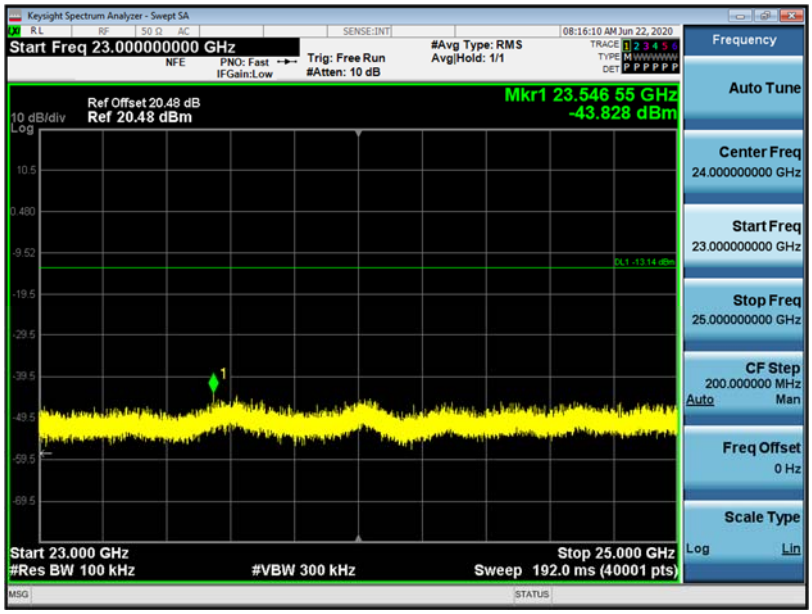
21 GHz ~ 23 GHz

Conducted Spurious Emission (Low-CH 0)



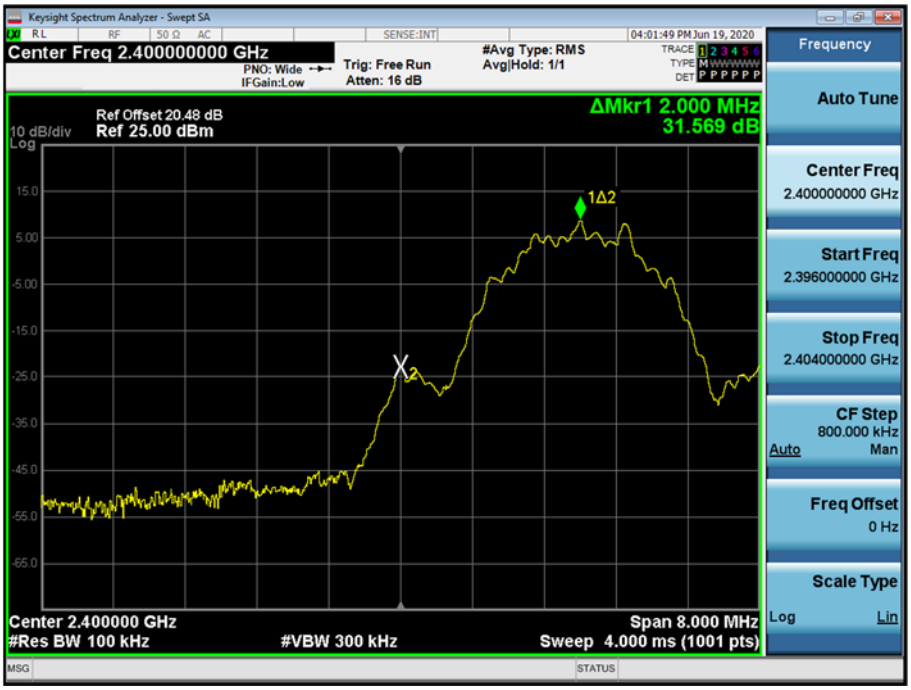
23 GHz ~ 25 GHz

Conducted Spurious Emission (Low-CH 0)

