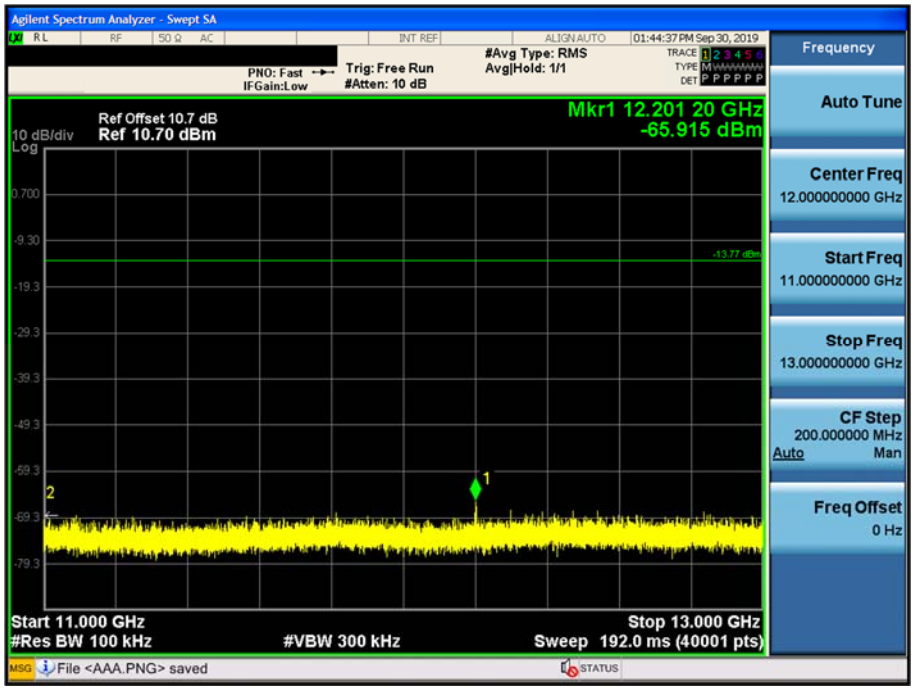
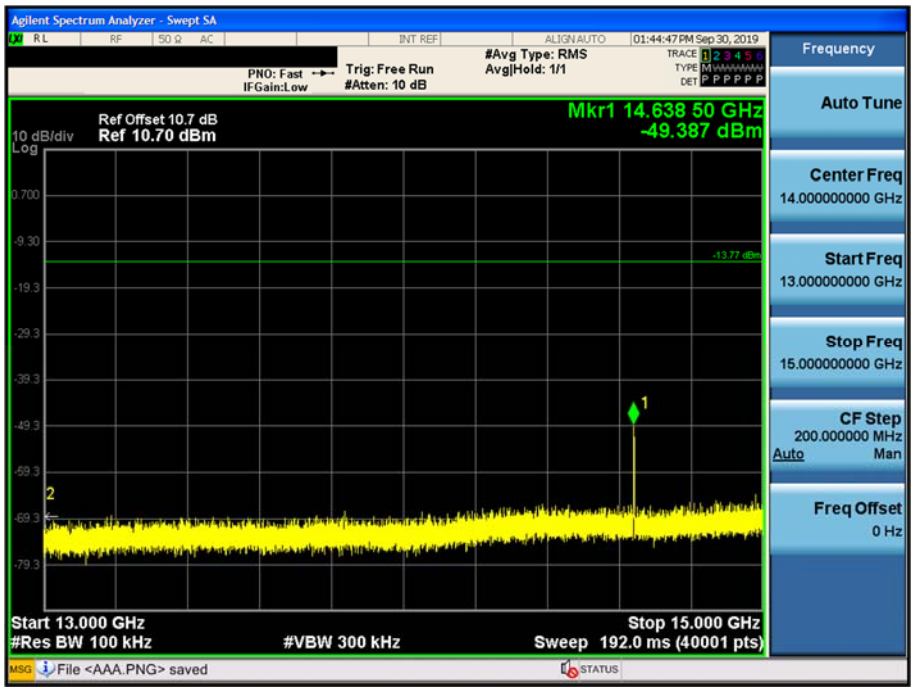
11 GHz ~ 13 GHz

Conducted Spurious Emission (Low-CH 19)



