

Client: RedSeat Entertainment LLC

Date: 7 Jul 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: General limit of 15.209

Tech: CL Payne

High Channel: 2474

Result: Pass

RADIATED SPURIOUS										
Freq (MHz)	Meter (dBuV)	Pre-Amp (dB)	Cable (dB)	Antenna (dB/m)	Corrected (dBuV/m)	Limit (dBuV/m)	Delta (dB)	Polarity	Type	Axis
4948.248	36.00	25.62	5.98	33.61	49.97	74.00	-24.03	V	Peak	X
4948.248	26.38	25.62	5.98	33.61	40.35	54.00	-13.65	V	Ave	X
7422.372	32.73	25.50	7.42	37.14	51.79	74.00	-22.21	V	Peak	X
7422.372	21.64	25.50	7.42	37.14	40.70	54.00	-13.30	V	Ave	X
9896.496	32.84	24.94	9.10	38.06	55.06	74.00	-18.94	V	Peak	X
9896.496	20.00	24.94	9.10	38.06	42.22	54.00	-11.78	V	Ave	X
4948.248	37.10	25.62	5.98	33.61	51.07	74.00	-22.93	H	Peak	X
4948.248	28.36	25.62	5.98	33.61	42.33	54.00	-11.67	H	Ave	X
7422.372	31.06	25.50	7.42	37.14	50.12	74.00	-23.88	H	Peak	X
7422.372	20.61	25.50	7.42	37.14	39.67	54.00	-14.33	H	Ave	X
9896.496	32.55	24.94	9.10	38.06	54.77	74.00	-19.23	H	Peak	X
9896.496	19.70	24.94	9.10	38.06	41.92	54.00	-12.08	H	Ave	X
4948.248	36.21	25.62	5.98	33.61	50.18	74.00	-23.82	V	Peak	Y
4948.248	27.20	25.62	5.98	33.61	41.17	54.00	-12.83	V	Ave	Y
7422.372	32.66	25.50	7.42	37.14	51.72	74.00	-22.28	V	Peak	Y
7422.372	20.19	25.50	7.42	37.14	39.25	54.00	-14.75	V	Ave	Y
9896.496	32.36	24.94	9.10	38.06	54.58	74.00	-19.42	V	Peak	Y
9896.496	19.77	24.94	9.10	38.06	41.99	54.00	-12.01	V	Ave	Y
4948.248	35.10	25.62	5.98	33.61	49.07	74.00	-24.93	H	Peak	Y
4948.248	24.19	25.62	5.98	33.61	38.16	54.00	-15.84	H	Ave	Y
7422.372	33.40	25.50	7.42	37.14	52.46	74.00	-21.54	H	Peak	Y
7422.372	20.83	25.50	7.42	37.14	39.89	54.00	-14.11	H	Ave	Y
9896.496	33.11	24.94	9.10	38.06	55.33	74.00	-18.67	H	Peak	Y
9896.496	20.00	24.94	9.10	38.06	42.22	54.00	-11.78	H	Ave	Y
4948.248	28.34	25.62	5.98	33.61	42.31	74.00	-31.69	V	Peak	Z
4948.248	22.95	25.62	5.98	33.61	36.92	54.00	-17.08	V	Ave	Z
7422.372	24.55	25.50	7.42	37.14	43.61	74.00	-30.39	V	Peak	Z
7422.372	12.91	25.50	7.42	37.14	31.97	54.00	-22.03	V	Ave	Z
9896.496	23.22	24.94	9.10	38.06	45.44	74.00	-28.56	V	Peak	Z
9896.496	10.74	24.94	9.10	38.06	32.96	54.00	-21.04	V	Ave	Z
4948.248	27.94	25.62	5.98	33.61	41.91	74.00	-32.09	H	Peak	Z
4948.248	22.25	25.62	5.98	33.61	36.22	54.00	-17.78	H	Ave	Z
7422.372	23.10	25.50	7.42	37.14	42.16	74.00	-31.84	H	Peak	Z
7422.372	12.12	25.50	7.42	37.14	31.18	54.00	-22.82	H	Ave	Z
9896.496	22.78	24.94	9.10	38.06	45.00	74.00	-29.00	H	Peak	Z
9896.496	10.73	24.94	9.10	38.06	32.95	54.00	-21.05	H	Ave	Z

No readings were observed above the third harmonic

## 11.12.2 Antenna-port conducted measurements

## 11.12.2.1 General

Antenna-port conducted measurements may also be used as an alternative to radiated measurements for determining compliance in the restricted frequency bands requirements. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case emissions is required.

## 11.12.2.2 General procedure for conducted measurements in restricted bands

The general procedure for conducted measurements in restricted bands is as follows:

- a) Measure the conducted output power (in dBm) using the detector specified by the appropriate regulatory agency (see 11.12.2.3 through 11.12.2.5 for guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).
- b) Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP (see 11.12.2.6 for guidance on determining the applicable antenna gain).
- c) Add the appropriate maximum ground reflection factor to the EIRP (6 dB for frequencies  $\leq 30$  MHz; 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive; and 0 dB for frequencies  $> 1000$  MHz).
- d) For MIMO devices, measure the power of each chain and sum the EIRP of all chains in linear terms (i.e., watts and mW).
- e) Convert the resultant EIRP to an equivalent electric field strength using the following relationship:

$$E = \text{EIRP} - 20 \log d + 104.8$$

where

$E$  is the electric field strength in dB $\mu$ V/m

EIRP is the equivalent isotropically radiated power in dBm

$d$  is the specified measurement distance in m

- f) Compare the resultant electric field strength level with the applicable regulatory limit.
- g) Perform the radiated spurious emission test.

15.247 (d)                      Restricted Bands - *continued*

Note: With respect to steps e) and f) a limit line (EIRP) based upon the dBuV/m limit was calculated and put on the plots to satisfy the requirement of step f) above. Formula is:  $(E + 20 \log d) - 104.8 = (\text{EIRP limit})$ . The appropriate correction factor from step c) was included in the final calculation.

Limit Calculation:

Formula:  $E - 104.8 + 20\log(3) - \text{antenna gain} - \text{ground reflection factor}$

30 MHz - 88 MHz	$40 - 104.8 + 20\log(d) - 2 - 4.7$	= -61.96 dBm
88 MHz - 216 MHz	$43 - 104.8 + 20\log(d) - 2 - 4.7$	= -58.96 dBm
216 MHz - 960 MHz	$46 - 104.8 + 20\log(d) - 2 - 4.7$	= -55.96 dBm
960 MHz - 1000 MHz	$54 - 104.8 + 20\log(d) - 2 - 4.7$	= -47.96 dBm
> 1000 MHz	$54 - 104.8 + 20\log(d) - 2 - 0$	= -43.26 dBm

*Note: (d) = Measurement distance in meters = 3 meters*

Requirement: FCC Part 15.247 Clause (d)