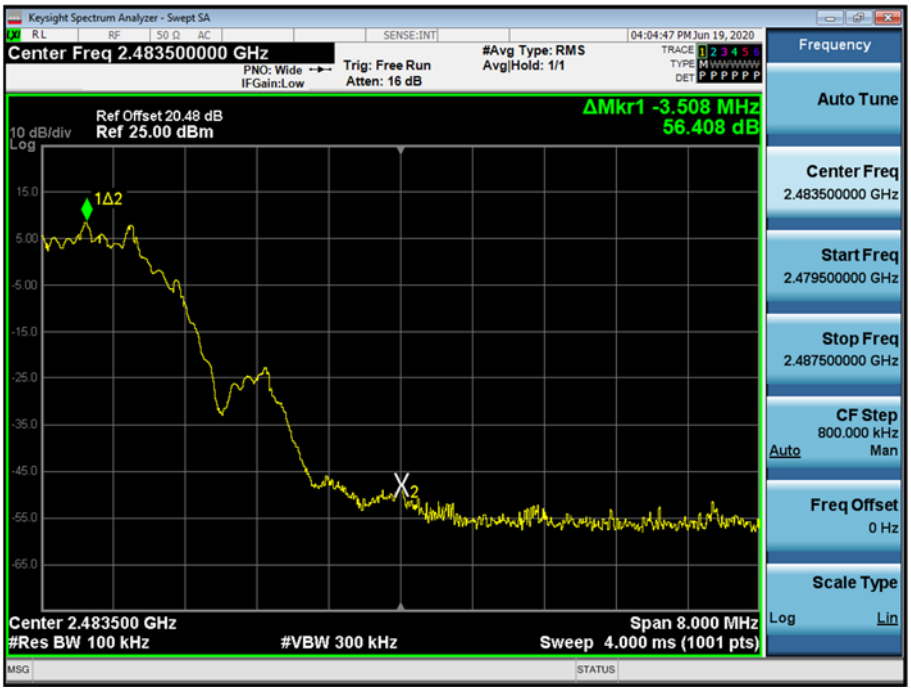


▣ 2M Bit/s (255 Byte) Test Plots -BandEdge

Low-CH 0



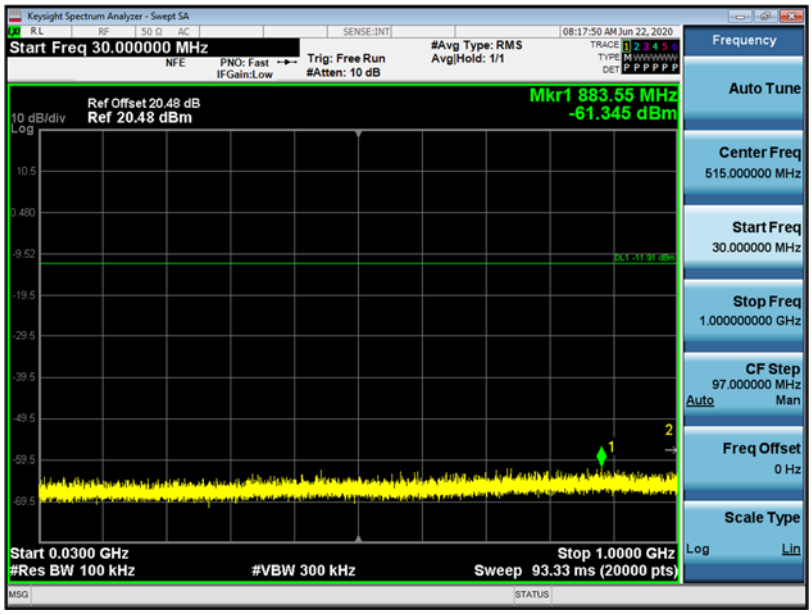
High-CH 39



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

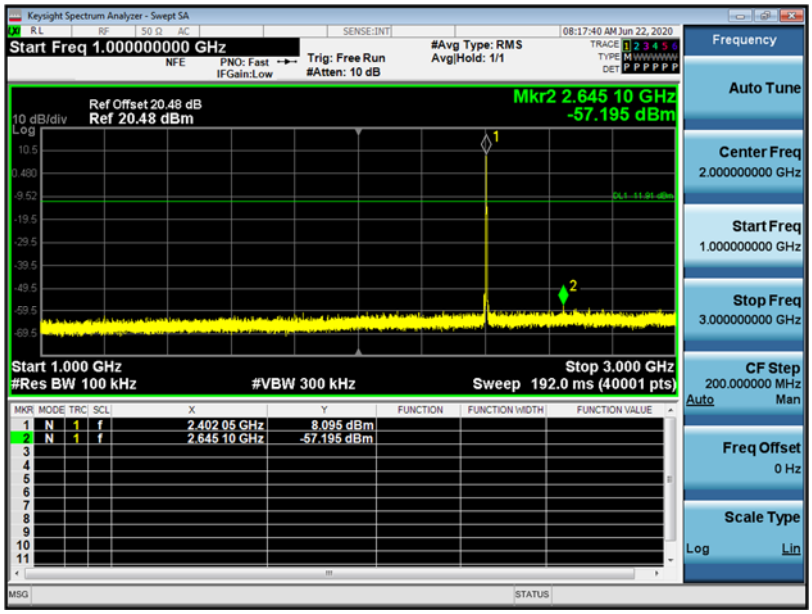
30 MHz ~ 1 GHz

Conducted Spurious Emission (Low-CH 0)



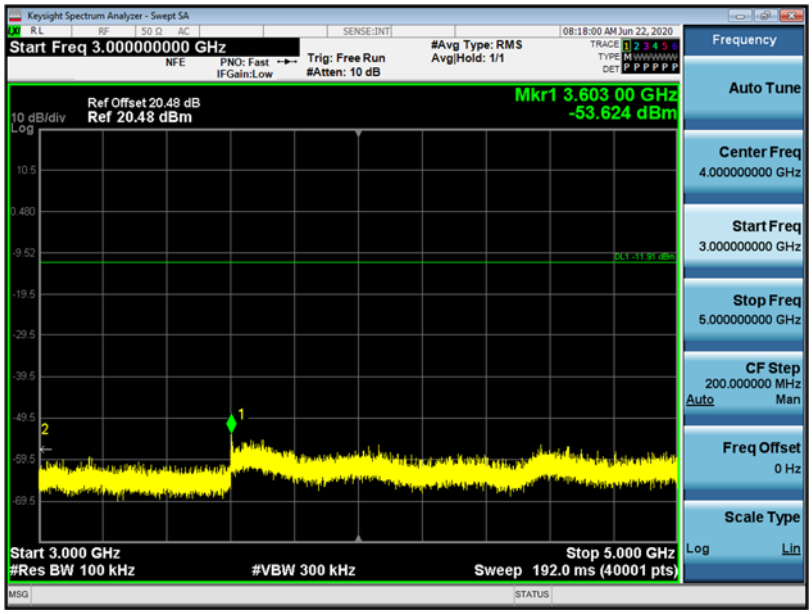
1 GHz ~ 3 GHz

Conducted Spurious Emission (Low-CH 0)



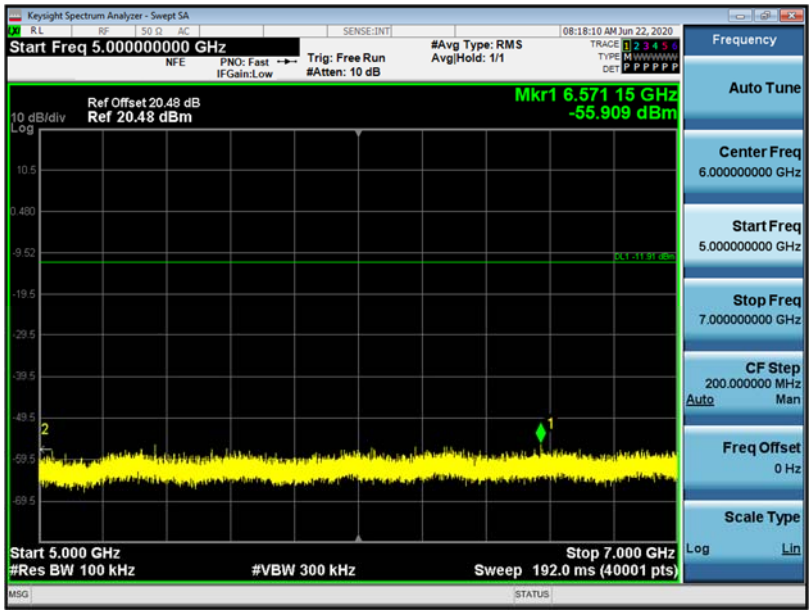
3 GHz ~ 5 GHz

Conducted Spurious Emission (Low-CH 0)



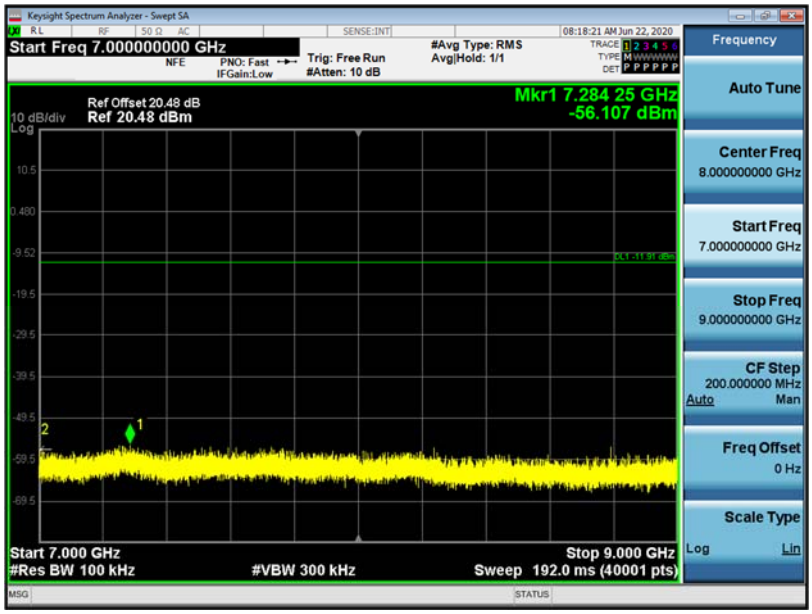
5 GHz ~ 7 GHz

Conducted Spurious Emission (Low-CH 0)