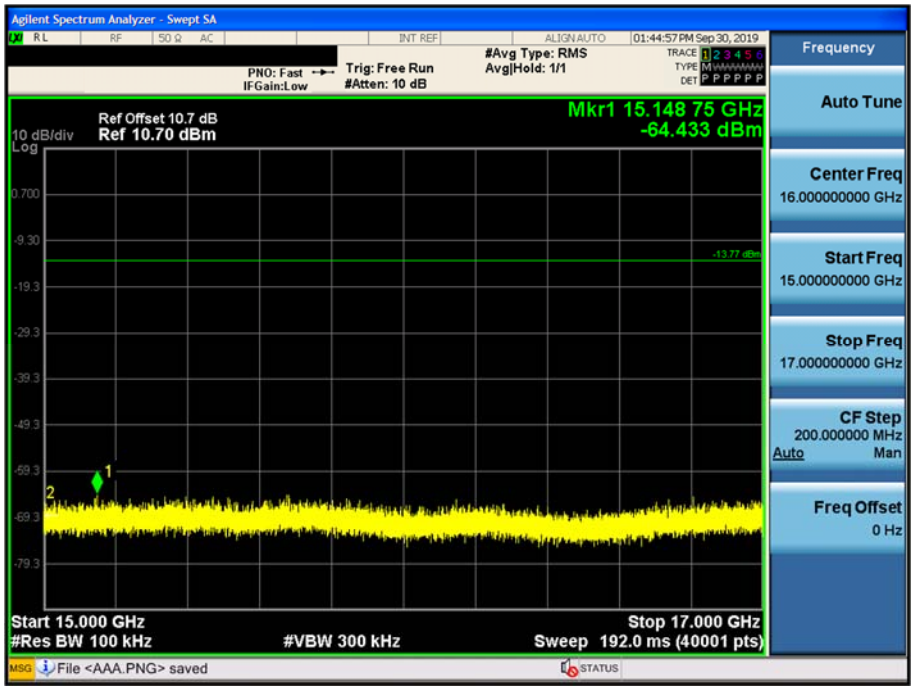
13 GHz ~ 15 GHz

Conducted Spurious Emission (Low-CH 19)



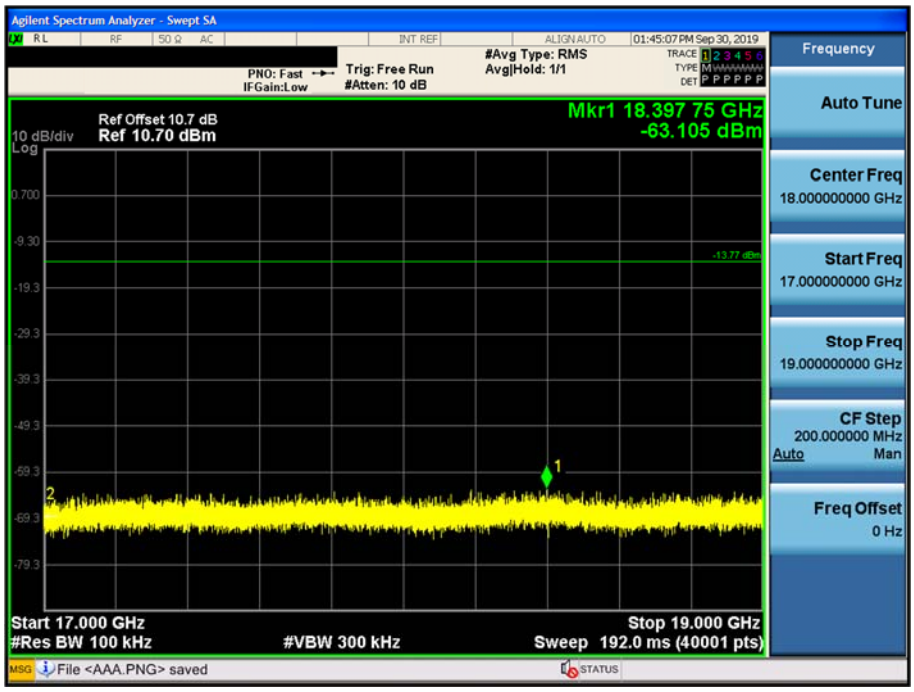
15 GHz ~ 17 GHz

Conducted Spurious Emission (Low-CH 19)



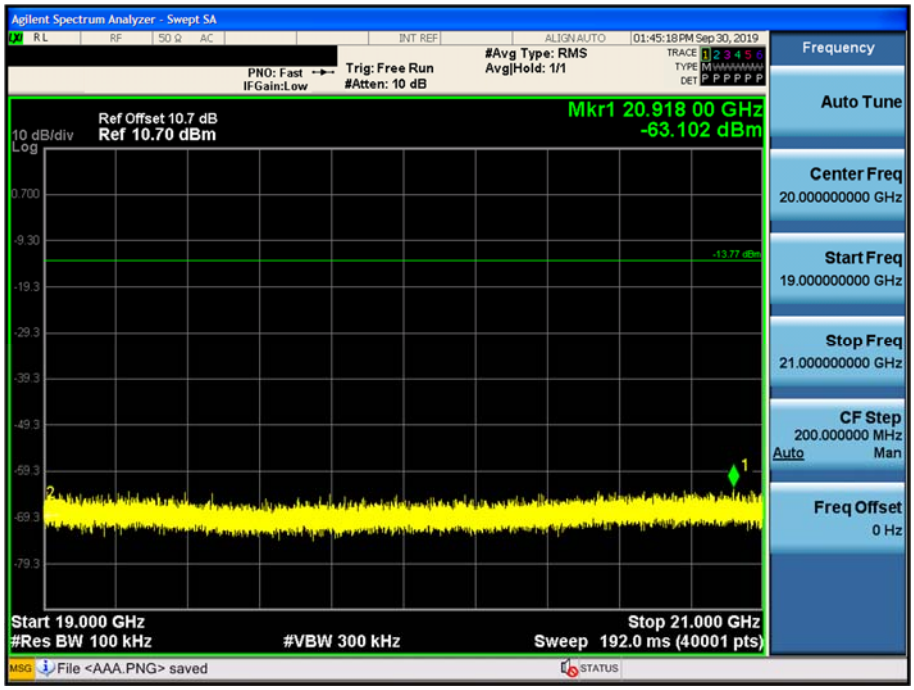
17 GHz ~ 19 GHz

Conducted Spurious Emission (Low-CH 19)