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

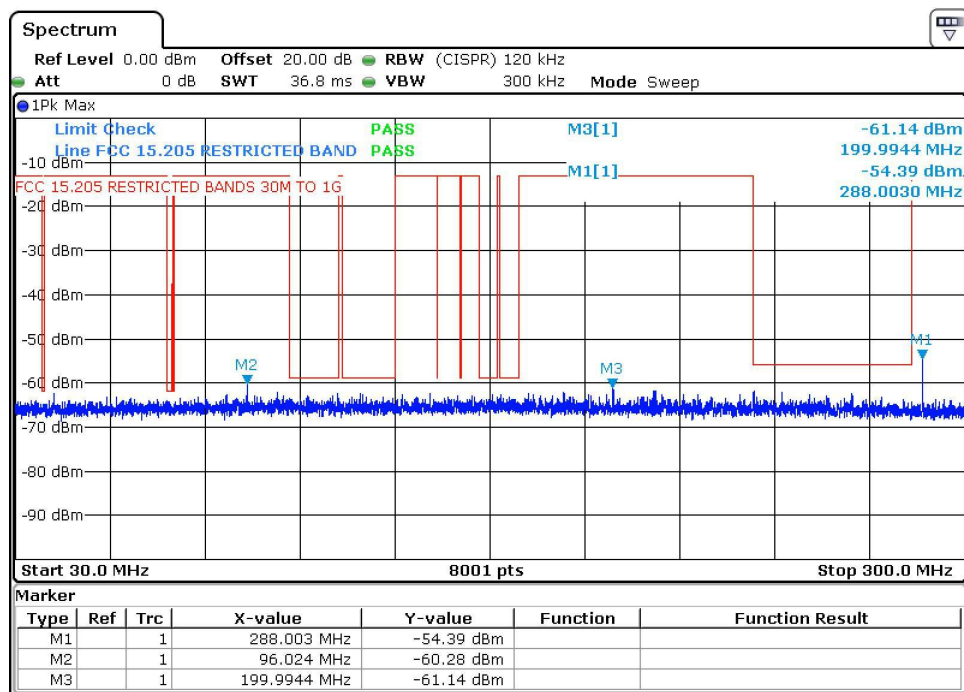
Tech: CL Payne

Low Channel: 2406 MHz

Frequency Range: 30 MHz to 300 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

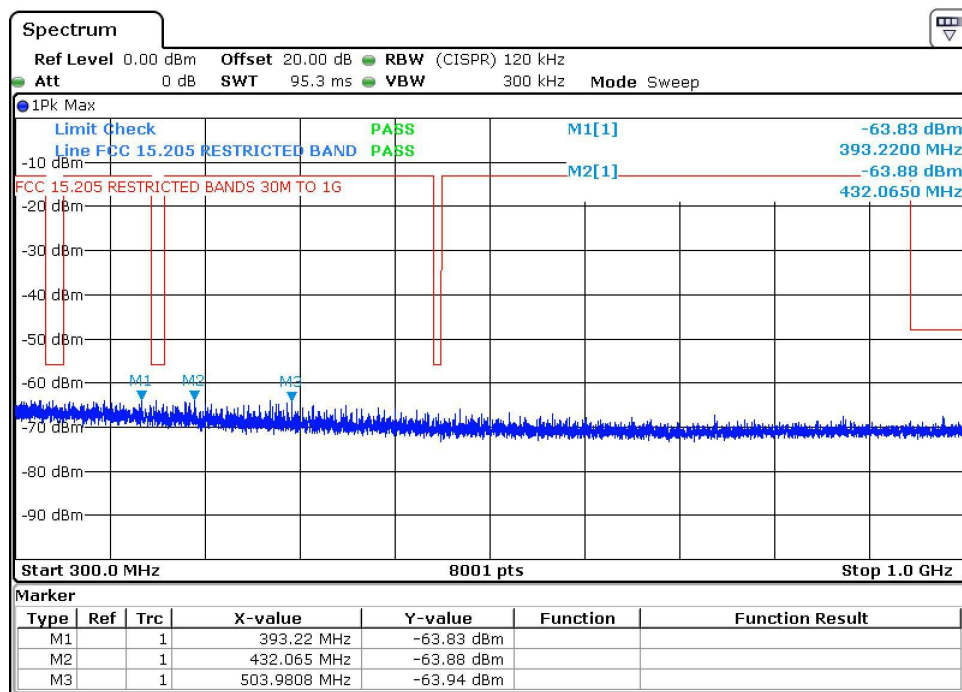
Tech: CL Payne

Low Channel: 2406 MHz

Frequency Range: 300 MHz to 1000 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

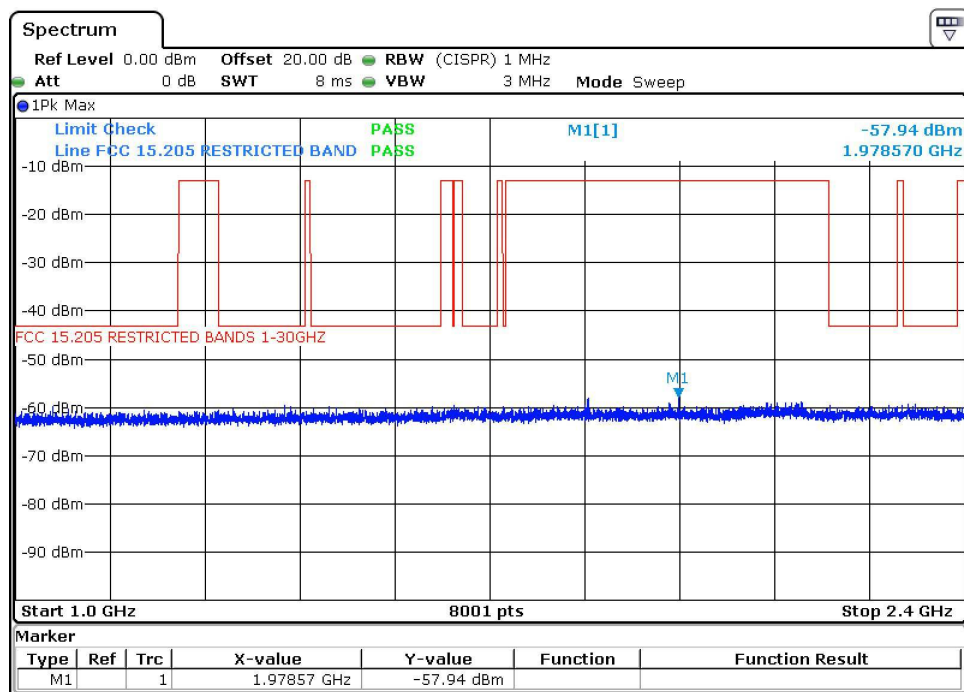
Tech: CL Payne

Low Channel: 2406 MHz

Frequency Range: 1000 MHz to 2400 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

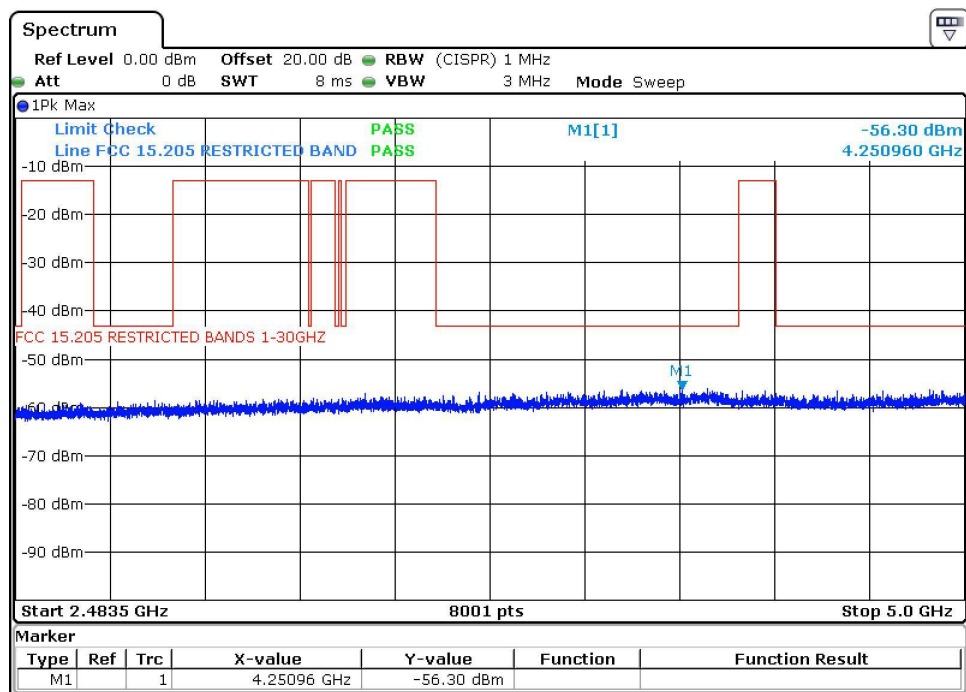
Tech: CL Payne

Low Channel: 2406 MHz

Frequency Range: 2483.5 MHz to 5000 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