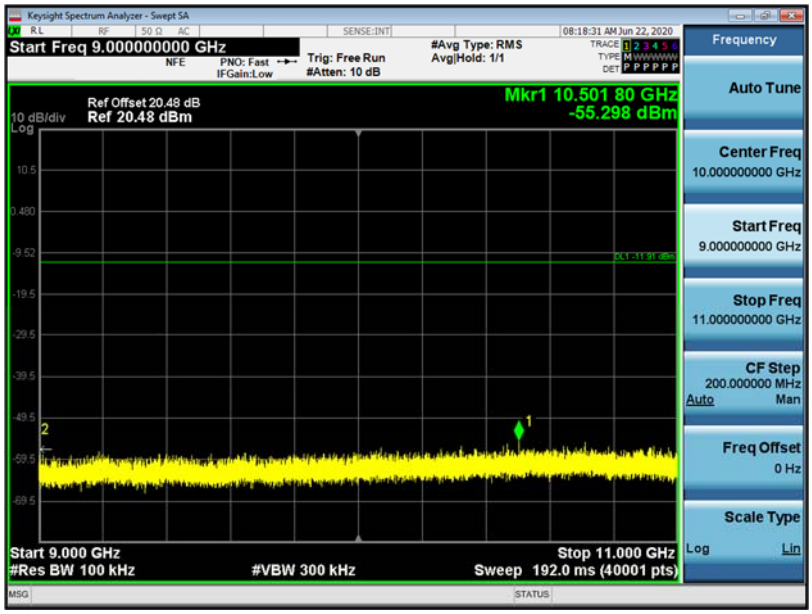
7 GHz ~ 9 GHz

Conducted Spurious Emission (Low-CH 0)



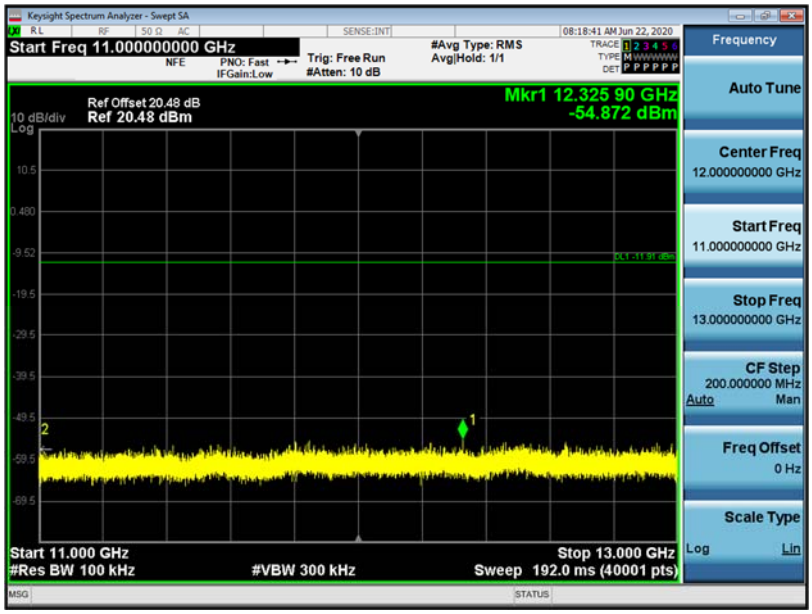
9 GHz ~ 11 GHz

Conducted Spurious Emission (Low-CH 0)



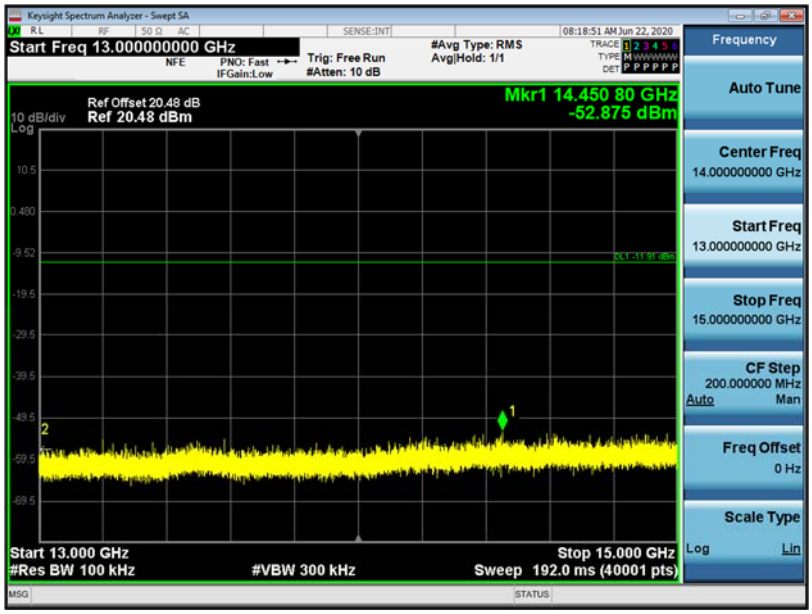
11 GHz ~ 13 GHz

Conducted Spurious Emission (Low-CH 0)



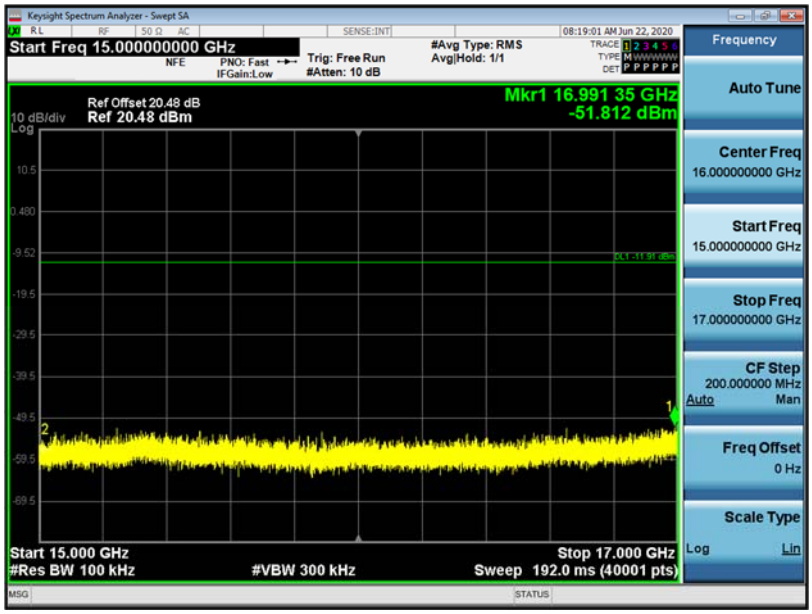
13 GHz ~ 15 GHz

Conducted Spurious Emission (Low-CH 0)