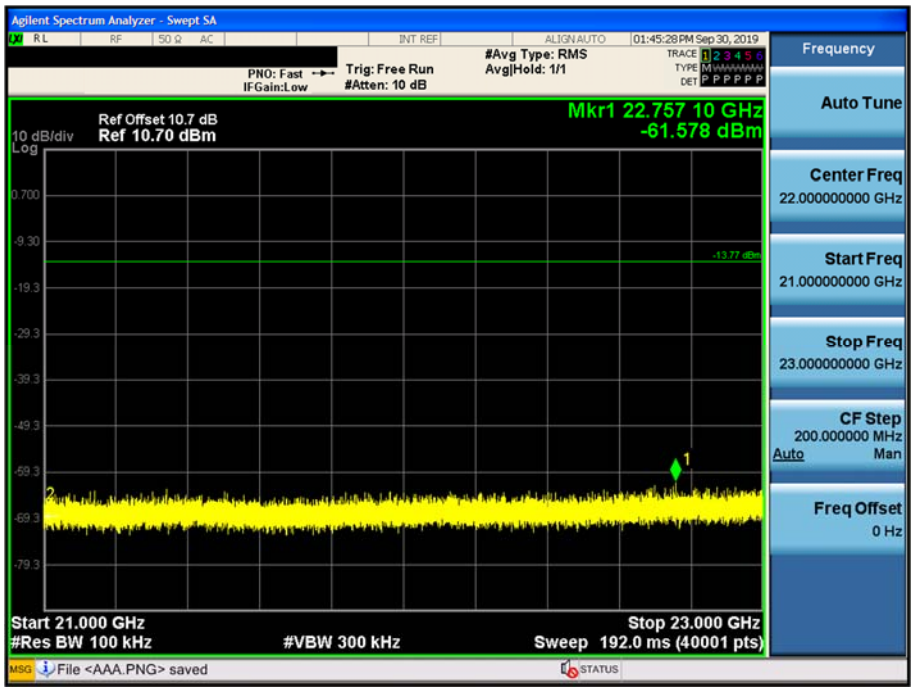
19 GHz ~ 21 GHz

Conducted Spurious Emission (Low-CH 19)



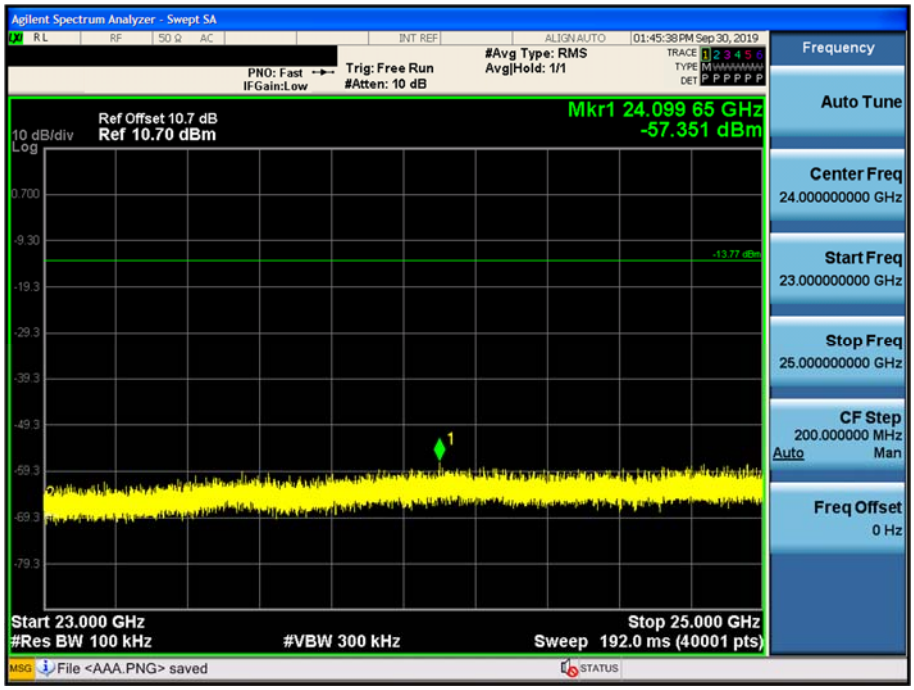
21 GHz ~ 23 GHz

Conducted Spurious Emission (Low-CH 19)



23 GHz ~ 25 GHz

Conducted Spurious Emission (Low-CH 19)



