Appendix B

E-UTRA BAND 14

CONTENT

1. Effective (Isotropic) Radiated Power

1.1. Test Result

BAND	Bandwidth	Modulation	Channel	RB Configuration	Result (dBm)	ERP (dBm)	Limit (dBm)	Verdict
BAND14	5MHz	QPSK	23305	1RB#0	23.86	23.71	34.77	PASS
BAND14	5MHz	QPSK	23305	1RB#12	23.78	23.63	34.77	PASS
BAND14	5MHz	QPSK	23305	1RB#24	23.66	23.51	34.77	PASS
BAND14	5MHz	QPSK	23305	12RB#0	22.95	22.80	34.77	PASS
BAND14	5MHz	QPSK	23305	12RB#13	22.89	22.74	34.77	PASS
BAND14	5MHz	QPSK	23305	12RB#6	22.91	22.76	34.77	PASS
BAND14	5MHz	QPSK	23305	25RB#0	22.97	22.82	34.77	PASS
BAND14	5MHz	QPSK	23330	1RB#0	23.88	23.73	34.77	PASS
BAND14	5MHz	QPSK	23330	1RB#12	23.76	23.61	34.77	PASS
BAND14	5MHz	QPSK	23330	1RB#24	23.68	23.53	34.77	PASS
BAND14	5MHz	QPSK	23330	12RB#0	22.89	22.74	34.77	PASS
BAND14	5MHz	QPSK	23330	12RB#13	22.97	22.82	34.77	PASS
BAND14	5MHz	QPSK	23330	12RB#6	22.96	22.81	34.77	PASS
BAND14	5MHz	QPSK	23330	25RB#0	22.98	22.83	34.77	PASS
BAND14	5MHz	QPSK	23355	1RB#0	23.89	23.74	34.77	PASS
BAND14	5MHz	QPSK	23355	1RB#12	23.78	23.63	34.77	PASS
BAND14	5MHz	QPSK	23355	1RB#24	23.79	23.64	34.77	PASS
BAND14	5MHz	QPSK	23355	12RB#0	22.97	22.82	34.77	PASS
BAND14	5MHz	QPSK	23355	12RB#13	22.96	22.81	34.77	PASS
BAND14	5MHz	QPSK	23355	12RB#6	22.98	22.83	34.77	PASS
BAND14	5MHz	QPSK	23355	25RB#0	22.89	22.74	34.77	PASS
BAND14	5MHz	16QAM	23305	1RB#0	22.88	22.73	34.77	PASS
BAND14	5MHz	16QAM	23305	1RB#12	22.85	22.70	34.77	PASS
BAND14	5MHz	16QAM	23305	1RB#24	22.76	22.61	34.77	PASS
BAND14	5MHz	16QAM	23305	12RB#0	21.77	21.62	34.77	PASS
BAND14	5MHz	16QAM	23305	12RB#13	21.86	21.71	34.77	PASS
BAND14	5MHz	16QAM	23305	12RB#6	21.74	21.59	34.77	PASS
BAND14	5MHz	16QAM	23305	25RB#0	21.95	21.80	34.77	PASS
BAND14	5MHz	16QAM	23330	1RB#0	22.77	22.62	34.77	PASS
BAND14	5MHz	16QAM	23330	1RB#12	22.56	22.41	34.77	PASS
BAND14	5MHz	16QAM	23330	1RB#24	22.56	22.41	34.77	PASS
BAND14	5MHz	16QAM	23330	12RB#0	21.86	21.71	34.77	PASS
BAND14	5MHz	16QAM	23330	12RB#13	21.76	21.61	34.77	PASS
BAND14	5MHz	16QAM	23330	12RB#6	21.79	21.64	34.77	PASS

BAND14	5MHz	16QAM	23330	25RB#0	21.86	21.71	34.77	PASS
BAND14	5MHz	16QAM	23355	1RB#0	22.74	22.59	34.77	PASS
BAND14	5MHz	16QAM	23355	1RB#12	22.62	22.47	34.77	PASS
BAND14	5MHz	16QAM	23355	1RB#24	22.72	22.57	34.77	PASS
BAND14	5MHz	16QAM	23355	12RB#0	21.87	21.72	34.77	PASS
BAND14	5MHz	16QAM	23355	12RB#13	21.80	21.65	34.77	PASS
BAND14	5MHz	16QAM	23355	12RB#6	21.88	21.73	34.77	PASS
BAND14	5MHz	16QAM	23355	25RB#0	21.86	21.71	34.77	PASS
BAND14	5MHz	64QAM	23305	1RB#0	21.75	21.60	34.77	PASS
BAND14	5MHz	64QAM	23305	1RB#12	21.51	21.36	34.77	PASS
BAND14	5MHz	64QAM	23305	1RB#24	21.57	21.42	34.77	PASS
BAND14	5MHz	64QAM	23305	12RB#0	20.89	20.74	34.77	PASS
BAND14	5MHz	64QAM	23305	12RB#13	20.81	20.66	34.77	PASS
BAND14	5MHz	64QAM	23305	12RB#6	20.66	20.51	34.77	PASS
BAND14	5MHz	64QAM	23305	25RB#0	20.77	20.62	34.77	PASS
BAND14	5MHz	64QAM	23330	1RB#0	21.78	21.63	34.77	PASS
BAND14	5MHz	64QAM	23330	1RB#12	21.62	21.47	34.77	PASS
BAND14	5MHz	64QAM	23330	1RB#24	21.39	21.24	34.77	PASS
BAND14	5MHz	64QAM	23330	12RB#0	20.97	20.82	34.77	PASS
BAND14	5MHz	64QAM	23330	12RB#13	20.79	20.64	34.77	PASS
BAND14	5MHz	64QAM	23330	12RB#6	20.89	20.74	34.77	PASS
BAND14	5MHz	64QAM	23330	25RB#0	20.95	20.80	34.77	PASS
BAND14	5MHz	64QAM	23355	1RB#0	21.64	21.49	34.77	PASS
BAND14	5MHz	64QAM	23355	1RB#12	21.48	21.33	34.77	PASS
BAND14	5MHz	64QAM	23355	1RB#24	21.66	21.51	34.77	PASS
BAND14	5MHz	64QAM	23355	12RB#0	20.65	20.50	34.77	PASS
BAND14	5MHz	64QAM	23355	12RB#13	20.92	20.77	34.77	PASS
BAND14	5MHz	64QAM	23355	12RB#6	20.81	20.66	34.77	PASS
BAND14	5MHz	64QAM	23355	25RB#0	20.95	20.80	34.77	PASS
BAND14	10MHz	QPSK	23330	1RB#0	23.77	23.62	34.77	PASS
BAND14	10MHz	QPSK	23330	1RB#24	23.68	23.53	34.77	PASS
BAND14	10MHz	QPSK	23330	1RB#49	23.58	23.43	34.77	PASS
BAND14	10MHz	QPSK	23330	25RB#0	22.89	22.74	34.77	PASS
BAND14	10MHz	QPSK	23330	25RB#12	22.91	22.76	34.77	PASS
BAND14	10MHz	QPSK	23330	25RB#25	22.97	22.82	34.77	PASS
BAND14	10MHz	QPSK	23330	50RB#0	22.93	22.78	34.77	PASS
BAND14	10MHz	16QAM	23330	1RB#0	22.68	22.53	34.77	PASS
BAND14	10MHz	16QAM	23330	1RB#24	22.59	22.44	34.77	PASS
BAND14	10MHz	16QAM	23330	1RB#49	22.62	22.47	34.77	PASS
BAND14	10MHz	16QAM	23330	25RB#0	21.89	21.74	34.77	PASS
BAND14	10MHz	16QAM	23330	25RB#12	21.78	21.63	34.77	PASS