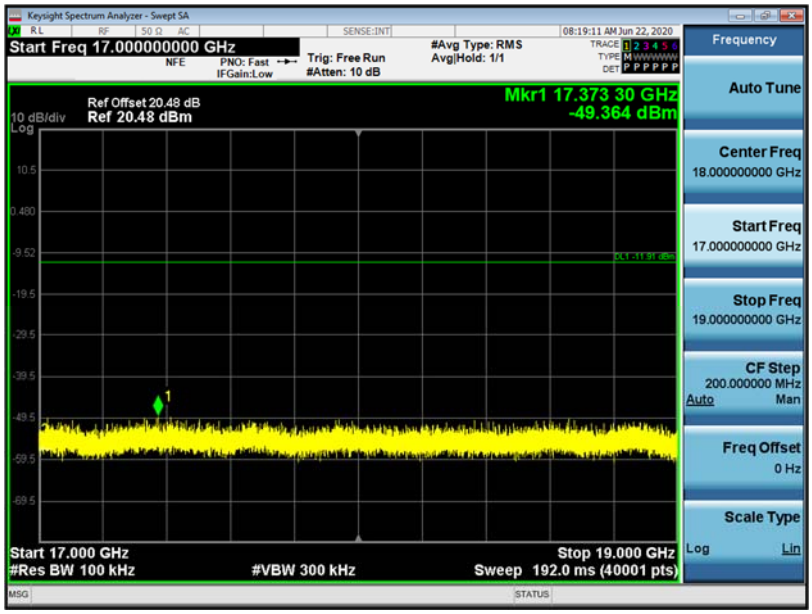
15 GHz ~ 17 GHz

Conducted Spurious Emission (Low-CH 0)



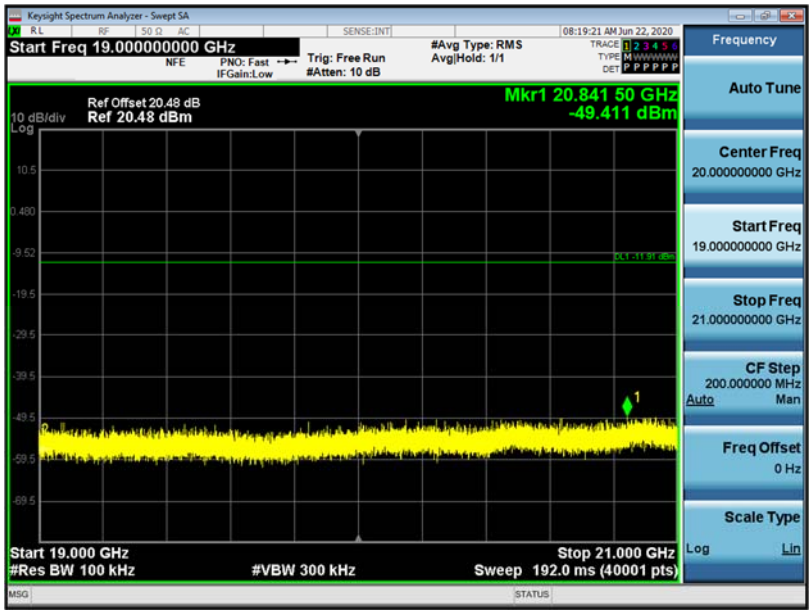
17 GHz ~ 19 GHz

Conducted Spurious Emission (Low-CH 0)



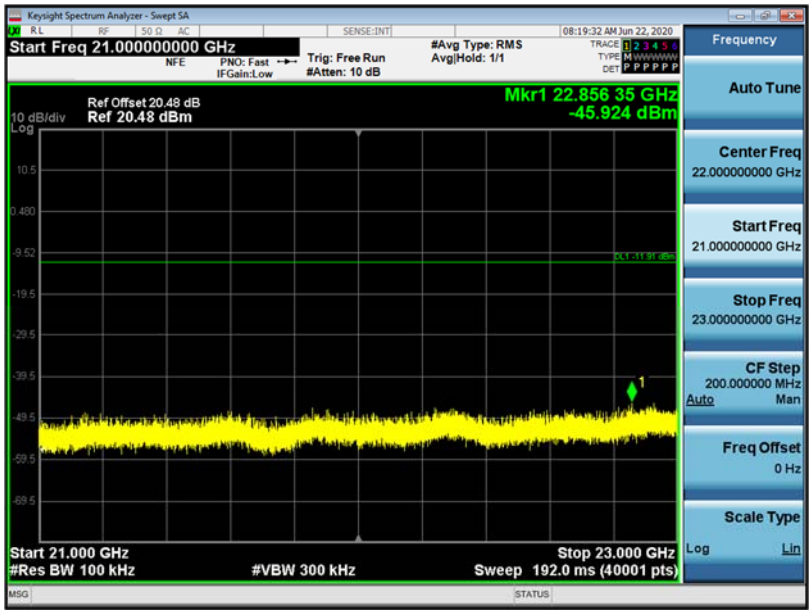
19 GHz ~ 21 GHz

Conducted Spurious Emission (Low-CH 0)



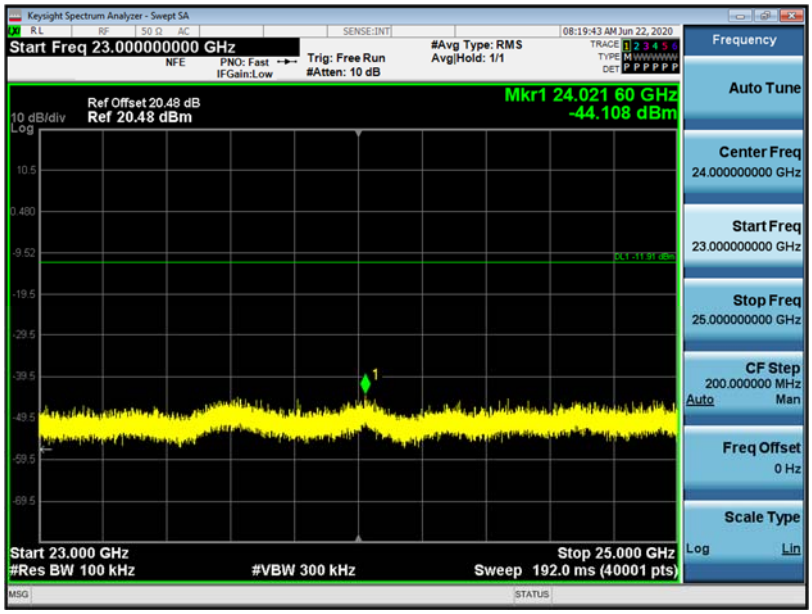
21 GHz ~ 23 GHz

Conducted Spurious Emission (Low-CH 0)



23 GHz ~ 25 GHz

Conducted Spurious Emission (Low-CH 0)