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

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

37 byte

Operation Mode: CH Low

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor [dB]	AN.+CL-AMP G [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	53.32	0.00	0.64	V	53.96	73.98	20.02	PK
4804	45.73	1.82	0.64	V	48.19	53.98	5.79	AV
7206	47.01	0.00	9.55	V	56.56	73.98	17.43	PK
7206	35.10	1.82	9.55	V	46.47	53.98	7.51	AV
4804	53.42	0.00	0.64	H	54.06	73.98	19.92	PK
4804	45.55	1.82	0.64	H	48.01	53.98	5.97	AV
7206	47.46	0.00	9.55	H	57.01	73.98	16.98	PK
7206	36.45	1.82	9.55	H	47.82	53.98	6.16	AV

Operation Mode: CH Mid

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor [dB]	AN.+CL-AMP G [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4880	51.62	0.00	1.06	V	52.68	73.98	21.30	PK
4880	42.70	1.82	1.06	V	45.58	53.98	8.40	AV
7320	47.23	0.00	9.24	V	56.47	73.98	17.51	PK
7320	35.82	1.82	9.24	V	46.88	53.98	7.10	AV
4880	51.17	0.00	1.06	H	52.23	73.98	21.75	PK
4880	41.60	1.82	1.06	H	44.48	53.98	9.50	AV
7320	46.80	0.00	9.24	H	56.04	73.98	17.94	PK
7320	35.74	1.82	9.24	H	46.80	53.98	7.18	AV

Operation Mode: CH High

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor [dB]	AN.+CL-AMP G [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	53.01	0.00	0.66	V	53.67	73.98	20.31	PK
4960	43.82	1.82	0.66	V	46.30	53.98	7.68	AV
7440	47.78	0.00	10.16	V	57.94	73.98	16.04	PK
7440	36.67	1.82	10.16	V	48.65	53.98	5.33	AV
4960	52.77	0.00	0.66	H	53.43	73.98	20.55	PK
4960	43.65	1.82	0.66	H	46.13	53.98	7.85	AV
7440	47.56	0.00	10.16	H	57.72	73.98	16.26	PK
7440	36.36	1.82	10.16	H	48.34	53.98	5.64	AV

255 byte

Operation Mode: CH Low

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor [dB]	AN.+CL-AMP G [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	53.53	0.00	0.64	V	54.17	73.98	19.81	PK
4804	46.26	0.64	0.64	V	47.54	53.98	6.44	AV
7206	47.53	0.00	9.55	V	57.08	73.98	16.91	PK
7206	36.88	0.64	9.55	V	47.07	53.98	6.91	AV
4804	52.19	0.00	0.64	H	52.83	73.98	21.15	PK
4804	45.88	0.64	0.64	H	47.16	53.98	6.82	AV
7206	47.98	0.00	9.55	H	57.53	73.98	16.46	PK
7206	37.00	0.64	9.55	H	47.19	53.98	6.79	AV

Operation Mode: CH Mid

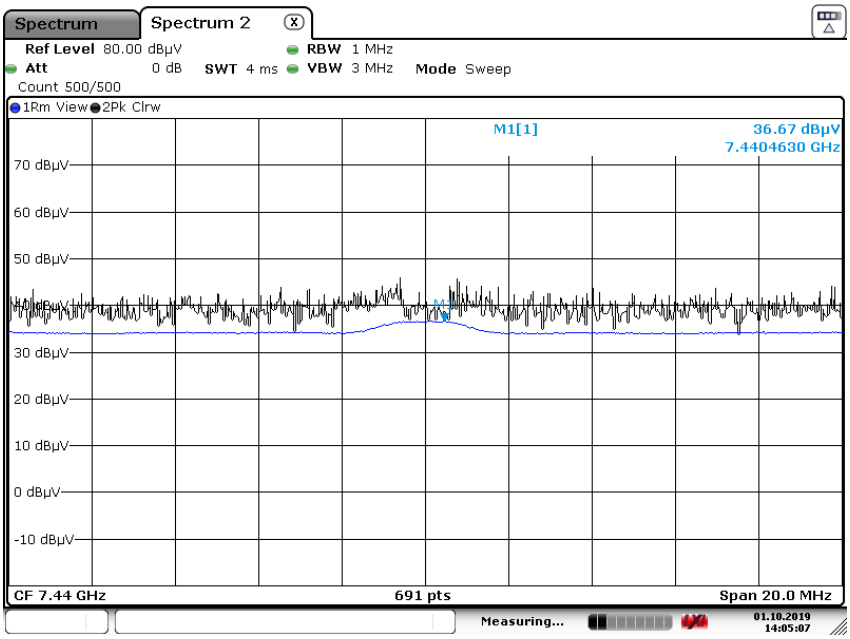
Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor [dB]	AN.+CL-AMP G [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4880	51.19	0.00	1.06	V	52.25	73.98	21.73	PK
4880	42.67	0.64	1.06	V	44.37	53.98	9.61	AV
7320	47.86	0.00	9.24	V	57.10	73.98	16.88	PK
7320	36.18	0.64	9.24	V	46.06	53.98	7.92	AV
4880	50.59	0.00	1.06	H	51.65	73.98	22.33	PK
4880	42.18	0.64	1.06	H	43.88	53.98	10.10	AV
7320	46.96	0.00	9.24	H	56.20	73.98	17.78	PK
7320	35.94	0.64	9.24	H	45.82	53.98	8.16	AV