BAND14	10MHz	16QAM	23330	25RB#25	21.68	21.53	34.77	PASS
BAND14	10MHz	16QAM	23330	50RB#0	21.73	21.58	34.77	PASS
BAND14	10MHz	64QAM	23330	1RB#0	21.73	21.58	34.77	PASS
BAND14	10MHz	64QAM	23330	1RB#24	21.64	21.49	34.77	PASS
BAND14	10MHz	64QAM	23330	1RB#49	21.61	21.46	34.77	PASS
BAND14	10MHz	64QAM	23330	25RB#0	20.76	20.61	34.77	PASS
BAND14	10MHz	64QAM	23330	25RB#12	20.92	20.77	34.77	PASS
BAND14	10MHz	64QAM	23330	25RB#25	20.81	20.66	34.77	PASS
BAND14	10MHz	64QAM	23330	50RB#0	20.75	20.60	34.77	PASS

Note:

a: For getting the EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

ERP [dBm] = SGP [dBm] - Cable Loss [dB] + Gain [dBd]

EIRP [dBm] = SGP [dBm] – Cable Loss [dB] + Gain [dBi]

b: SGP=Signal Generator Level

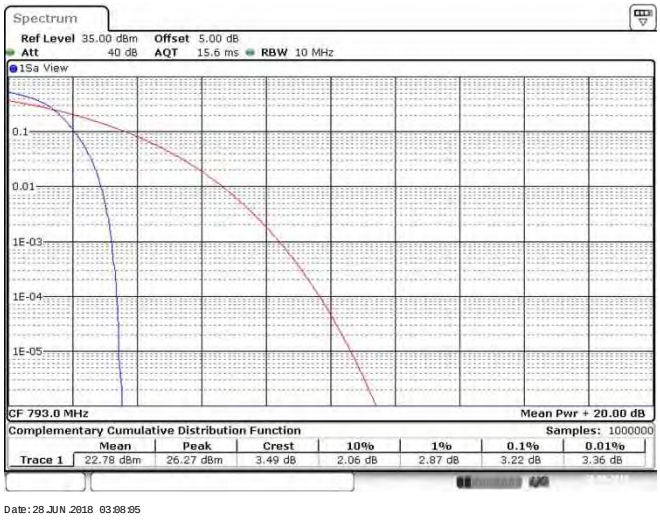
2. Peak-to-Average Ratio(CCDF)

2.1. Test Result

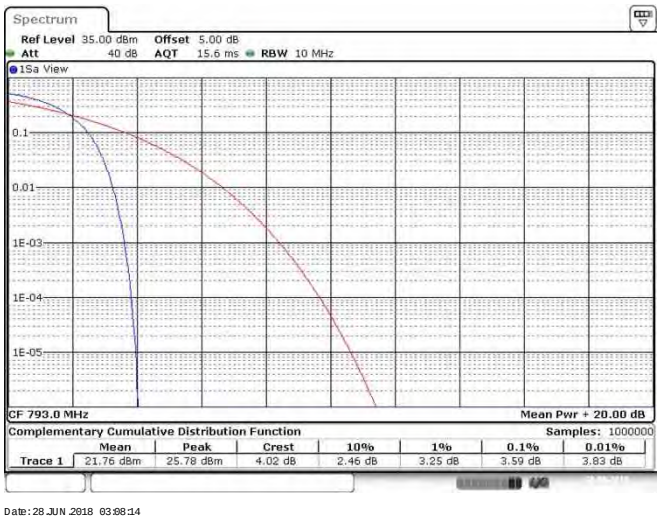
BAND	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
BAND 14	10MHz	QPSK	23330	50RB#0	3.22	13	PASS
		16QAM	23330	50RB#0	3.59	13	PASS
		64QAM	23330	50RB#0	3.80	13	PASS