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	45.25	0.00	2.17	V	47.42	73.98	26.56	PK
4804	33.21	0.71	2.17	V	36.09	53.98	17.89	AV
7206	41.33	0.00	8.97	V	50.30	73.98	23.68	PK
7206	30.14	0.71	8.97	V	39.82	53.98	14.16	AV
4804	45.90	0.00	2.17	H	48.07	73.98	25.91	PK
4804	33.89	0.71	2.17	H	36.77	53.98	17.21	AV
7206	41.74	0.00	8.97	H	50.71	73.98	23.27	PK
7206	30.49	0.71	8.97	H	40.17	53.98	13.81	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	42.11	0.00	2.66	V	44.77	73.98	29.21	PK
4880	31.08	0.71	2.66	V	34.45	53.98	19.53	AV
7320	40.78	0.00	9.04	V	49.82	73.98	24.16	PK
7320	29.02	0.71	9.04	V	38.77	53.98	15.21	AV
4880	42.91	0.00	2.66	H	45.57	73.98	28.41	PK
4880	31.76	0.71	2.66	H	35.13	53.98	18.85	AV
7320	41.27	0.00	9.04	H	50.31	73.98	23.67	PK
7320	29.09	0.71	9.04	H	38.84	53.98	15.14	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	31.87	0.71	1.54	V	34.12	53.98	19.86	AV
7440	41.17	0.00	9.82	V	50.99	73.98	22.99	PK
7440	28.50	0.71	9.82	V	39.03	53.98	14.95	AV
4960	43.26	0.00	1.54	H	44.80	73.98	29.18	PK
4960	32.10	0.71	1.54	H	34.35	53.98	19.63	AV
7440	41.26	0.00	9.82	H	51.08	73.98	22.90	PK
7440	28.51	0.71	9.82	H	39.04	53.98	14.94	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	45.10	0.00	2.17	V	47.27	73.98	26.71	PK
4804	32.33	2.45	2.17	V	36.95	53.98	17.03	AV
7206	41.14	0.00	8.97	V	50.11	73.98	23.87	PK
7206	29.07	2.45	8.97	V	40.49	53.98	13.49	AV
4804	45.45	0.00	2.17	H	47.62	73.98	26.36	PK
4804	33.16	2.45	2.17	H	37.78	53.98	16.20	AV
7206	41.61	0.00	8.97	H	50.58	73.98	23.40	PK
7206	29.32	2.45	8.97	H	40.74	53.98	13.24	AV

Operation Mode: CH Mid

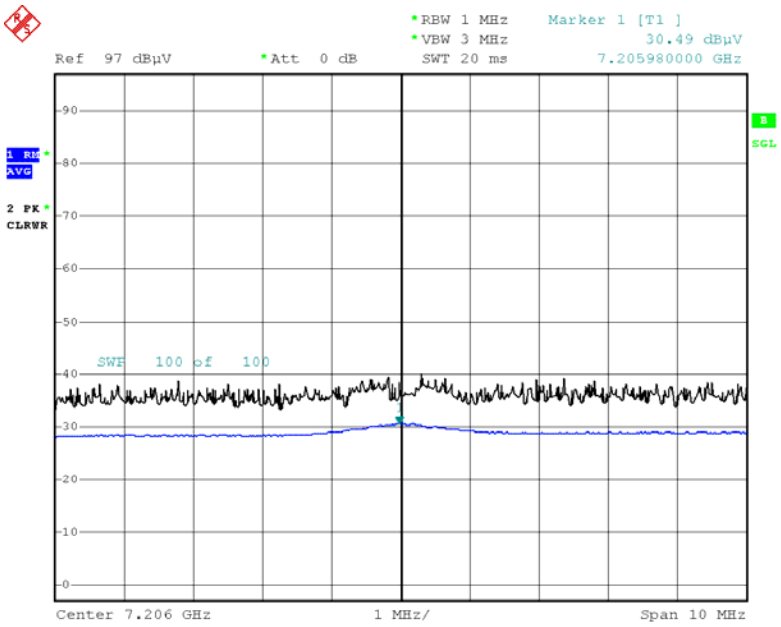
Frequency [MHz]	Reading [dBuV]	Duty Cycle Correction [dB]	AN.+CL-AMP G [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4880	43.24	0.00	2.66	V	45.90	73.98	28.08	PK
4880	31.10	2.45	2.66	V	36.21	53.98	17.77	AV
7320	40.91	0.00	9.04	V	49.95	73.98	24.03	PK
7320	29.07	2.45	9.04	V	40.56	53.98	13.42	AV
4880	43.42	0.00	2.66	H	46.08	73.98	27.90	PK
4880	31.13	2.45	2.66	H	36.24	53.98	17.74	AV
7320	41.15	0.00	9.04	H	50.19	73.98	23.79	PK
7320	29.35	2.45	9.04	H	40.84	53.98	13.14	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	42.37	0.00	1.54	V	43.91	73.98	30.07	PK
4960	30.96	2.45	1.54	V	34.95	53.98	19.03	AV
7440	40.02	0.00	9.82	V	49.84	73.98	24.14	PK
7440	28.22	2.45	9.82	V	40.49	53.98	13.49	AV
4960	43.31	0.00	1.54	H	44.85	73.98	29.13	PK
4960	31.21	2.45	1.54	H	35.20	53.98	18.78	AV
7440	40.06	0.00	9.82	H	49.88	73.98	24.10	PK
7440	28.28	2.45	9.82	H	40.55	53.98	13.43	AV

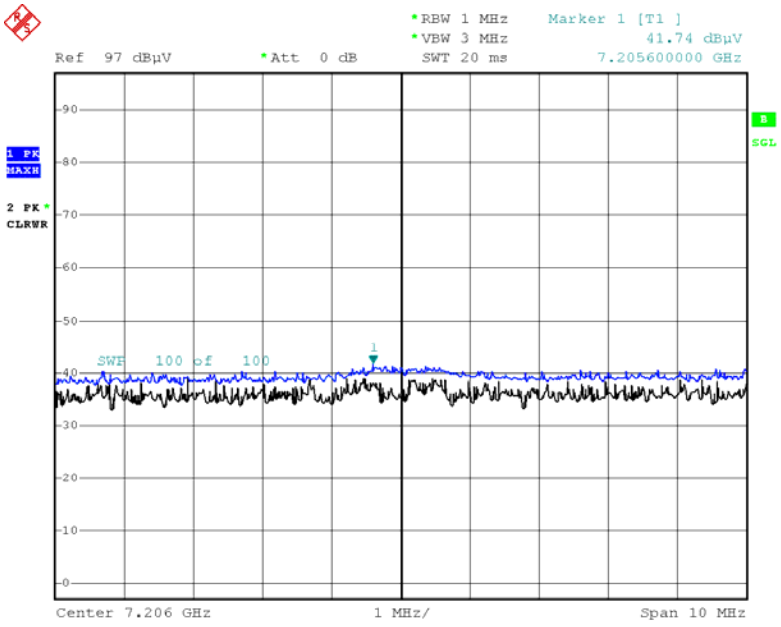
▣ 500k Bit/s (255 Byte) Test Plots (Worst case : X-H)