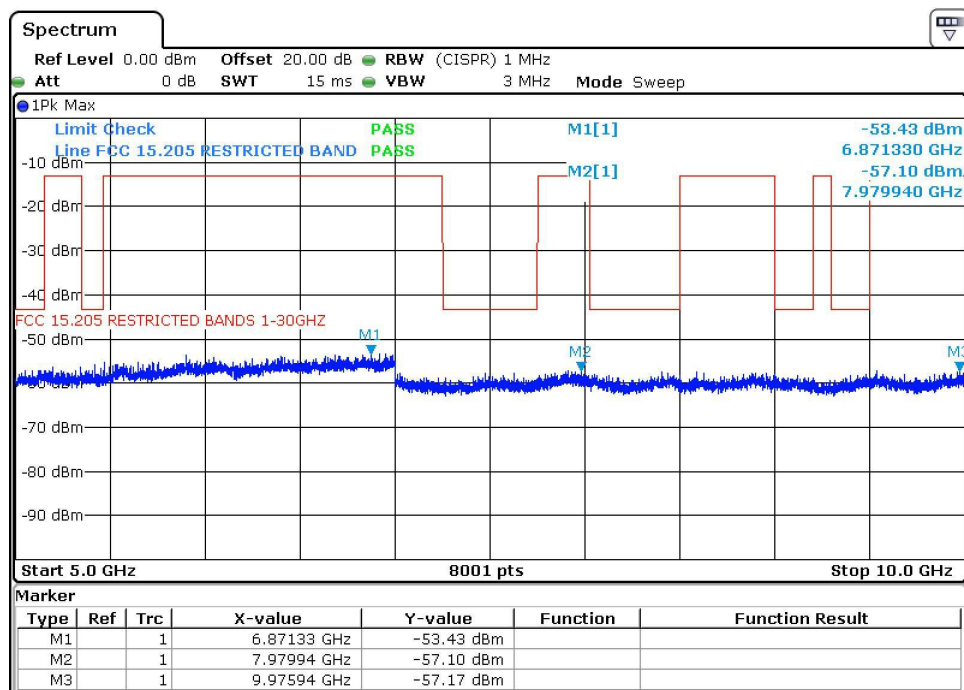
Tech: CL Payne

Low Channel: 2406 MHz

Frequency Range: 5000 MHz to 10000 MHz

Result: Pass

Detector Function: Peak





Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

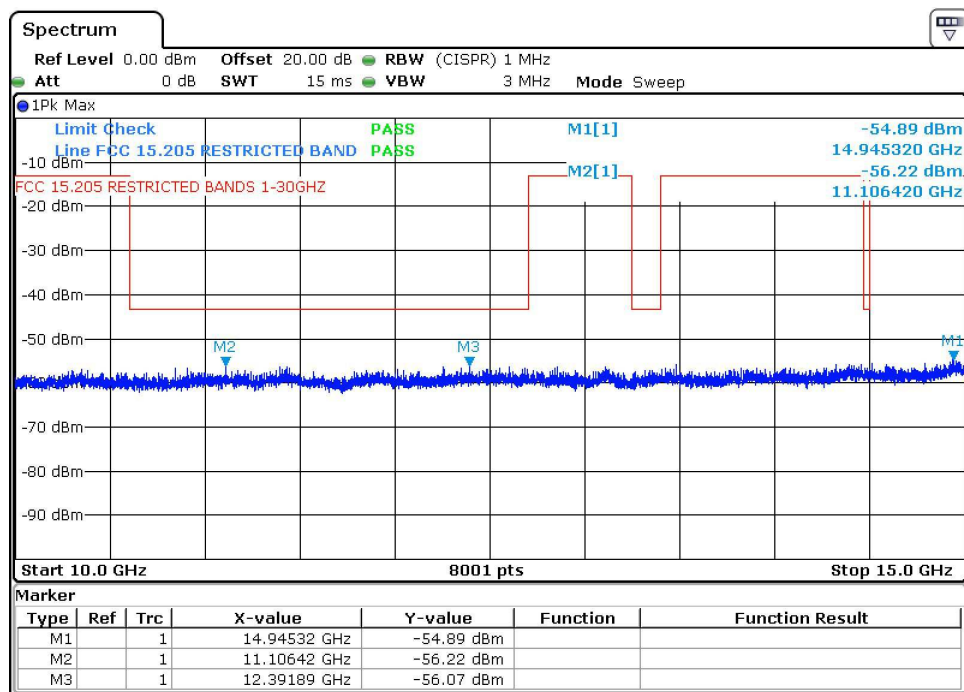
Tech: CL Payne

Low Channel: 2406 MHz

Frequency Range: 10000 MHz to 15000 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

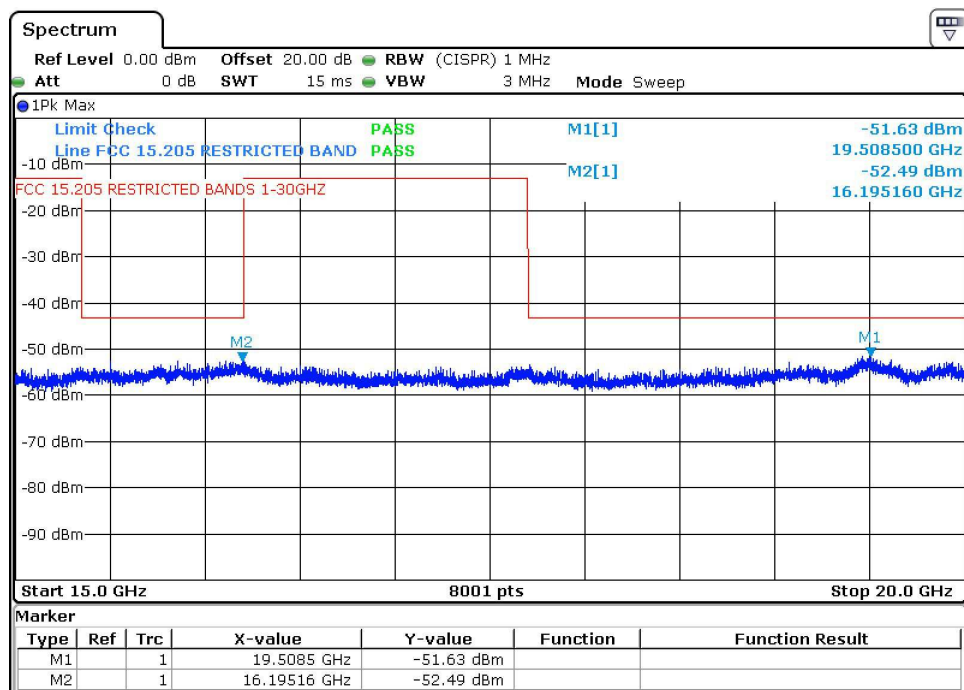
Tech: CL Payne

Low Channel: 2406 MHz

Frequency Range: 15000 MHz to 20000 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