2.2. Test Plots

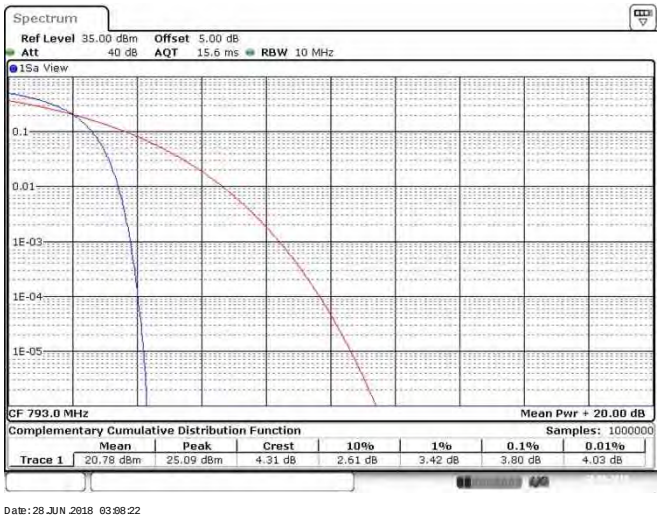
BAND 14_10MHz_QPSK_23330_50RB#0



BAND 14_10MHz_16QAM_23330_50RB#0



BAND 14_10MHz_64QAM_23330_50RB#0

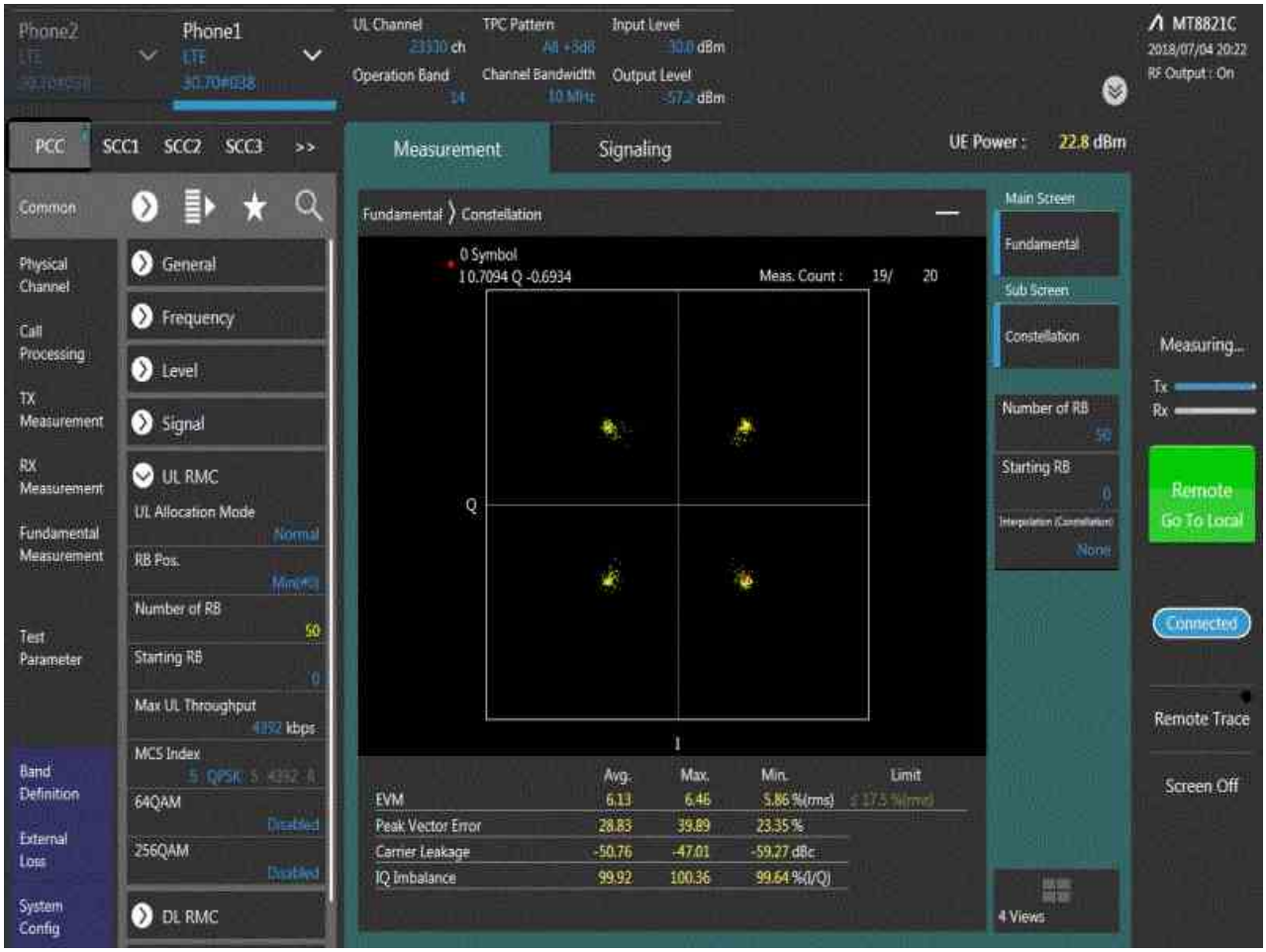


3. Modulation Characteristics

3.1. Test BAND = LTE BAND14

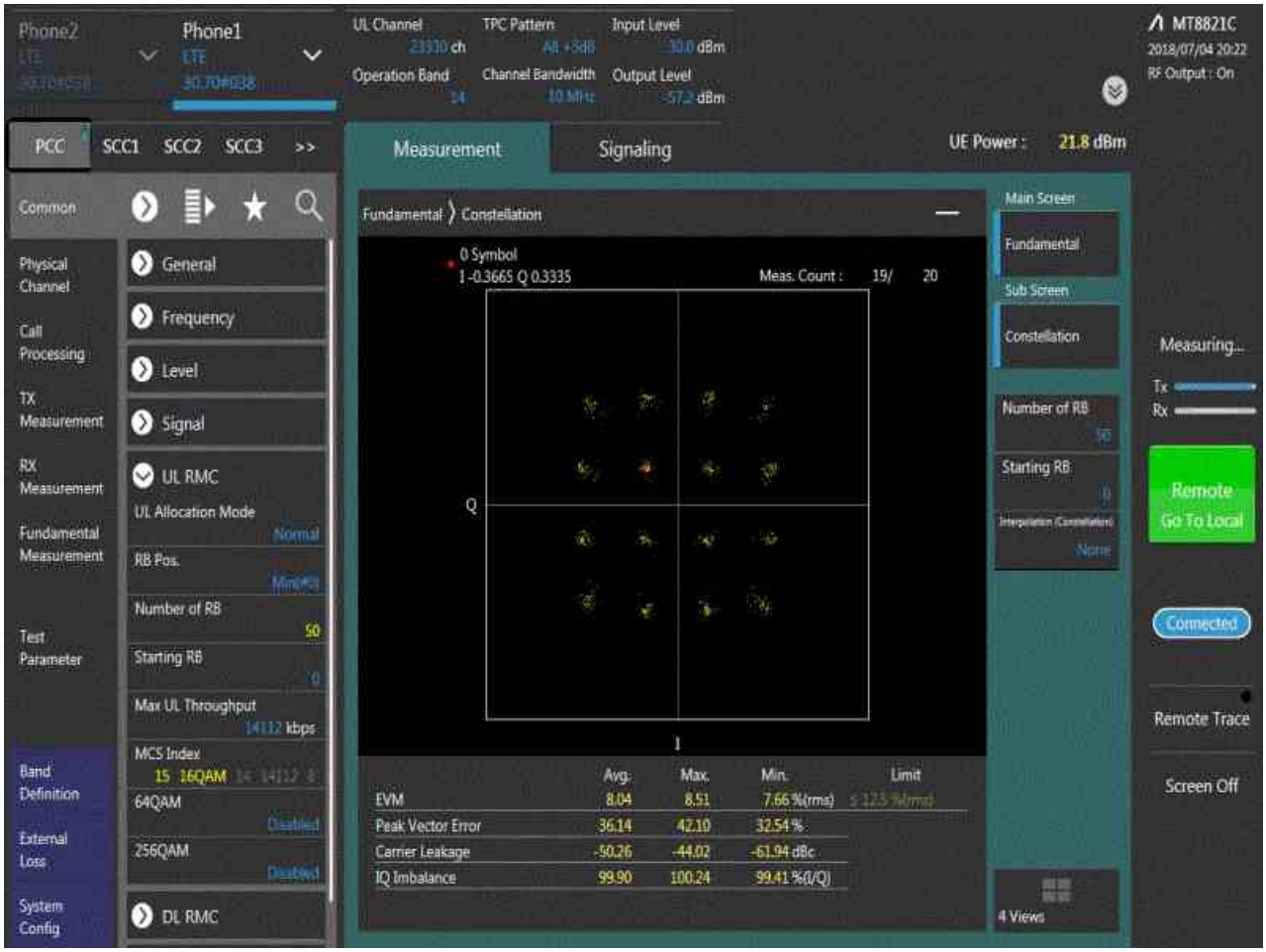
3.1.1. Test Mode = LTE /TM1 10MHz

3.1.1.1. Test Channel = MCH



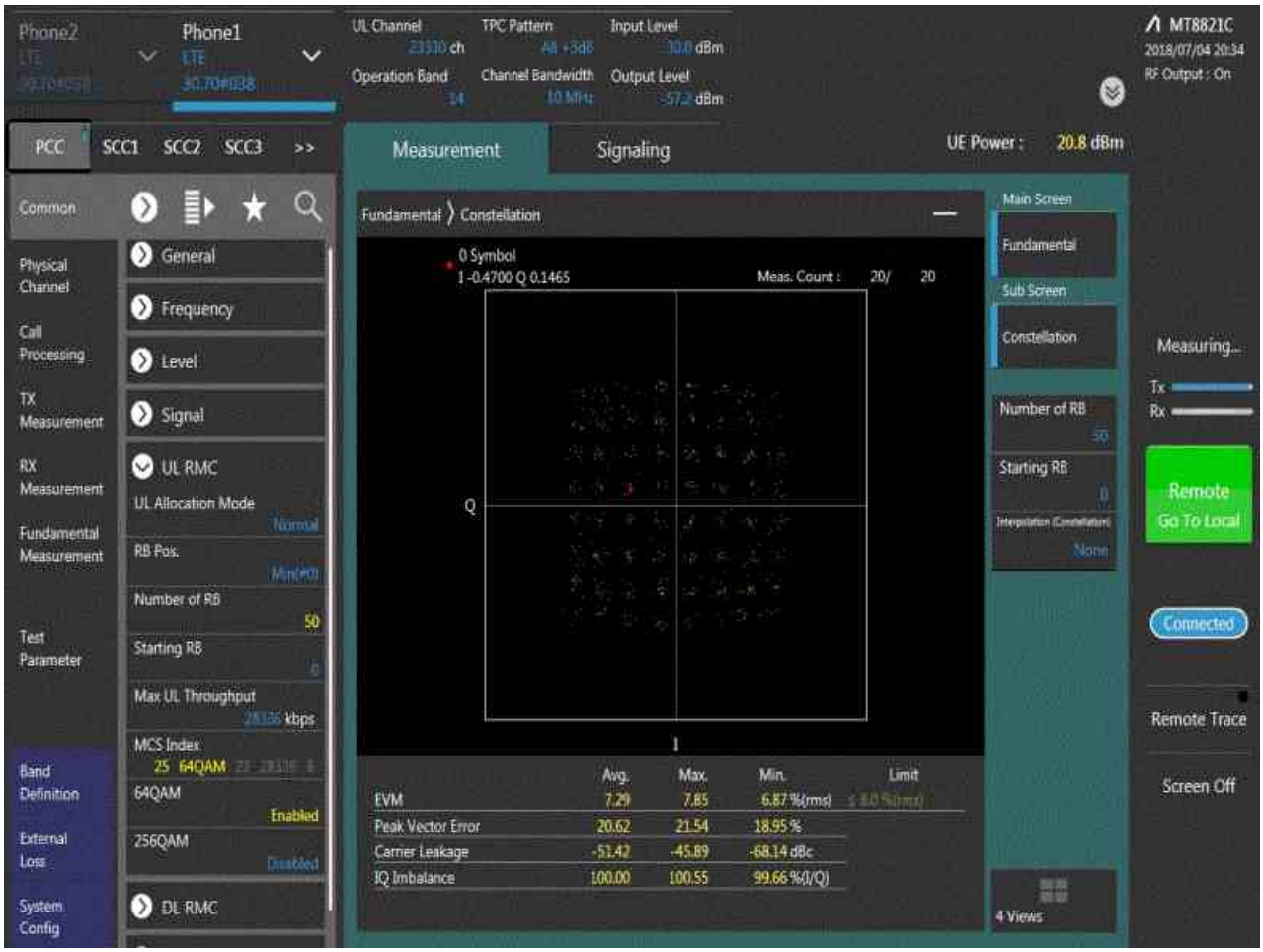
3.1.2. Test Mode = LTE /TM2 10MHz

3.1.2.1. Test Channel = MCH



3.1.1. Test Mode = LTE /TM3 10MHz

3.1.1.1. Test Channel = MCH



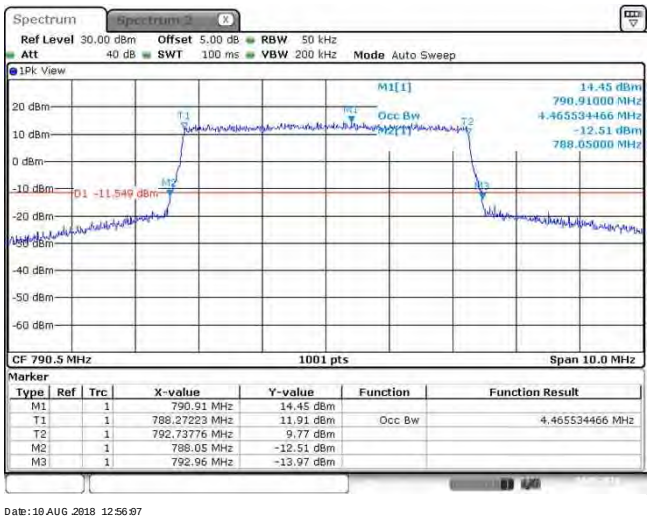