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



Date: 22.JUN.2020 03:34:03

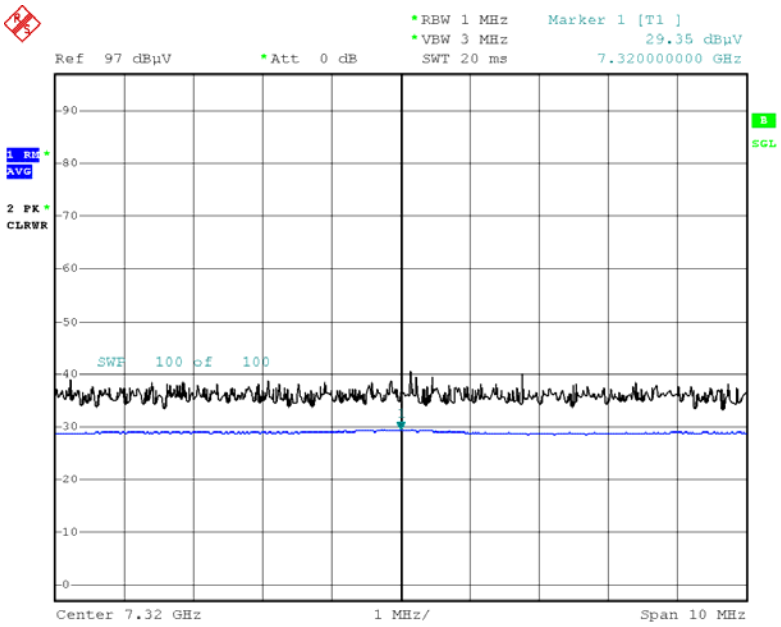
Radiated Spurious Emissions plot – Peak Reading (Ch.0 3rd Harmonic)



Date: 22.JUN.2020 03:34:16

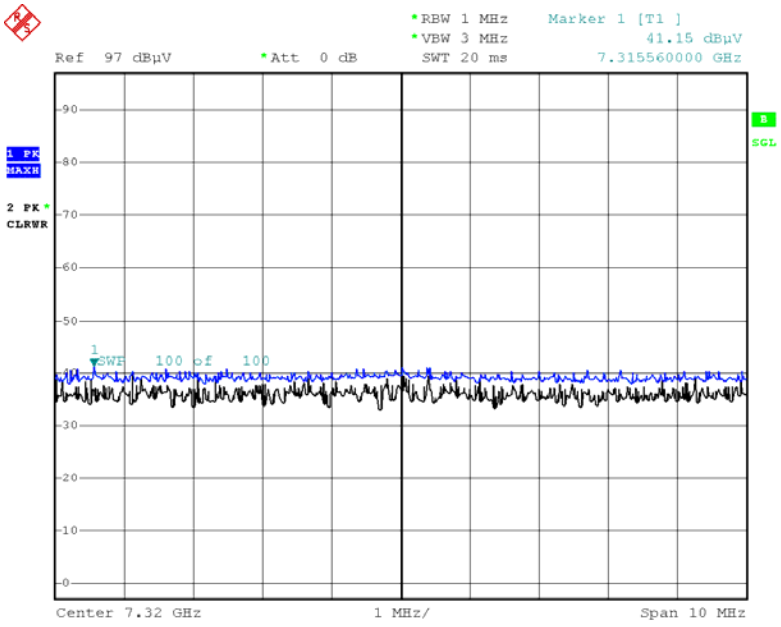
▣ 2M Bit/s 255 Byte Test Plots (Worst case : X-H)

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



Date: 22.JUN.2020 07:34:34

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



Date: 22.JUN.2020 07:34:41

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	19.28	0.00	35.60	H	54.88	73.98	19.10	PK
2390.0	2.08	0.71	35.60	H	38.39	53.98	15.59	AV
2390.0	19.08	0.00	35.60	V	54.68	73.98	19.30	PK
2390.0	2.00	0.71	35.60	V	38.31	53.98	15.67	AV
2483.5	25.88	0.00	35.96	H	61.84	73.98	12.14	PK
2483.5	5.55	0.71	35.96	H	42.22	53.98	11.76	AV
2483.5	25.45	0.00	35.96	V	61.41	73.98	12.57	PK
2483.5	5.47	0.71	35.96	V	42.14	53.98	11.84	AV

Mode : 2M Bit/s (255 Byte)

Operating Frequency 2402 MHz & 2480 MHz

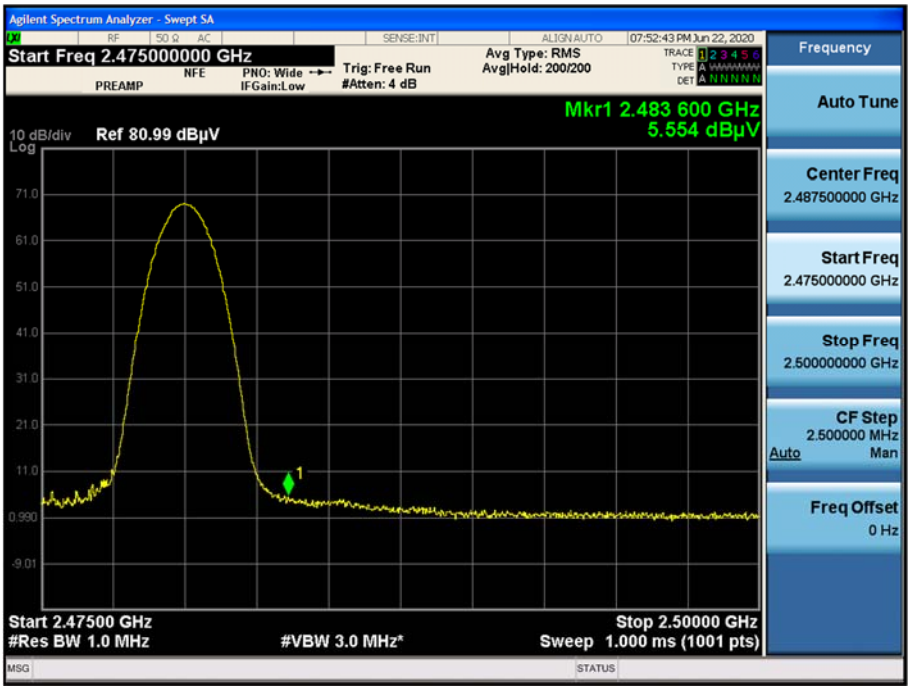
Channel No. 0 & 39

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	19.38	0.00	35.60	H	54.98	73.98	19.00	PK
2390.0	1.99	2.45	35.60	H	40.03	53.98	13.95	AV
2390.0	19.12	0.00	35.60	V	54.72	73.98	19.27	PK
2390.0	1.84	2.45	35.60	V	39.89	53.98	14.09	AV
2483.5	27.79	0.00	35.96	H	63.75	73.98	10.23	PK
2483.5	9.74	2.45	35.96	H	48.15	53.98	5.83	AV
2483.5	27.69	0.00	35.96	V	63.65	73.98	10.33	PK
2483.5	9.28	2.45	35.96	V	47.69	53.98	6.29	AV