Operation Mode: CH High

Frequency [MHz]	Reading [dBuV]	Duty Cycle Factor [dB]	AN.+CL-AMP G [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	53.42	0.00	0.66	V	54.08	73.98	19.90	PK
4960	44.64	0.64	0.66	V	45.94	53.98	8.04	AV
7440	48.24	0.00	10.16	V	58.40	73.98	15.58	PK
7440	37.24	0.64	10.16	V	48.04	53.98	5.94	AV
4960	53.07	0.00	0.66	H	53.73	73.98	20.25	PK
4960	44.31	0.64	0.66	H	45.61	53.98	8.37	AV
7440	47.74	0.00	10.16	H	57.90	73.98	16.08	PK
7440	36.99	0.64	10.16	H	47.79	53.98	6.19	AV

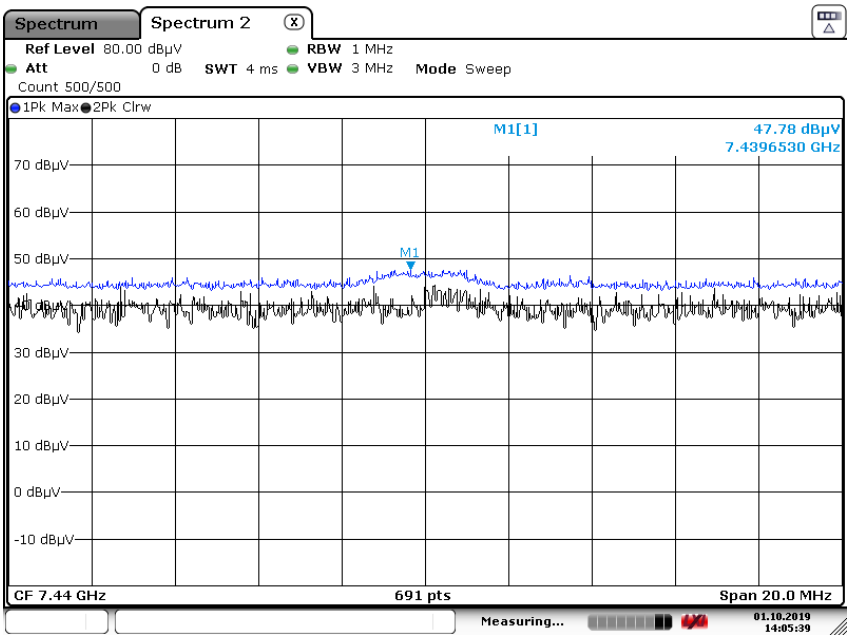
▣ 37 byteTest Plots (Worst-case: X-V)

Radiated Spurious Emissions plot – Average Reading (Ch.39 3rd Harmonic)



Date: 1.OCT.2019 14:05:07

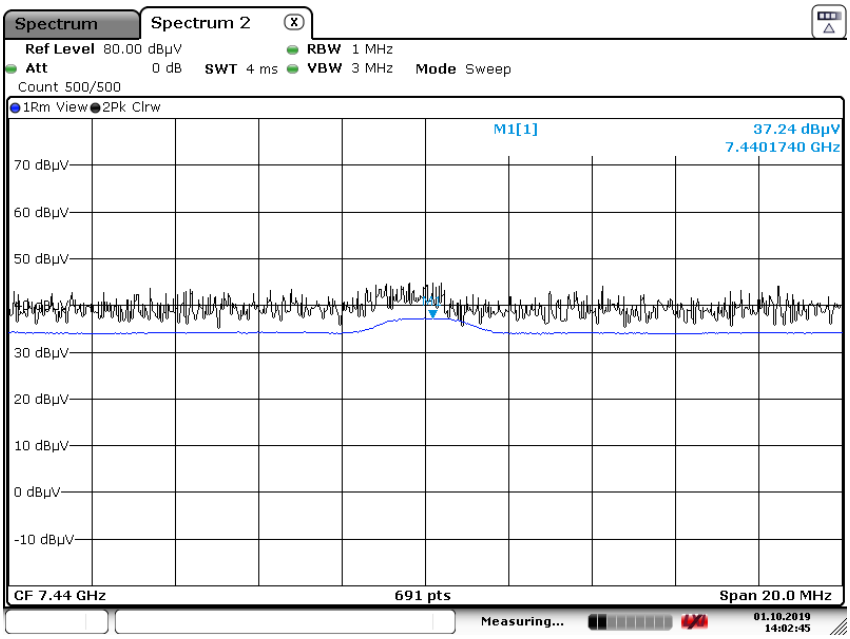
Radiated Spurious Emissions plot – Peak Reading (Ch.39 3rd Harmonic)