4. 26dB Bandwidth and Occupied Bandwidth

4.1. Test Result

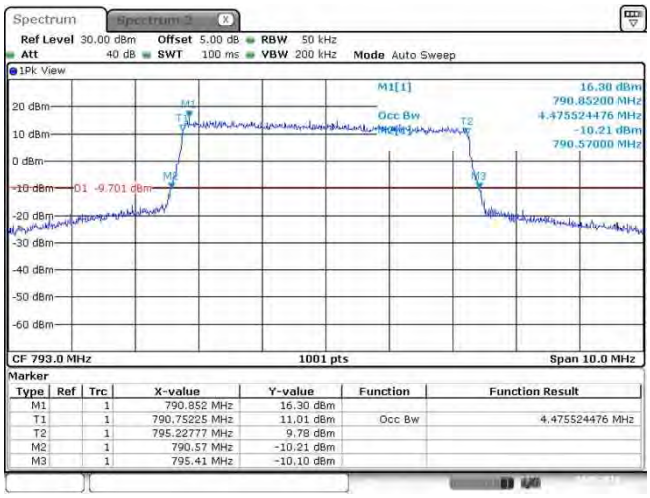
BAND	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
BAND14	5MHz	QPSK	23305	25RB#0	4.466	4.910	PASS
			23330	25RB#0	4.476	4.840	PASS
			23355	25RB#0	4.486	4.890	PASS
		64QAM	23305	25RB#0	4.466	4.880	PASS
			23330	25RB#0	4.476	4.890	PASS
			23355	25RB#0	4.486	4.900	PASS
		16QAM	23305	25RB#0	4.466	4.880	PASS
			23330	25RB#0	4.466	4.870	PASS
			23355	25RB#0	4.486	4.870	PASS
	10MHz	QPSK	23330	50RB#0	8.931	10.160	PASS
		64QAM	23330	50RB#0	8.931	10.300	PASS
		16QAM	23330	50RB#0	8.951	10.240	PASS