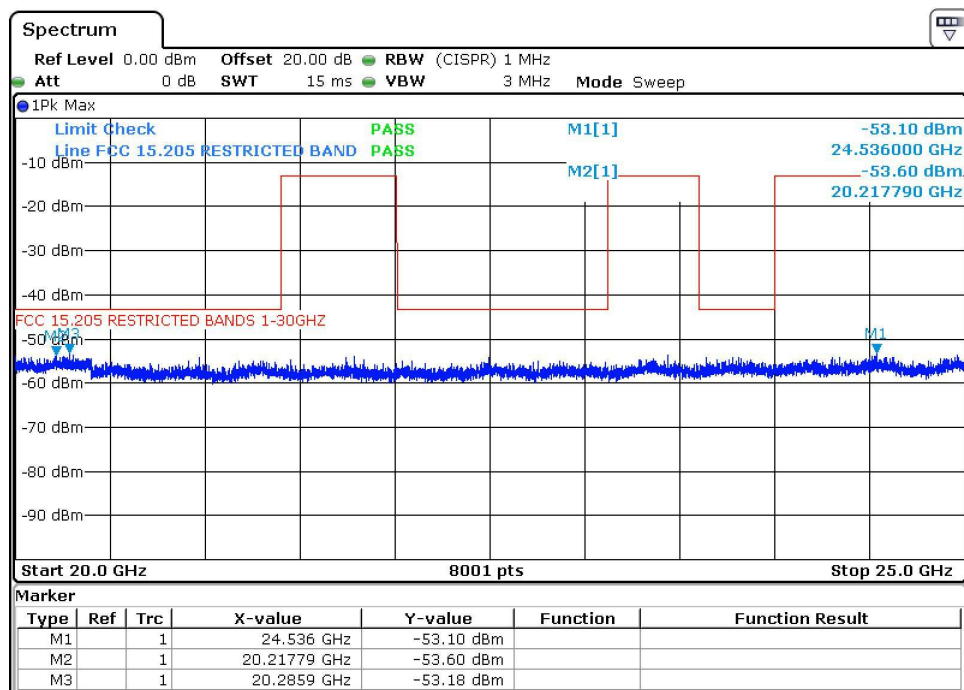
Tech: CL Payne

Low Channel: 2406 MHz

Frequency Range: 20000 MHz to 25000 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

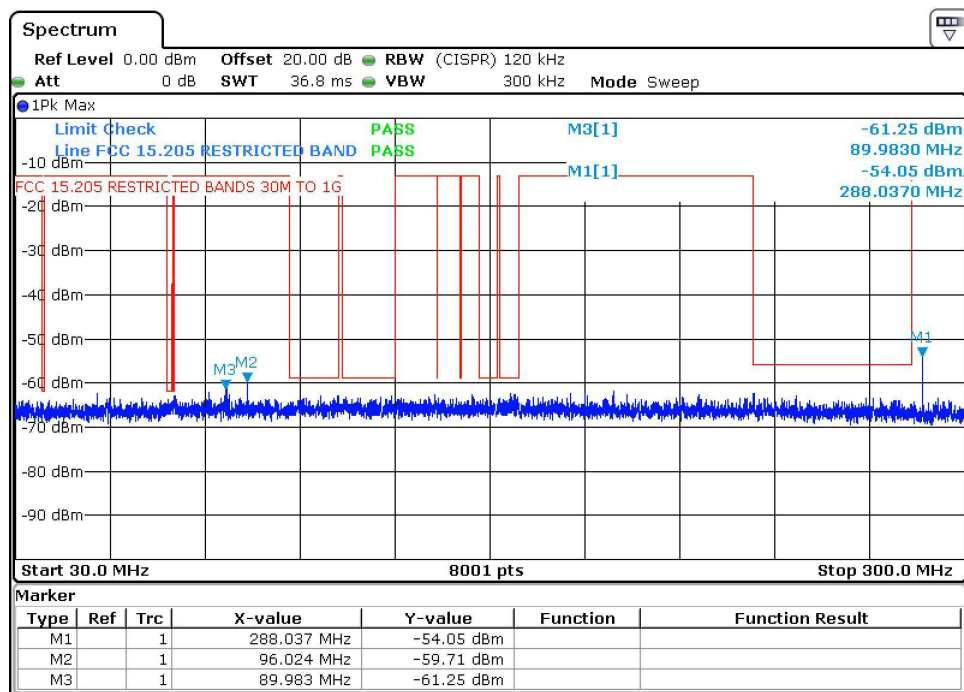
Tech: CL Payne

Mid Channel: 2442 MHz

Frequency Range: 30 MHz to 300 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

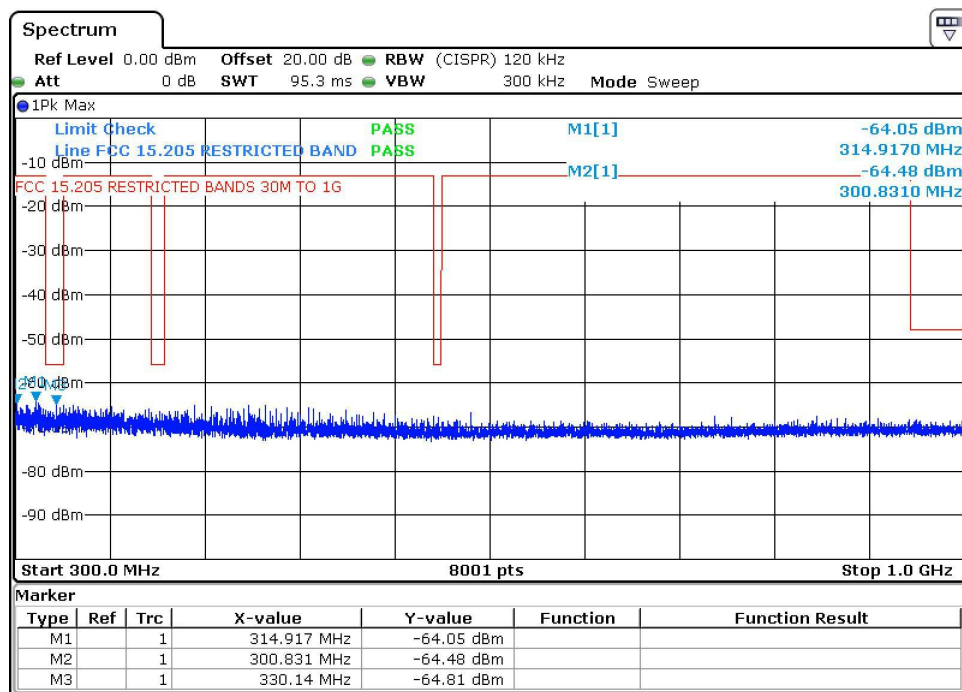
Tech: CL Payne

Mid Channel: 2442 MHz

Frequency Range: 300 MHz to 1000 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

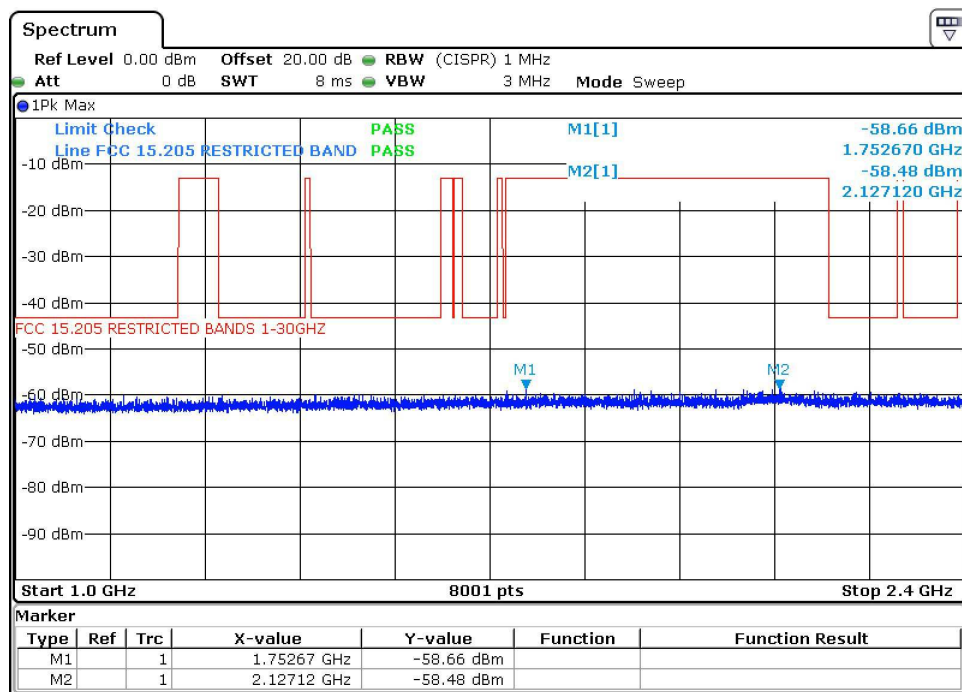
Tech: CL Payne

Mid Channel: 2442 MHz

Frequency Range: 1000 MHz to 2400 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