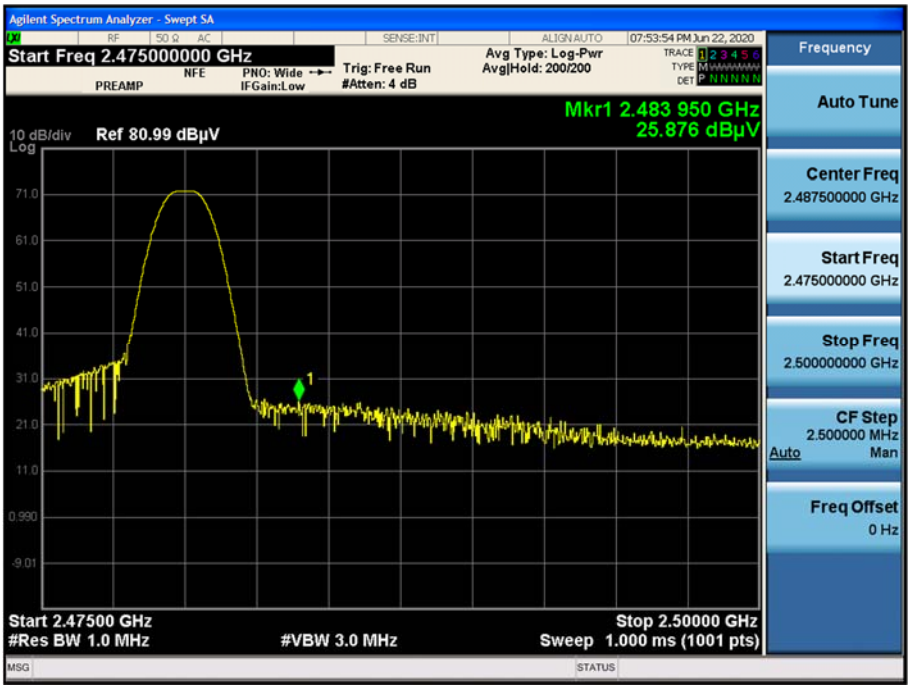
Note: All data Worst case Duty Cycle Correction Factor applied.

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

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

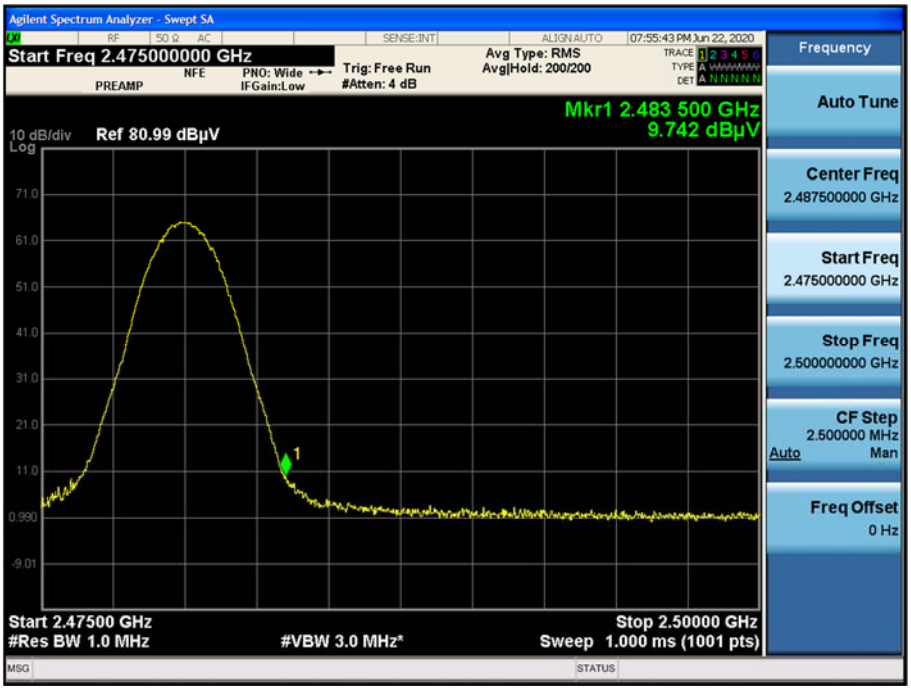


Radiated Restricted Band Edges plot – Peak Reading (Ch.39, X-H)

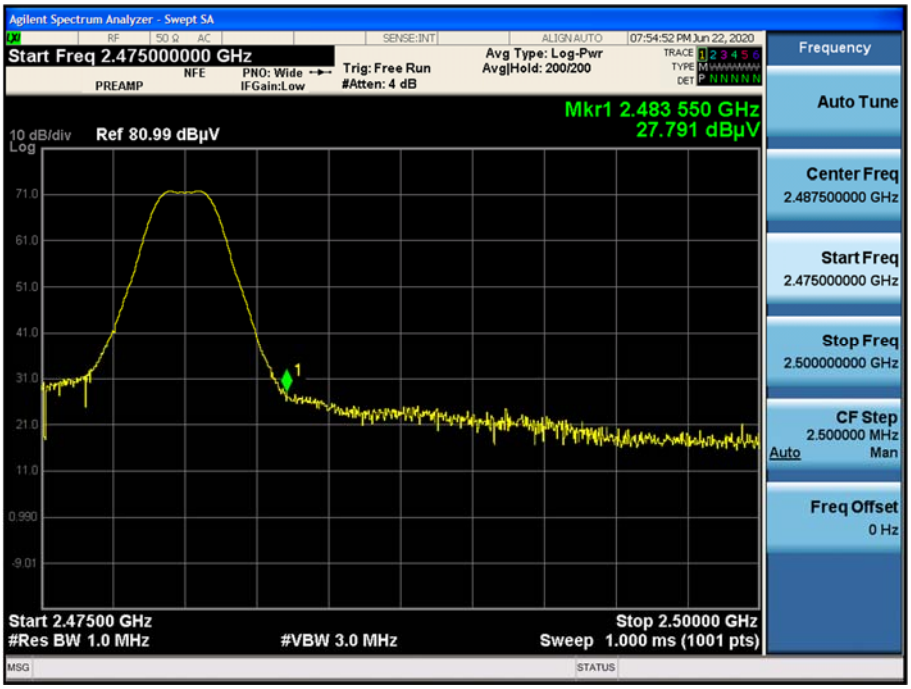


▣ Mode : 2M Bit/s (255 Byte) Test Plots

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)

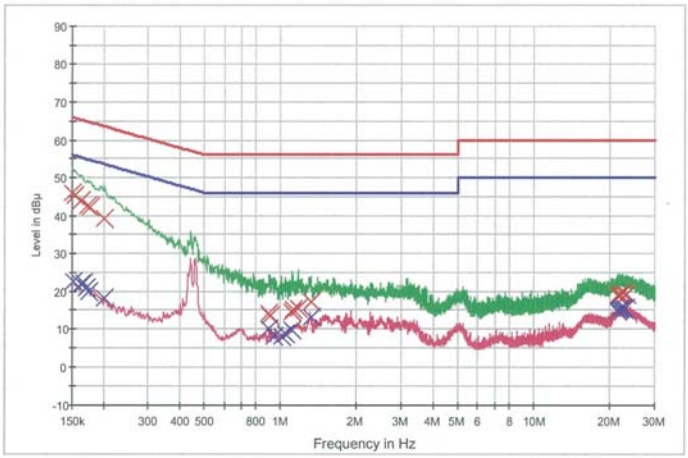
Test 1 / 2

HCT TEST Report

Common Information

EUT:	LGSBWAC03
Manufacturer:	LG
Test Site:	SHIELD ROOM
Operating Conditions:	BTLE_L1