4.2. Test Plots

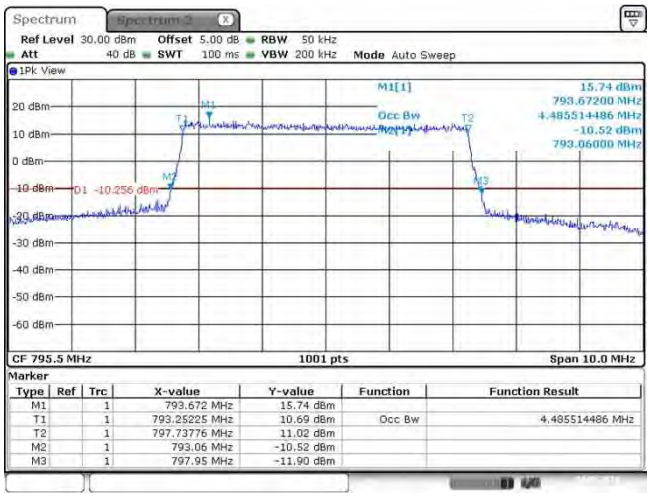
BAND14_5MHz_QPSK_23305_25RB#0



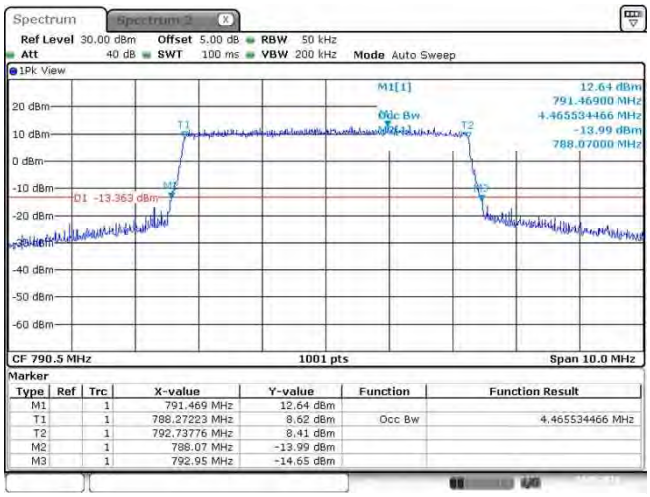
BAND14_5MHz_QPSK_23330_25RB#0



BAND14_5MHz_QPSK_23355_25RB#0



BAND14_5MHz_64QAM_23305_25RB#0



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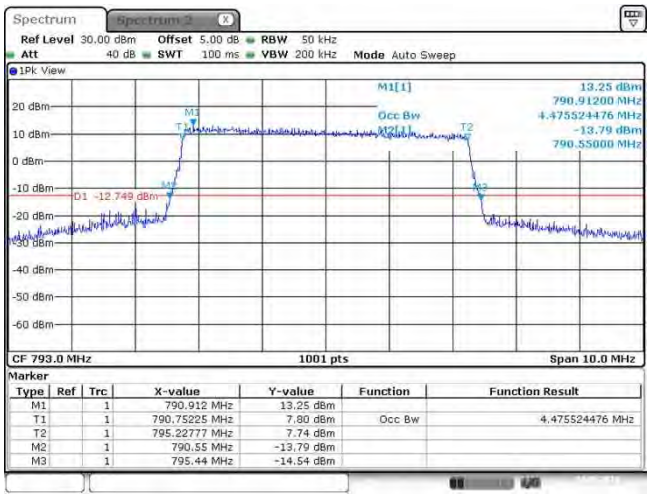
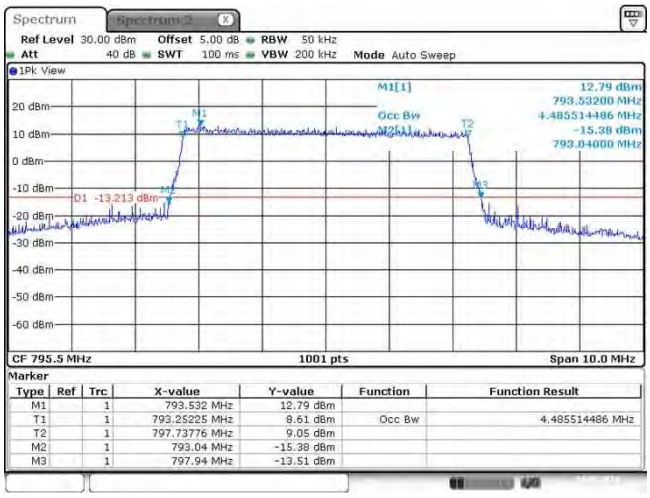
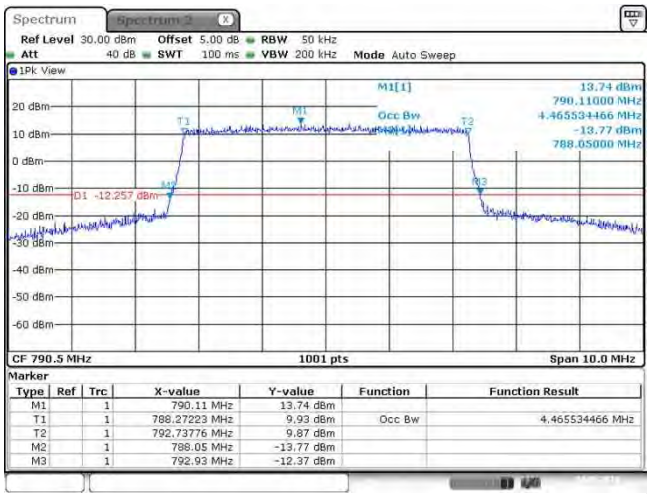


BAND14_5MHz_64QAM_23355_25RB#0



BAND14_5MHz_16QAM_23305_25RB#0



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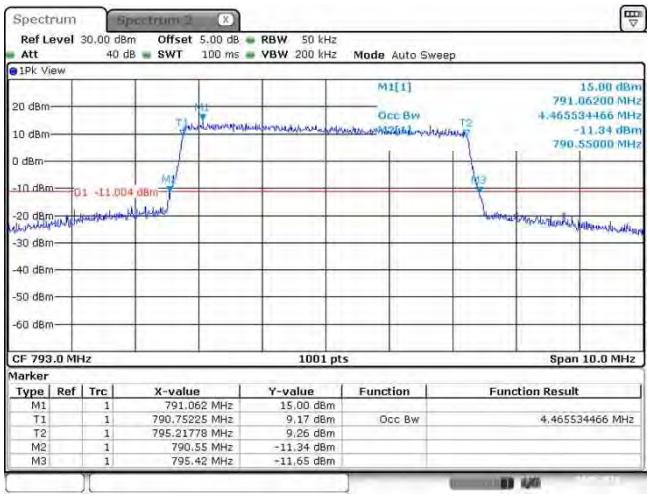

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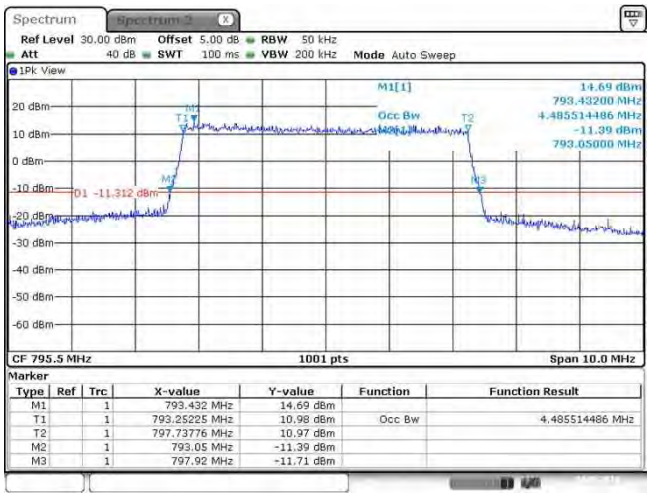
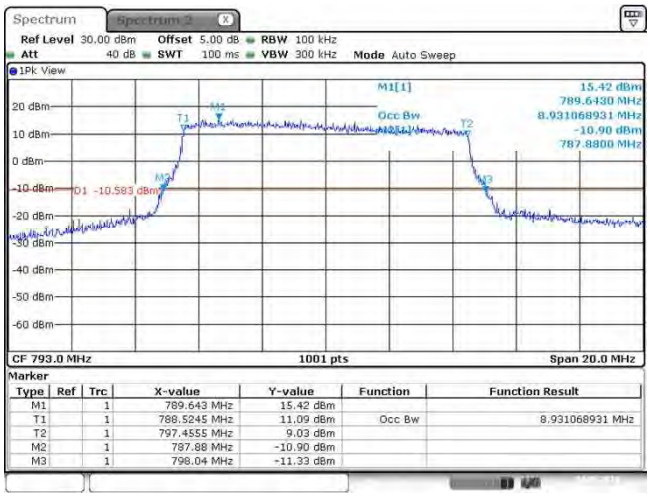


BAND14_10MHz_QPSK_23330_50RB#0



BAND14_10MHz_64QAM_23330_50RB#0

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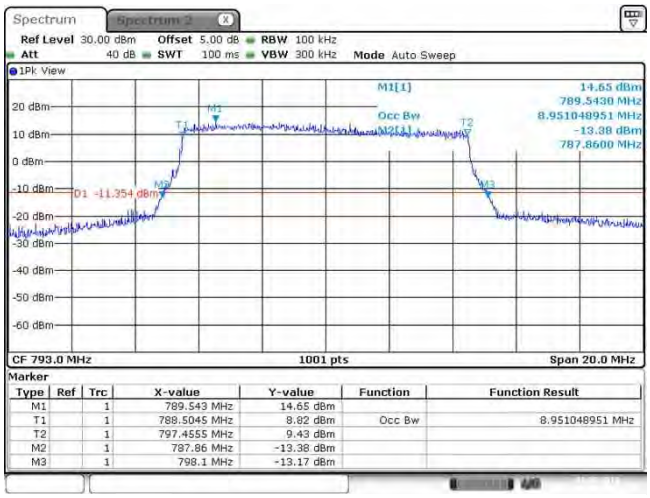
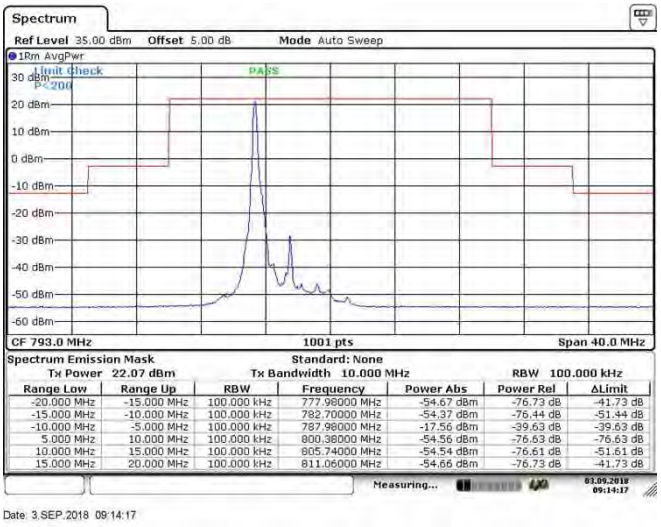