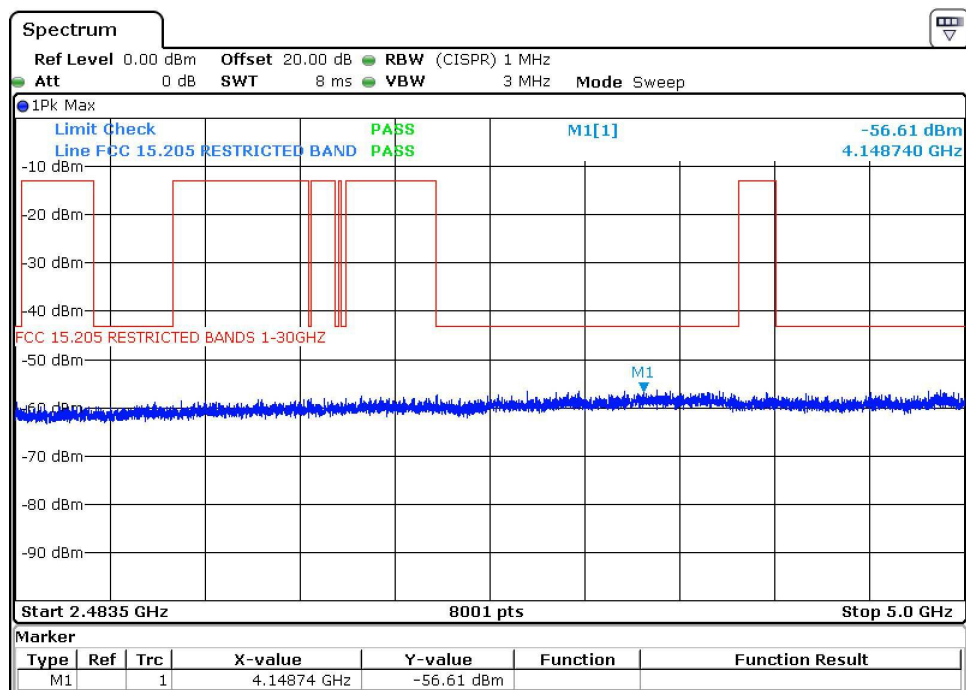
Tech: CL Payne

Mid Channel: 2442 MHz

Frequency Range: 2483.5 MHz to 5000 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

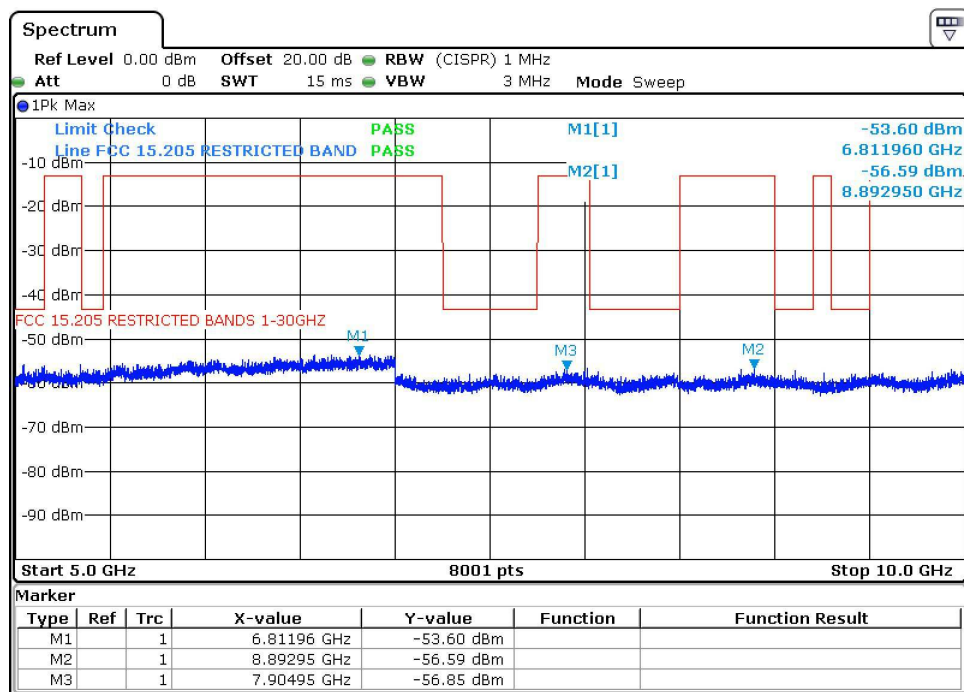
Tech: CL Payne

Mid Channel: 2442 MHz

Frequency Range: 5000 MHz to 10000 MHz

Result: Pass

Detector Function: Peak





Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

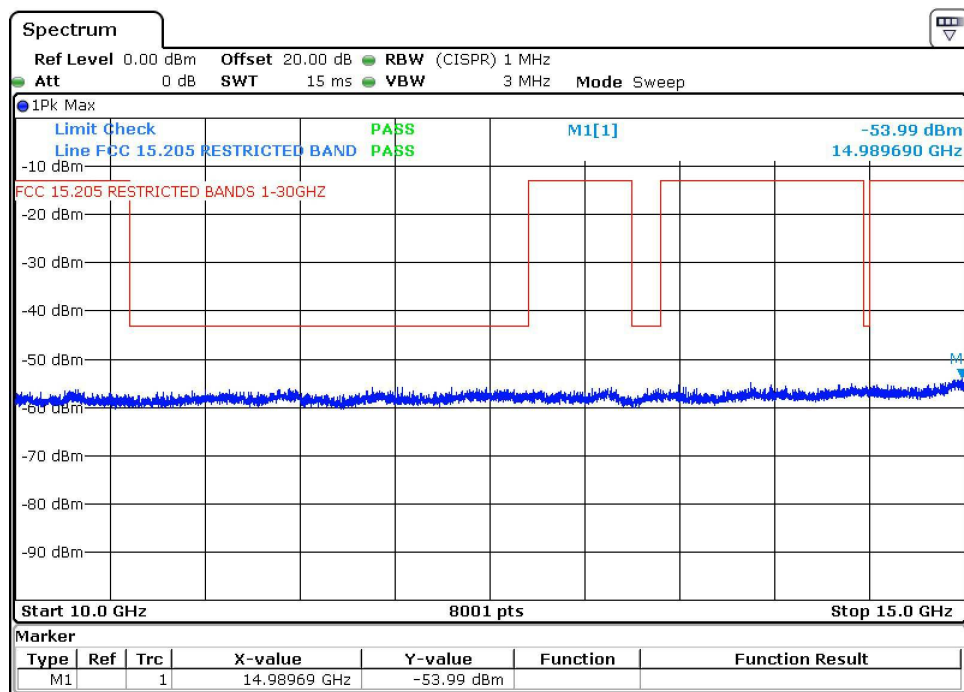
Tech: CL Payne

Mid Channel: 2442 MHz

Frequency Range: 10000 MHz to 15000 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