Date: 1.OCT.2019 14:05:39

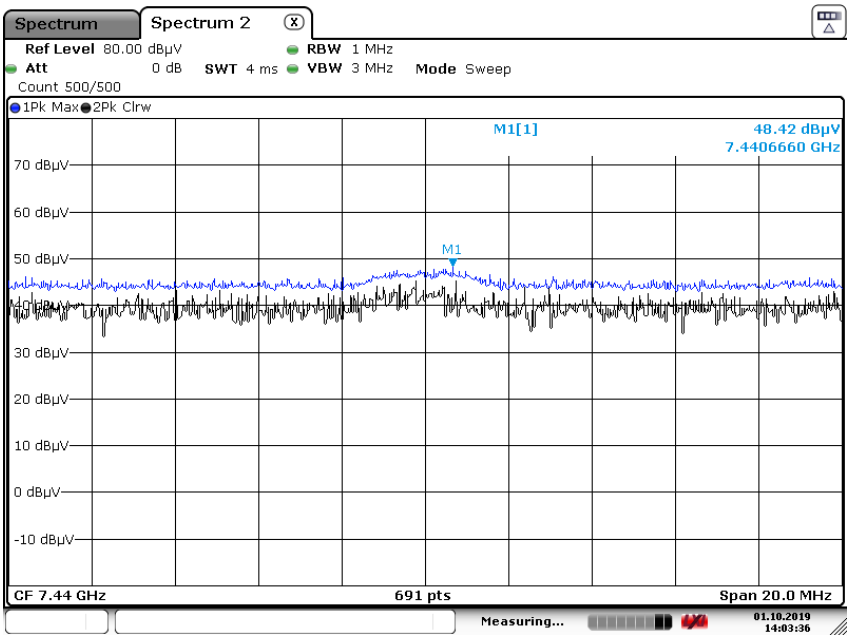
▣ 255 byteTest Plots (Worst-case: X-V)

Radiated Spurious Emissions plot – Average Reading (Ch.39 3rd Harmonic)



Date: 1.OCT.2019 14:02:45

Radiated Spurious Emissions plot – Peak Reading (Ch.39 3rd Harmonic)



Date: 1.OCT.2019 14:03:36

Note:

Plot of worst case are only reported.

9.7 RADIATED RESTRICTED BAND EDGES

37 byte

Operating Frequency 2402 MHz

Channel No. 0

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	18.29	0.00	33.69	H	51.98	73.98	22.00	PK
2390.0	6.89	1.82	33.69	H	42.40	53.98	11.58	AV
2390.0	19.64	0.00	33.69	V	53.33	73.98	20.65	PK
2390.0	6.94	1.82	33.69	V	42.45	53.98	11.53	AV

Operating Frequency 2480 MHz

Channel No. 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
2483.5	19.41	0.00	33.19	H	52.60	73.98	21.38	PK
2483.5	7.34	1.82	33.19	H	42.35	53.98	11.63	AV
2483.5	19.54	0.00	33.19	V	52.73	73.98	21.25	PK
2483.5	7.51	1.82	33.19	V	42.52	53.98	11.47	AV

255 byte

Operating Frequency 2402 MHz

Channel No. 0

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	18.57	0.00	33.69	H	52.26	73.98	21.72	PK
2390.0	6.78	0.64	33.69	H	41.11	53.98	12.87	AV
2390.0	19.25	0.00	33.69	V	52.94	73.98	21.05	PK
2390.0	6.81	0.64	33.69	V	41.14	53.98	12.84	AV