5. Emission Mask

5.1. Test Plots

BAND 14_5MHz_QPSK_23305_1RB#0



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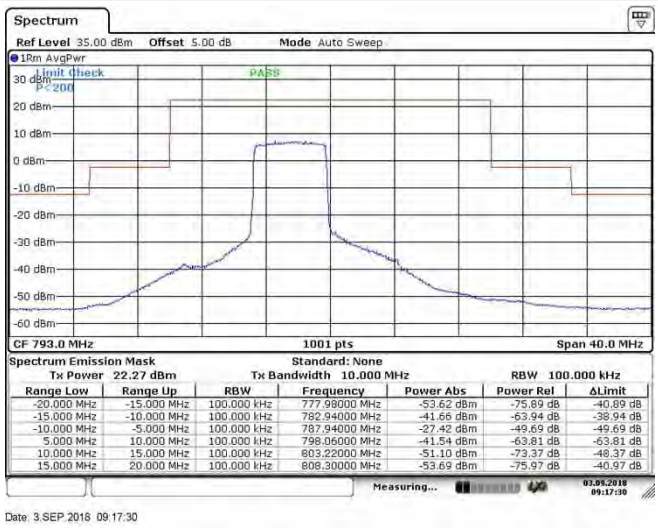
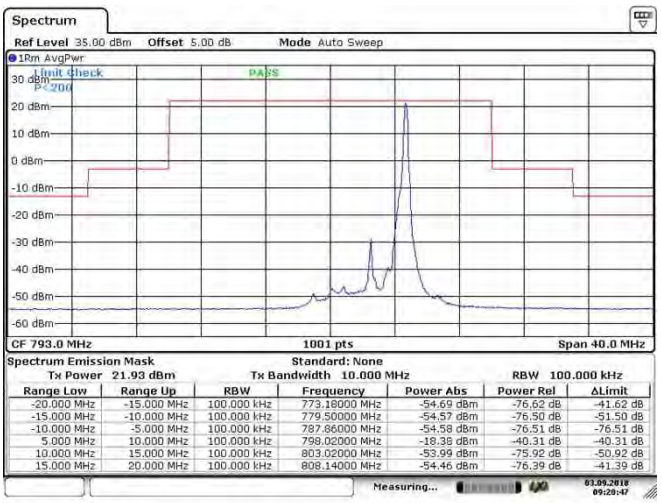


BAND 14_5MHz_QPSK_23355_1RB#24



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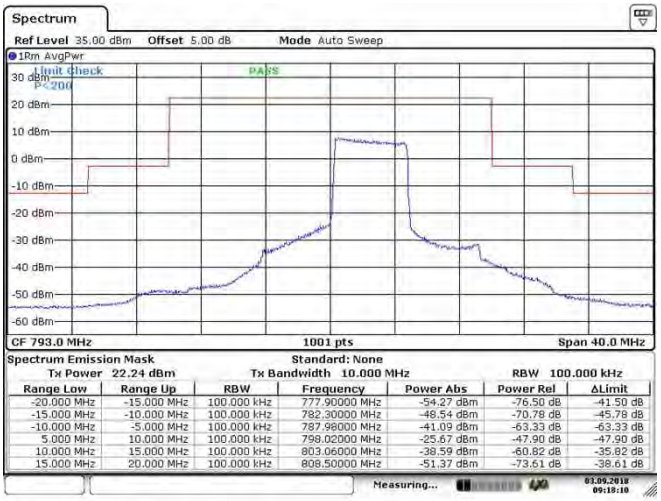

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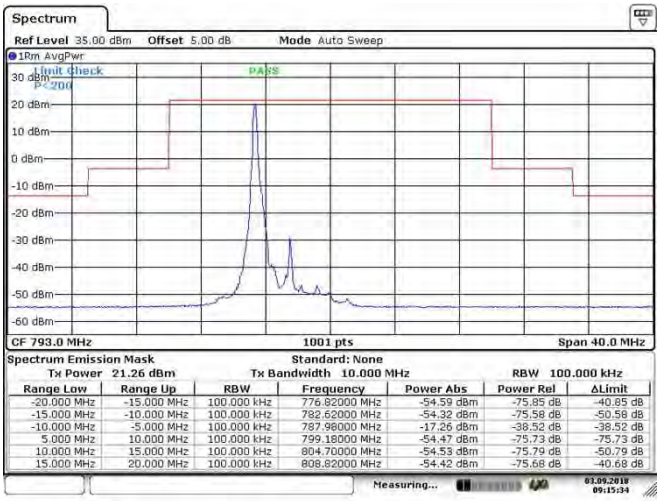
BAND 14_5MHz_16QAM_23305_1RB#0



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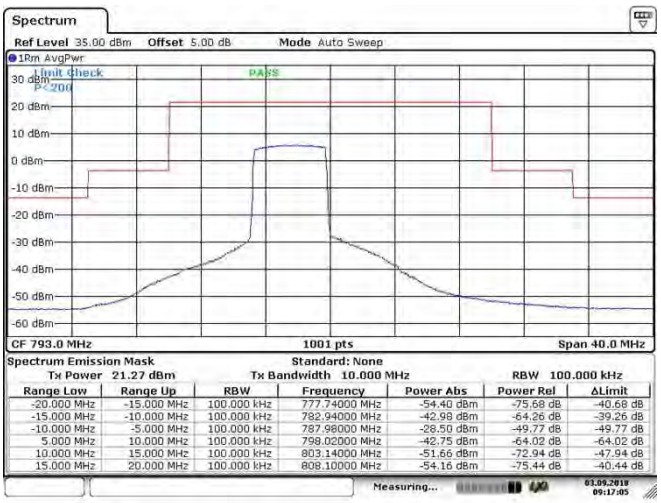

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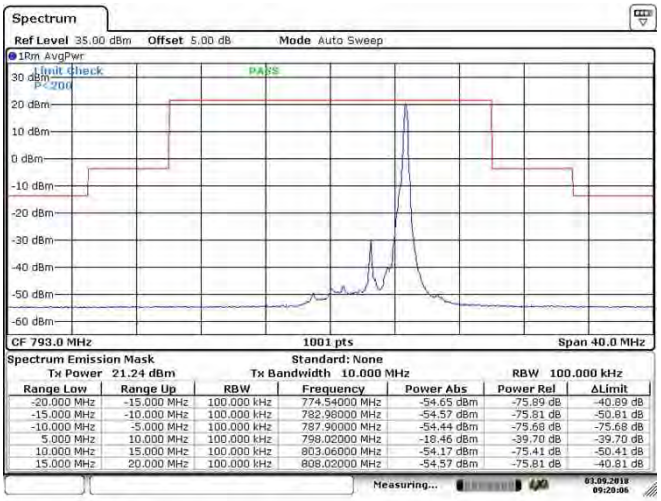