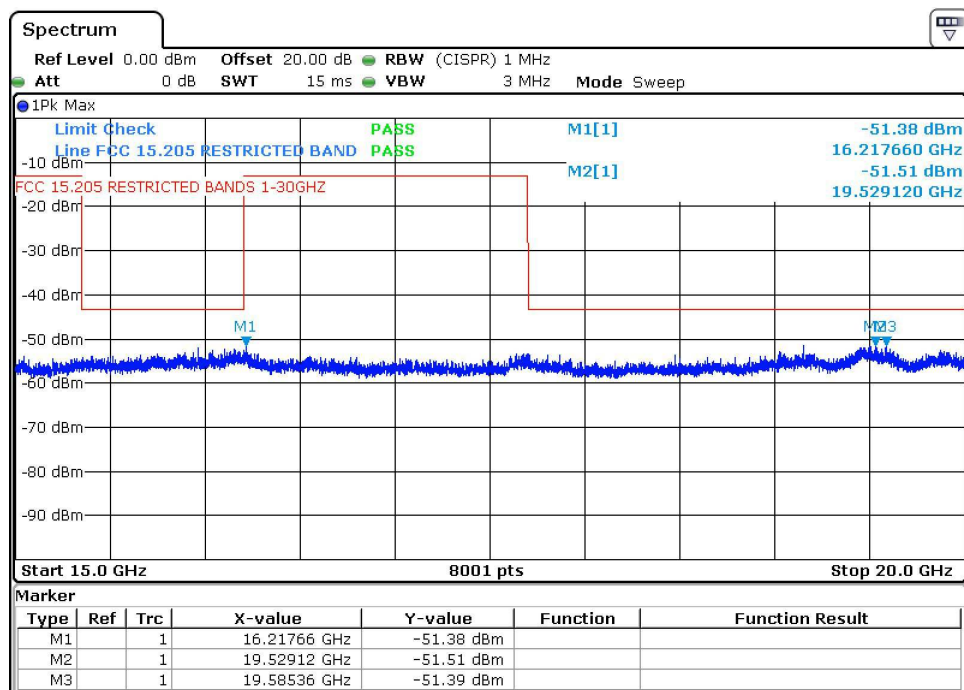
Tech: CL Payne

Mid Channel: 2442 MHz

Frequency Range: 15000 MHz to 20000 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

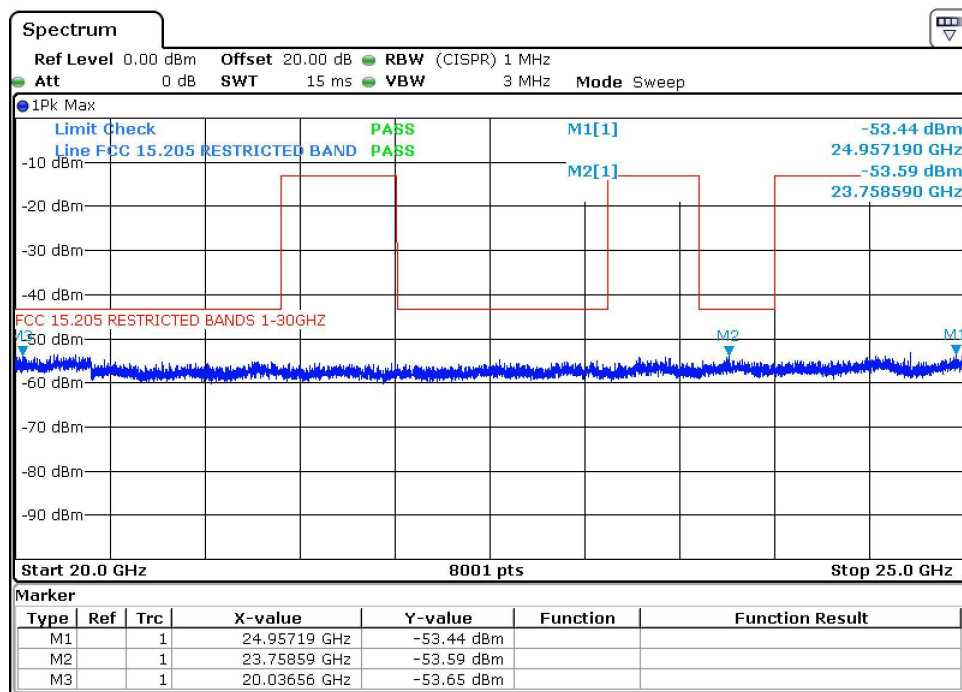
Tech: CL Payne

Mid Channel: 2442 MHz

Frequency Range: 20000 MHz to 25000 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

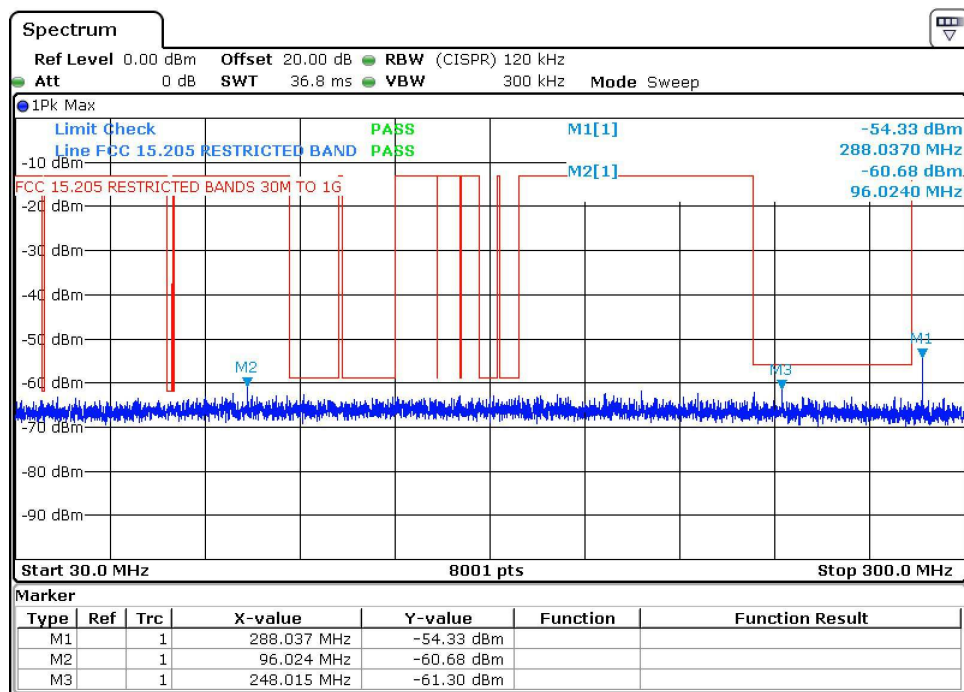
Tech: CL Payne

High Channel: 2474 MHz

Frequency Range: 30 MHz to 300 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