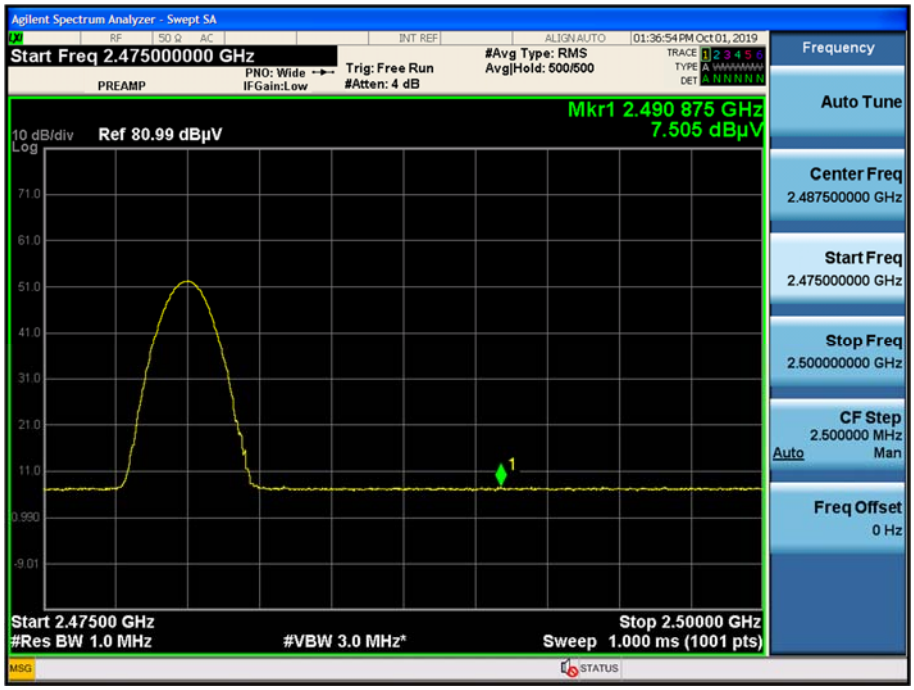
Operating Frequency 2480 MHz

Channel No. 39

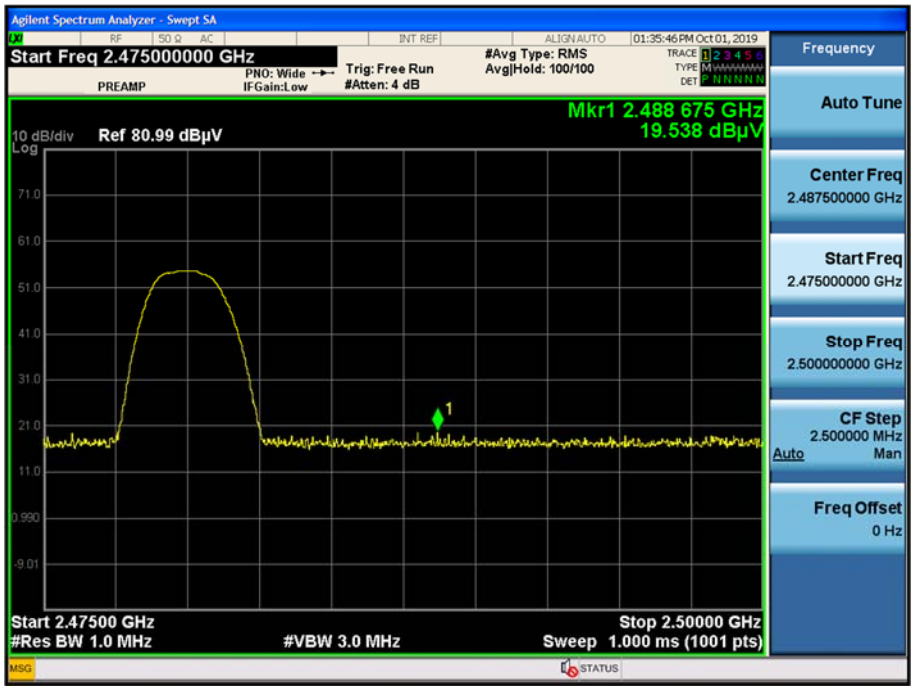
Frequency [MHz]	Reading [dBuV/m]	Duty Cycle Factor [dB]	A.F.+CL [dB]	Ant. Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2483.5	19.05	0.00	33.19	H	52.24	73.98	21.74	PK
2483.5	7.22	0.64	33.19	H	41.05	53.98	12.93	AV
2483.5	19.50	0.00	33.19	V	52.69	73.98	21.29	PK
2483.5	7.32	0.64	33.19	V	41.15	53.98	12.83	AV

▣ 37 byte Test Plots (Worst-case : Z-V)

Radiated Restricted Band Edges plot – Average Reading (Ch.39)

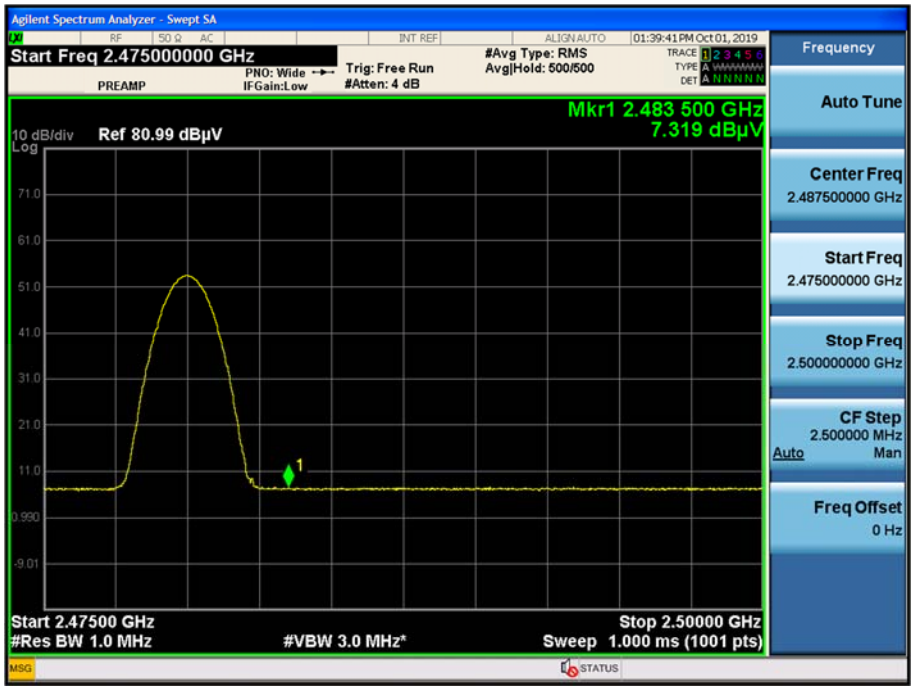


Radiated Restricted Band Edges plot – Peak Reading (Ch.39)