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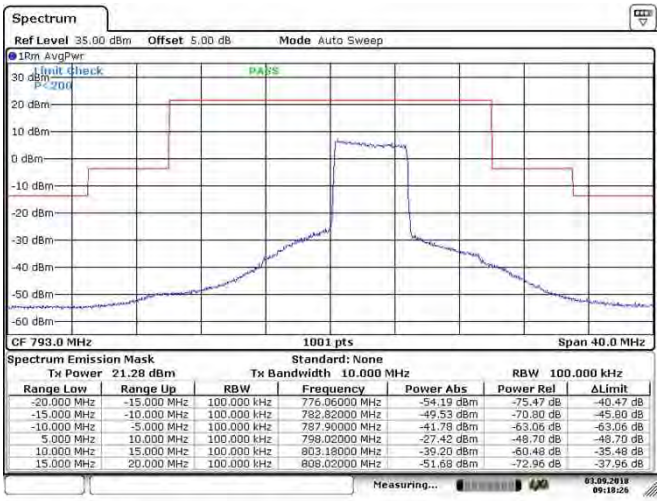

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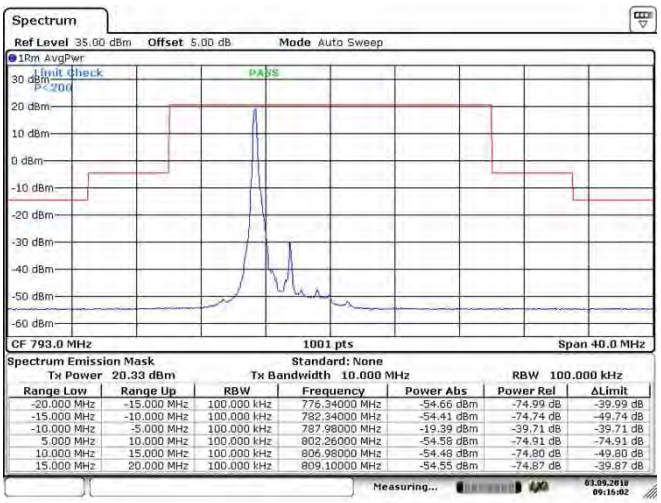

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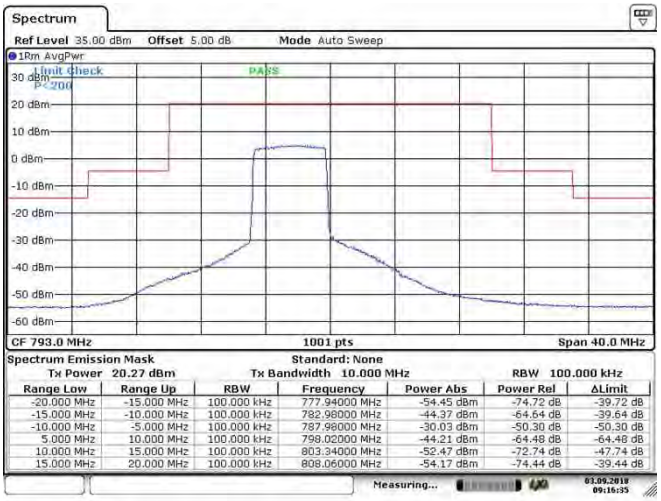

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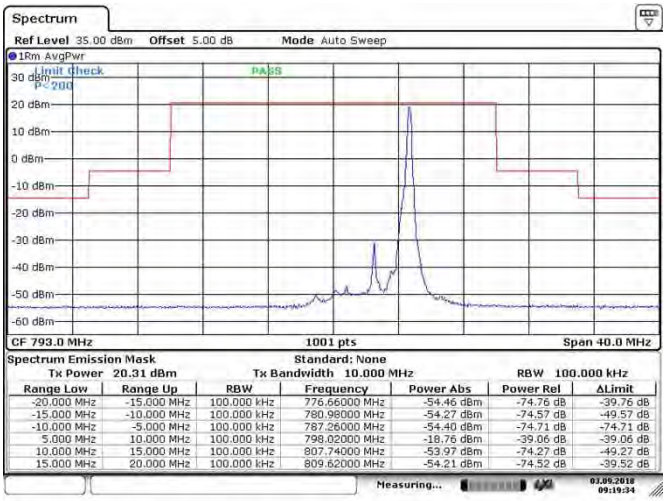

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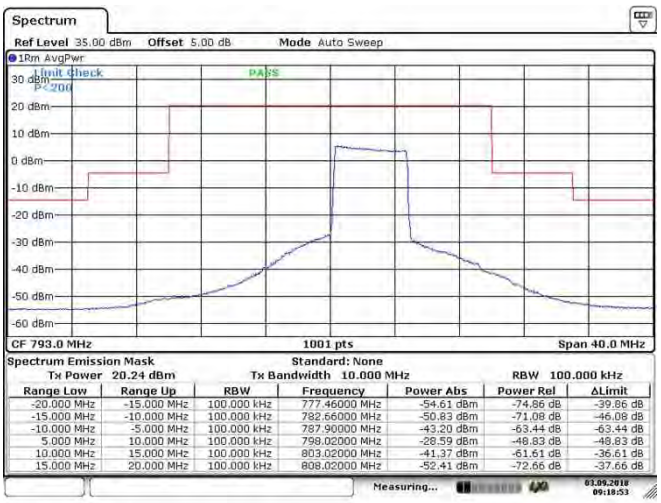

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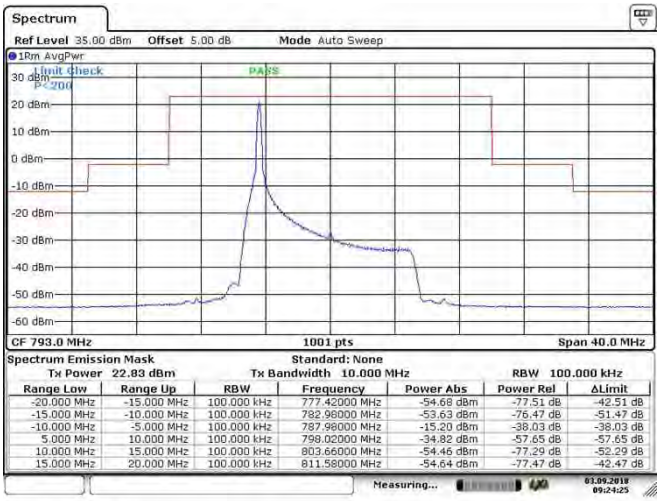
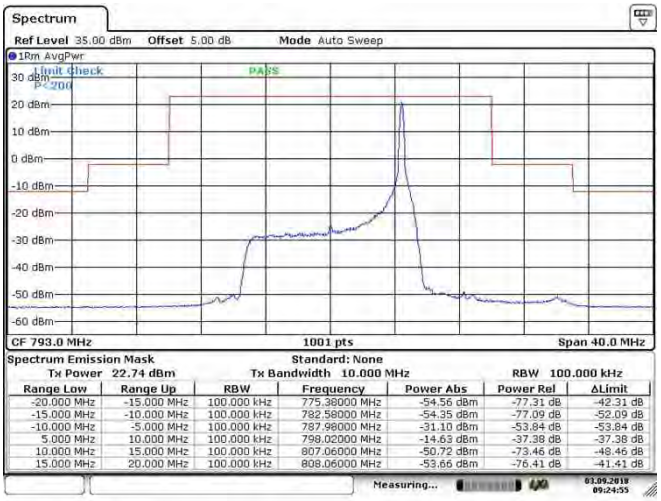
BAND 14_10MHz_QPSK_23330_1RB#0