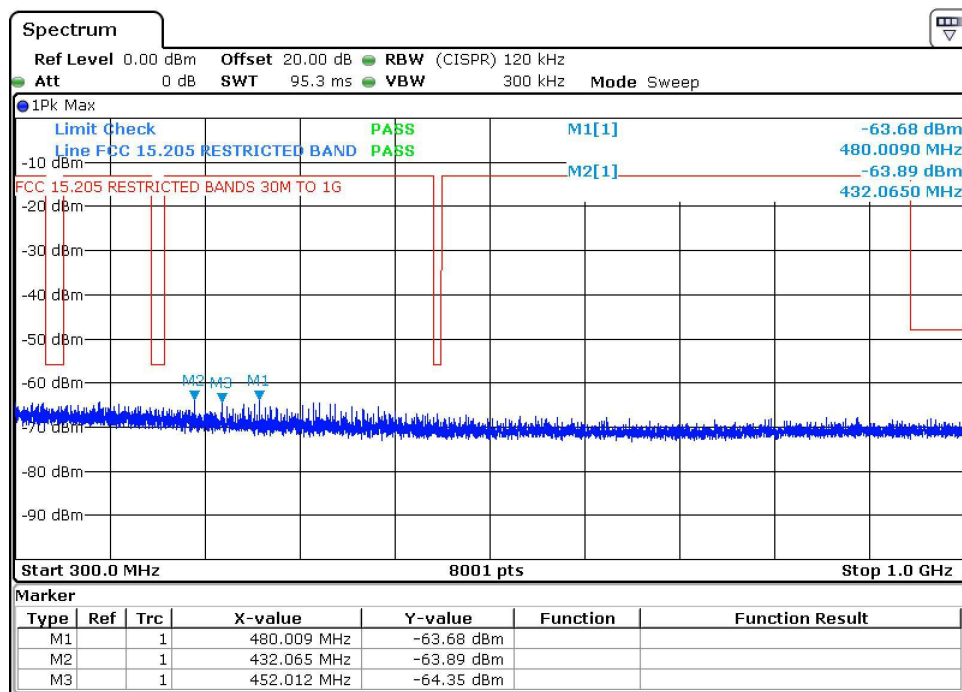
Tech: CL Payne

High Channel: 2474 MHz

Frequency Range: 300 MHz to 1000 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

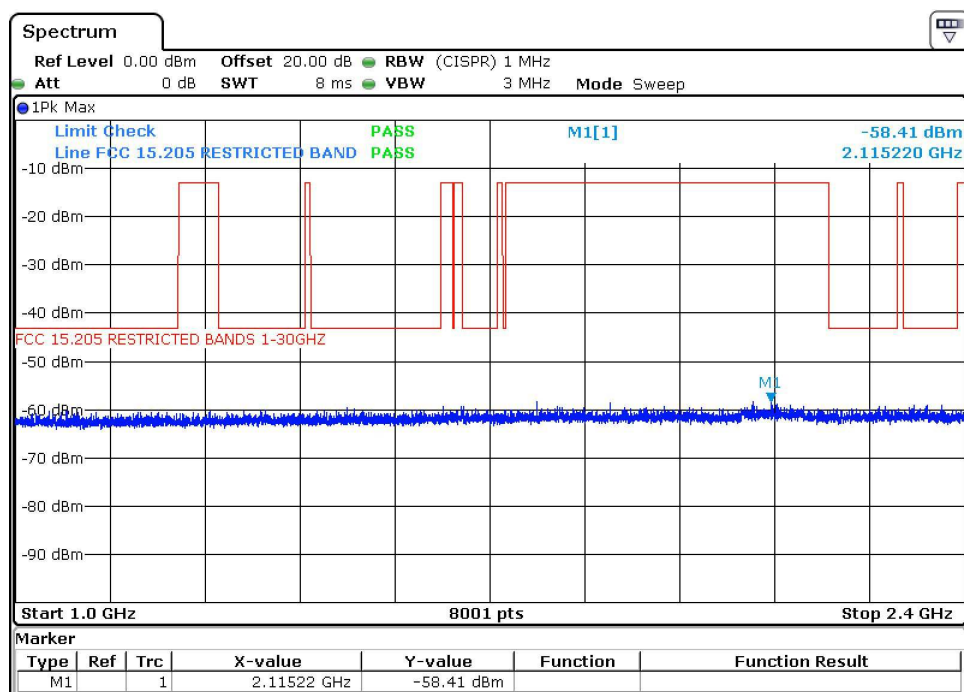
Tech: CL Payne

High Channel: 2474 MHz

Frequency Range: 1000 MHz to 2400 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

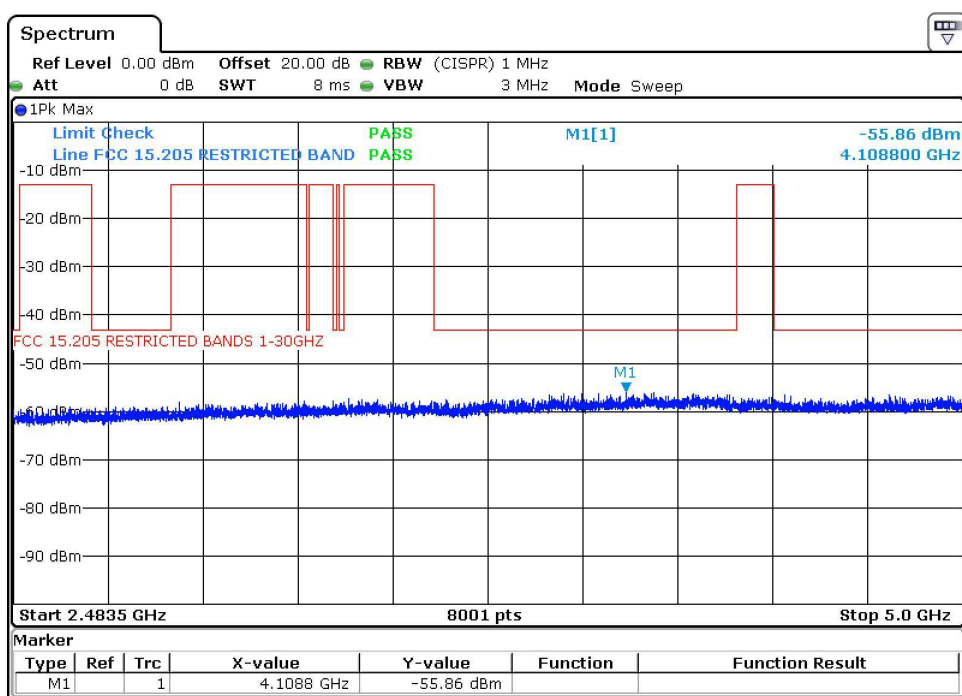
Tech: CL Payne

High Channel: 2474 MHz

Frequency Range: 2483.5 MHz to 5000 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