FCC CLASS B



Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	45.8	9.000	On	L1	9.7	20.2	66.0
0.154000	45.3	9.000	On	L1	9.7	20.5	65.8
0.162000	43.9	9.000	On	L1	9.7	21.4	65.4
0.172000	42.5	9.000	On	L1	9.7	22.3	64.9
0.176000	42.2	9.000	On	L1	9.7	22.5	64.7
0.202000	39.0	9.000	On	L1	9.7	24.5	63.5
0.902000	14.2	9.000	On	L1	9.7	41.8	56.0
0.906000	13.3	9.000	On	L1	9.7	42.7	56.0
1.106000	14.4	9.000	On	L1	9.7	41.6	56.0
1.120000	15.1	9.000	On	L1	9.7	40.9	56.0
1.170000	15.4	9.000	On	L1	9.7	40.6	56.0
1.314000	17.0	9.000	On	L1	9.8	39.0	56.0
21.398000	18.7	9.000	On	L1	10.0	41.3	60.0
21.562000	18.8	9.000	On	L1	10.0	41.2	60.0
21.910000	19.2	9.000	On	L1	10.0	40.8	60.0
21.956000	19.2	9.000	On	L1	10.0	40.8	60.0
22.308000	19.3	9.000	On	L1	10.0	40.7	60.0
23.258000	19.1	9.000	On	L1	10.0	40.9	60.0

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Test

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Final Result 2

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.152000	22.5	9.000	On	L1	9.7	33.4	55.9
0.162000	21.8	9.000	On	L1	9.7	33.6	55.4
0.166000	22.3	9.000	On	L1	9.7	32.9	55.2
0.170000	20.8	9.000	On	L1	9.7	34.1	55.0
0.174000	20.0	9.000	On	L1	9.7	34.8	54.8
0.202000	18.1	9.000	On	L1	9.7	35.4	53.5
0.902000	9.9	9.000	On	L1	9.7	36.1	46.0
0.942000	8.1	9.000	On	L1	9.7	37.9	46.0
1.006000	7.9	9.000	On	L1	9.7	38.1	46.0
1.040000	8.5	9.000	On	L1	9.7	37.5	46.0
1.106000	9.8	9.000	On	L1	9.7	36.2	46.0
1.314000	12.9	9.000	On	L1	9.8	33.1	46.0
21.398000	14.9	9.000	On	L1	10.0	35.1	50.0
21.422000	14.8	9.000	On	L1	10.0	35.2	50.0
21.562000	15.0	9.000	On	L1	10.0	35.0	50.0
21.956000	15.4	9.000	On	L1	10.0	34.6	50.0
22.308000	15.6	9.000	On	L1	10.0	34.4	50.0
22.960000	15.4	9.000	On	L1	10.0	34.6	50.0

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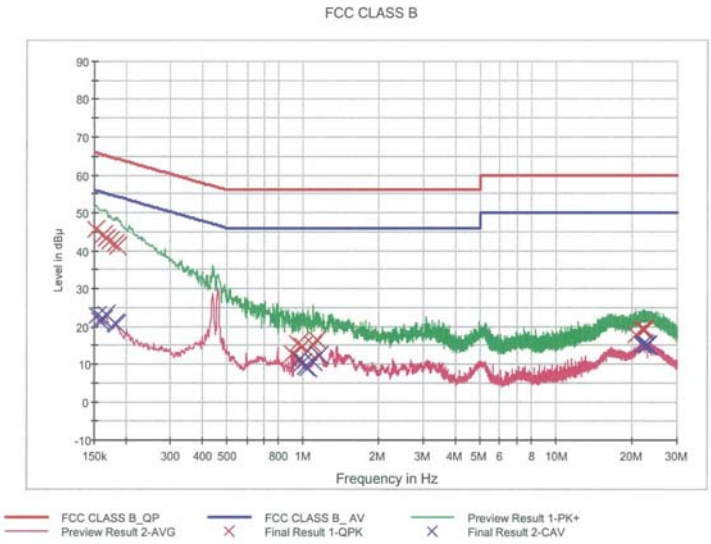
Conducted Emissions (Line 2)

Test 1 / 2

HCT TEST Report

Common Information

EUT:	LGSBWAC03
Manufacturer:	LG
Test Site:	SHIELD ROOM
Operating Conditions:	BTLE_N



Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.152000	45.7	9.000	On	N	9.7	20.2	65.9
0.162000	44.2	9.000	On	N	9.7	21.2	65.4
0.166000	43.4	9.000	On	N	9.7	21.8	65.2
0.172000	42.6	9.000	On	N	9.7	22.3	64.9
0.180000	41.9	9.000	On	N	9.7	22.6	64.5
0.186000	41.0	9.000	On	N	9.7	23.2	64.2
0.910000	12.7	9.000	On	N	9.7	43.3	56.0
0.952000	15.3	9.000	On	N	9.7	40.7	56.0
1.002000	14.8	9.000	On	N	9.7	41.2	56.0
1.050000	13.6	9.000	On	N	9.7	42.4	56.0
1.100000	15.2	9.000	On	N	9.7	40.8	56.0
1.130000	16.5	9.000	On	N	9.7	39.5	56.0
20.524000	17.7	9.000	On	N	10.0	42.3	60.0
21.916000	19.3	9.000	On	N	10.0	40.8	60.0
21.970000	19.2	9.000	On	N	10.0	40.8	60.0
22.122000	19.3	9.000	On	N	10.0	40.7	60.0
22.236000	19.3	9.000	On	N	10.0	40.7	60.0
22.518000	19.1	9.000	On	N	10.0	40.9	60.0

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Final Result 2

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.154000	22.9	9.000	On	N	9.7	32.9	55.8
0.158000	21.4	9.000	On	N	9.7	34.1	55.6
0.162000	22.0	9.000	On	N	9.7	33.4	55.4
0.166000	23.1	9.000	On	N	9.7	32.0	55.2
0.180000	20.8	9.000	On	N	9.7	33.7	54.5
0.184000	20.5	9.000	On	N	9.7	33.8	54.3
0.978000	11.5	9.000	On	N	9.7	34.5	46.0
1.002000	10.3	9.000	On	N	9.7	35.7	46.0
1.018000	9.4	9.000	On	N	9.7	36.6	46.0
1.050000	9.1	9.000	On	N	9.7	36.9	46.0
1.100000	10.7	9.000	On	N	9.7	35.3	46.0
1.166000	12.2	9.000	On	N	9.7	33.8	46.0
21.970000	15.2	9.000	On	N	10.0	34.8	50.0
22.122000	15.4	9.000	On	N	10.0	34.6	50.0
22.236000	15.3	9.000	On	N	10.0	34.7	50.0
22.242000	15.3	9.000	On	N	10.0	34.7	50.0
22.724000	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

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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)	10/08/2019	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-FI010-P