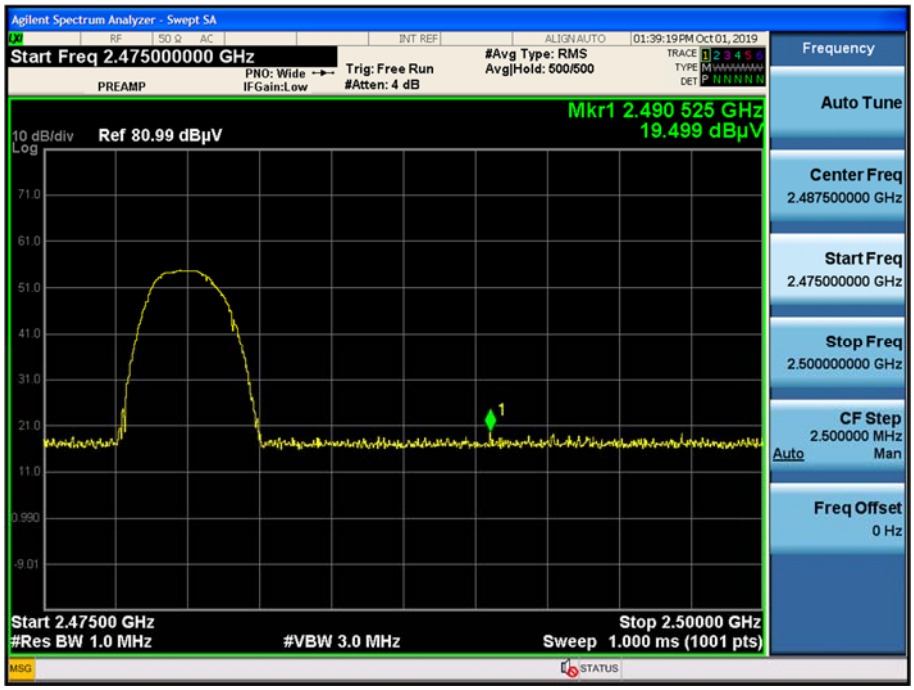


▣ 255 byte Test Plots (Worst-case : Z-V)

Radiated Restricted Band Edges plot – Average Reading (Ch.39)



Radiated Restricted Band Edges plot – Peak Reading (Ch.39)



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

Note: We don’t perform powerline conductde emission test. Because this EUT uses DC power.

10. LIST OF TEST EQUIPMENT

Conducted Test

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Rohde & Schwarz	ENV216 / LISN	12/12/2018	Annual	102245
Rohde & Schwarz	ESCI / Test Receiver	06/18/2019	Annual	100033
ESPAC	SU-642 /Temperature Chamber	03/12/2019	Annual	0093008124
Agilent	N9020A / Signal Analyzer	05/23/2019	Annual	MY51110085
Agilent	N9030A / Signal Analyzer	01/10/2019	Annual	MY49431210
Rohde & Schwarz	OSP 120 / Power Measurement Set	07/24/2019	Annual	101231
Agilent	N1911A / Power Meter	04/10/2019	Annual	MY45100523
Agilent	N1921A / Power Sensor	04/10/2019	Annual	MY52260025
Agilent	87300B / Directional Coupler	11/20/2018	Annual	3116A03621
Hewlett Packard	11667B / Power Splitter	05/24/2019	Annual	05001
Hewlett Packard	E3632A / DC Power Supply	06/18/2019	Annual	KR75303960
Agilent	8493C / Attenuator(10 dB)	07/02/2019	Annual	07560
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

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
Audix	EM1000 / Controller	N/A	N/A	060520
Audix	Turn Table	N/A	N/A	N/A
Rohde & Schwarz	Loop Antenna	01/18/2019	Biennial	1513-175
Schwarzbeck	VULB 9168 / Hybrid Antenna	03/22/2019	Biennial	760
Schwarzbeck	VULB 9160 / TRILOG Antenna	08/09/2018	Biennial	9160-3368
Schwarzbeck	BBHA 9120D / Horn Antenna	04/29/2019	Biennial	9120D-937
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	12/04/2017	Biennial	BBHA9170541
Rohde & Schwarz	FSP(9 kHz ~ 30 GHz) / Spectrum Analyzer	05/09/2019	Annual	100854
Rohde & Schwarz	FSV40-N / Spectrum Analyzer	07/31/2019	Annual	102168
Agilent	N9020A / Signal Analyzer	05/23/2019	Annual	MY51110085
Wainwright Instruments	WHK3.0/18G-10EF / High Pass Filter	05/23/2019	Annual	8
Wainwright Instruments	WHKX7.0/18G-8SS / High Pass Filter	05/03/2019	Annual	29
Wainwright Instruments	WRCJV2400/2483.5-2370/2520-60/12SS / Band Reject Filter	06/19/2019	Annual	2
Wainwright Instruments	WRCJV5100/5850-40/50-8EEK / Band Reject Filter	01/03/2019	Annual	2
Api tech.	18B-03 / Attenuator (3 dB)	06/04/2019	Annual	1
Agilent	8493C-10 / Attenuator(10 dB)	07/15/2019	Annual	08285
CERNEX	CBLU1183540 / Power Amplifier	07/01/2019	Annual	22964
CERNEX	CBL06185030 / Power Amplifier	07/01/2019	Annual	22965
CERNEX	CBL18265035 / Power Amplifier	01/03/2019	Annual	22966
CERNEX	CBL26405040 / Power Amplifier	06/18/2019	Annual	25956

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.

11. ANNEX A_ TEST SETUP PHOTO

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

No.	Description
1	HCT-RF-1910-FI003-P