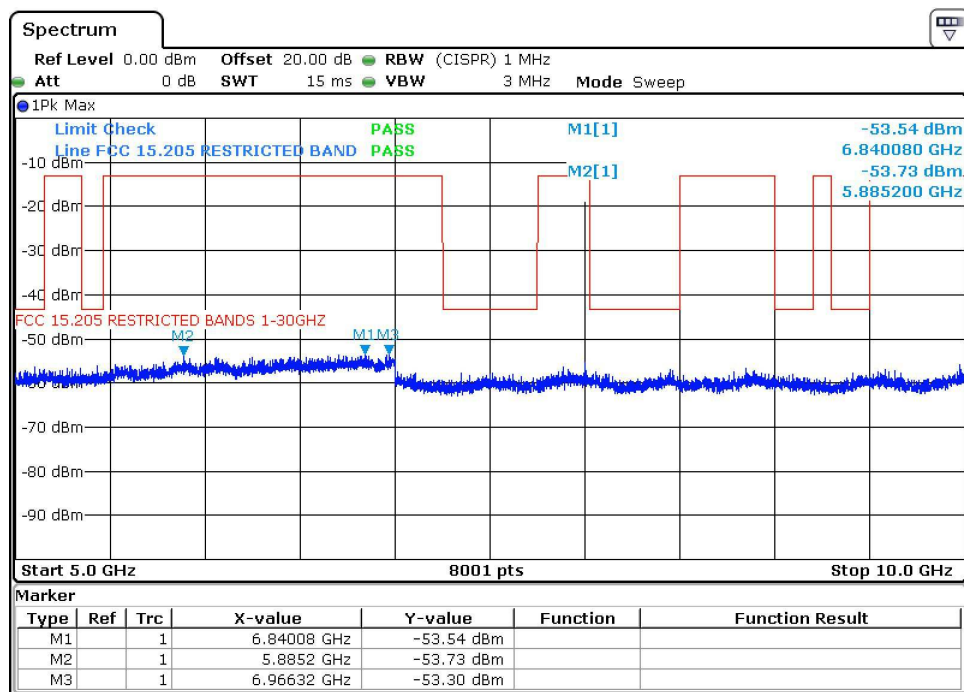
Tech: CL Payne

High Channel: 2474 MHz

Frequency Range: 5000 MHz to 10000 MHz

Result: Pass

Detector Function: Peak





Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

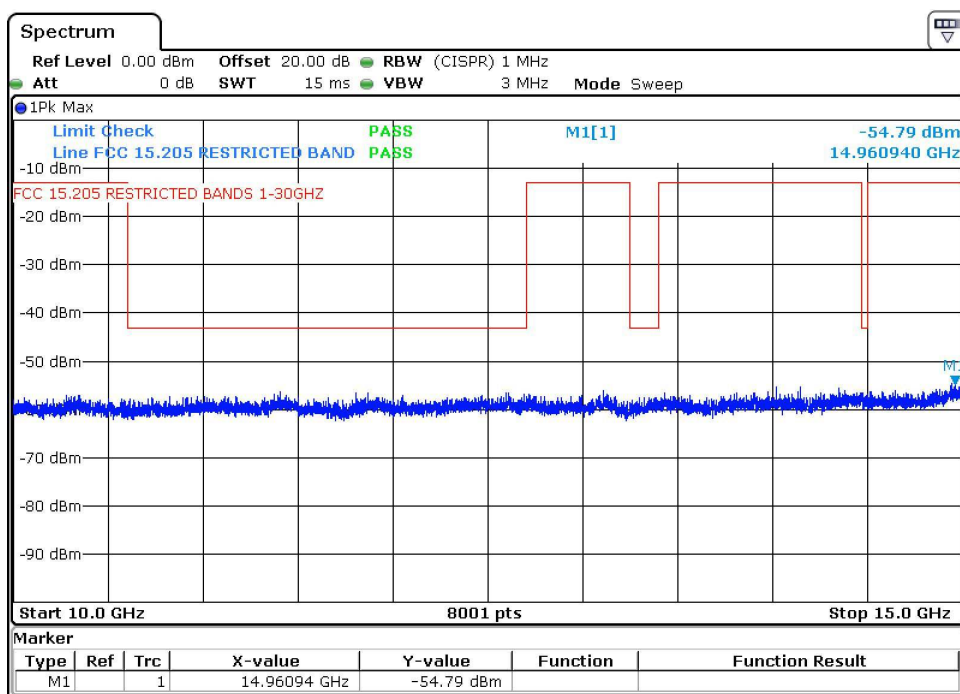
Tech: CL Payne

High Channel: 2474 MHz

Frequency Range: 10000 MHz to 15000 MHz

Result: Pass

Detector Function: Peak



Client: RedSeat Entertainment LLC

Date: 7 May 2023

DNB Job: 16084

EUT: GT USB

Model No: 04337

Requirement: Emissions Below Restricted Band Limits

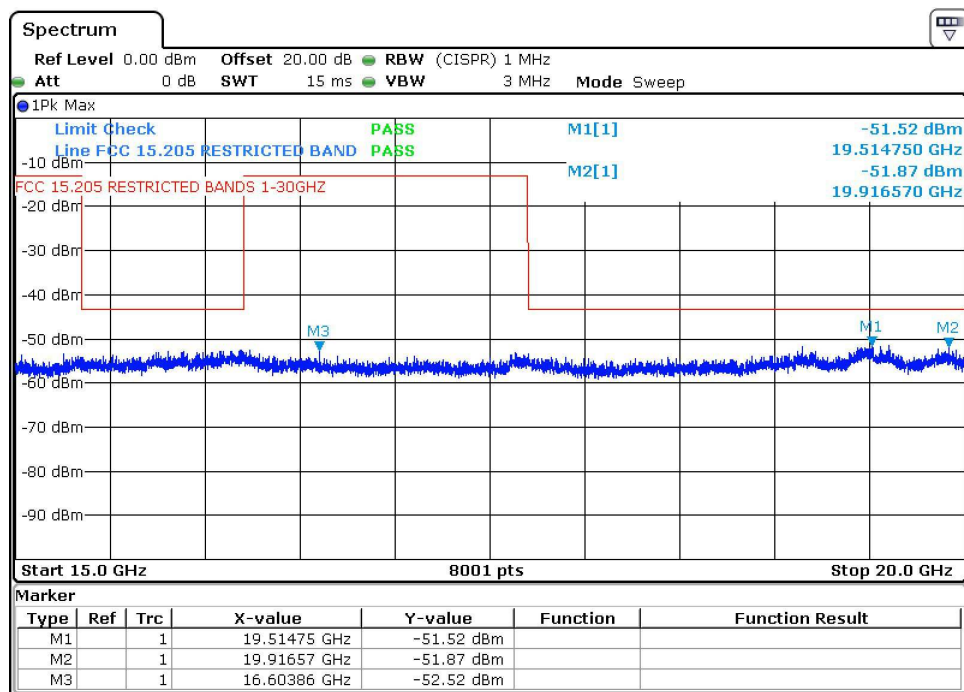
Tech: CL Payne

High Channel: 2474 MHz

Frequency Range: 15000 MHz to 20000 MHz

Result: Pass

Detector Function: Peak



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EUT: GT USB

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Requirement: Emissions Below Restricted Band Limits

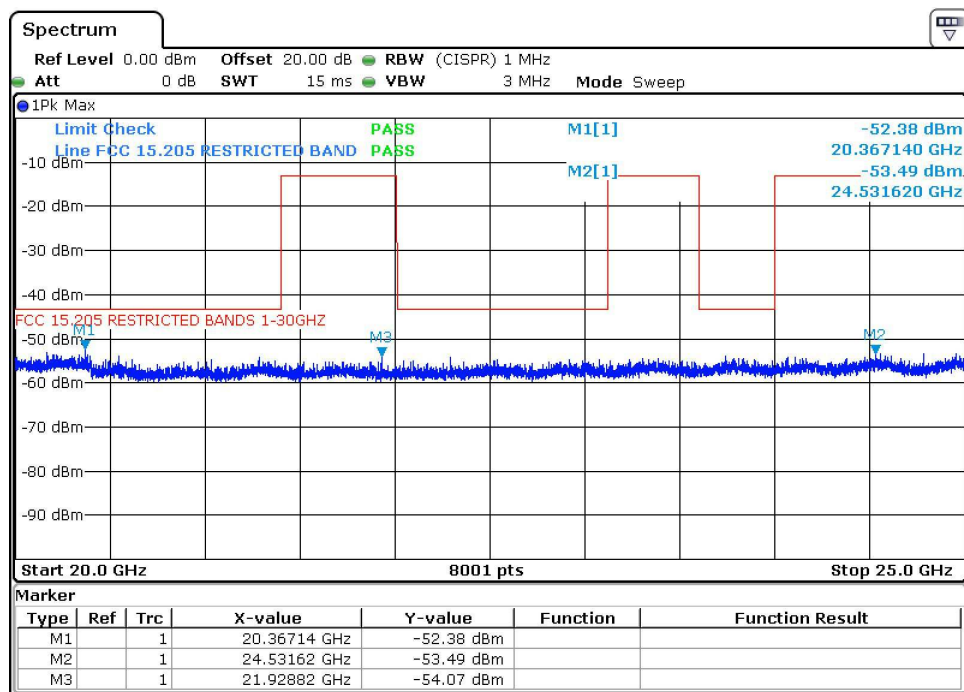
Tech: CL Payne

High Channel: 2474 MHz

Frequency Range: 20000 MHz to 25000 MHz

Result: Pass

Detector Function: Peak



End of Report UT16084A-002