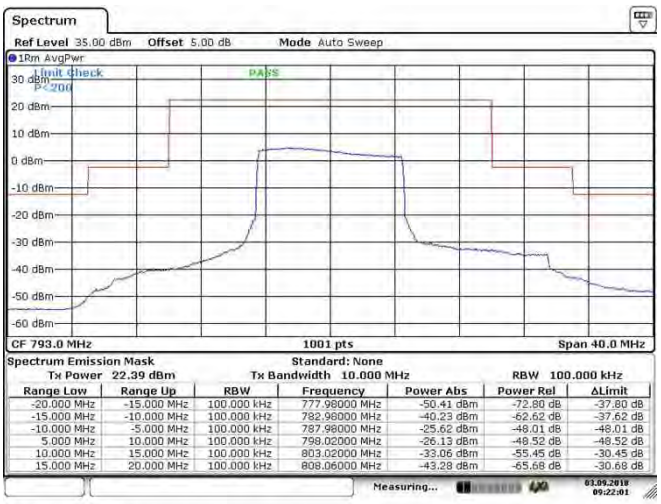
Date: 3.SEP.2018 09:24:25

BAND 14_10MHz_QPSK_23330_1RB#49



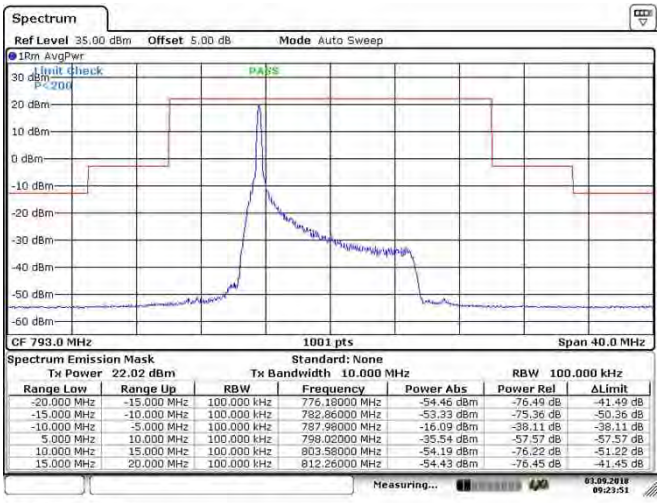
Date: 3.SEP.2018 09:24:56

BAND 14_10MHz_QPSK_23330_50RB#0



Date: 3.SEP.2018 09:22:01

BAND 14_10MHz_16QAM_23330_1RB#0



Date: 3.SEP.2018 09:23:51

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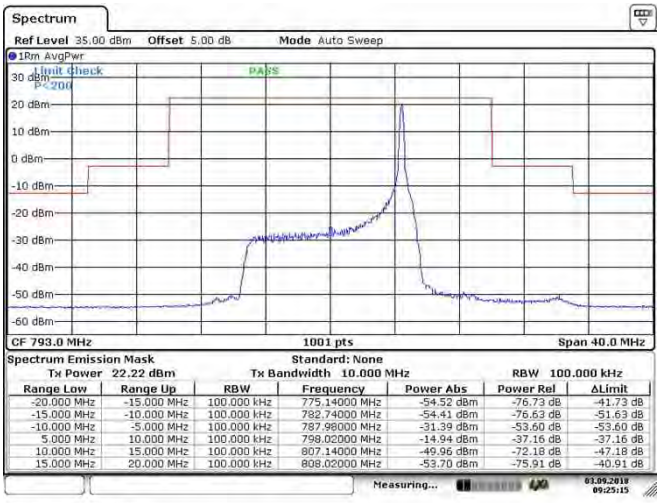

Date: 3.SEP.2018 09:25:15

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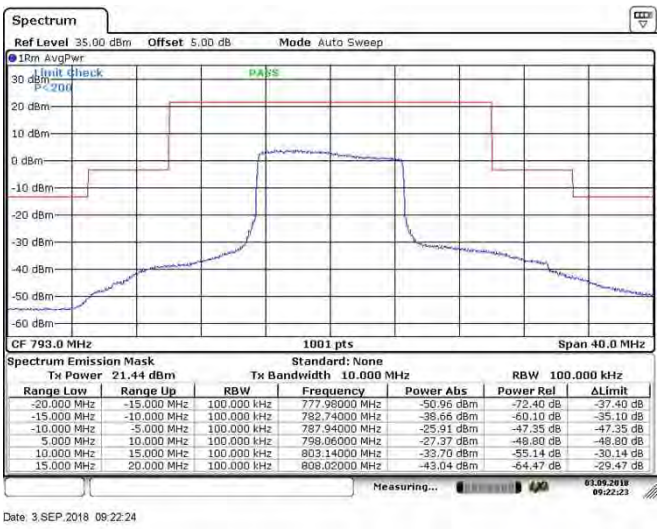

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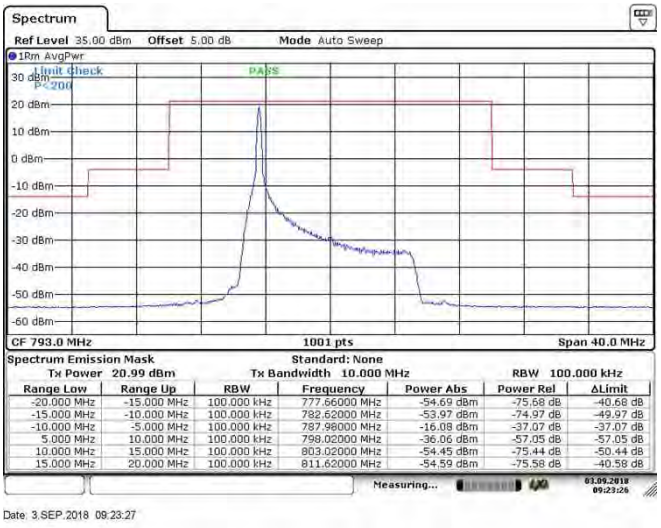
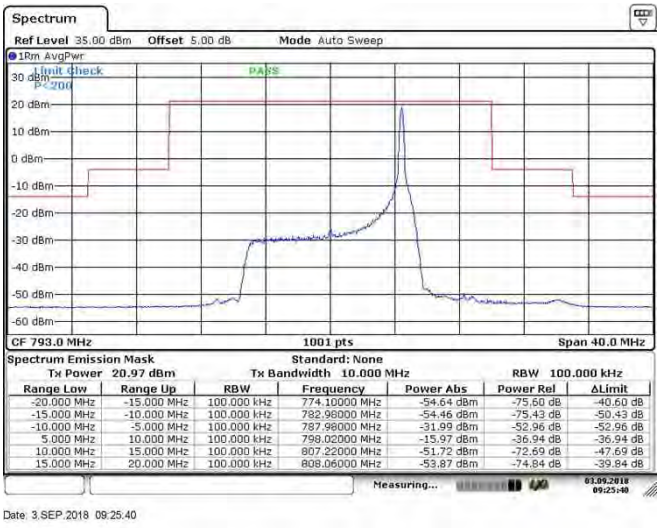


Date: 3.SEP.2018 09:23:27

BAND 14_10MHz_64QAM_23330_1RB#49



Date: 3.SEP.2018 09:25:40

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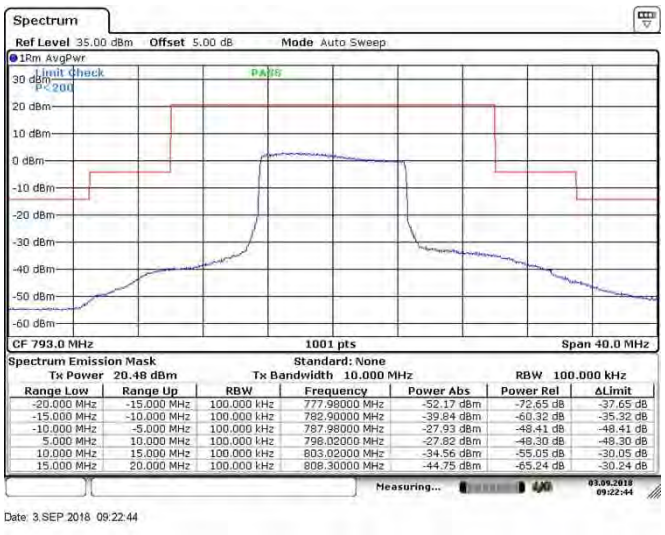
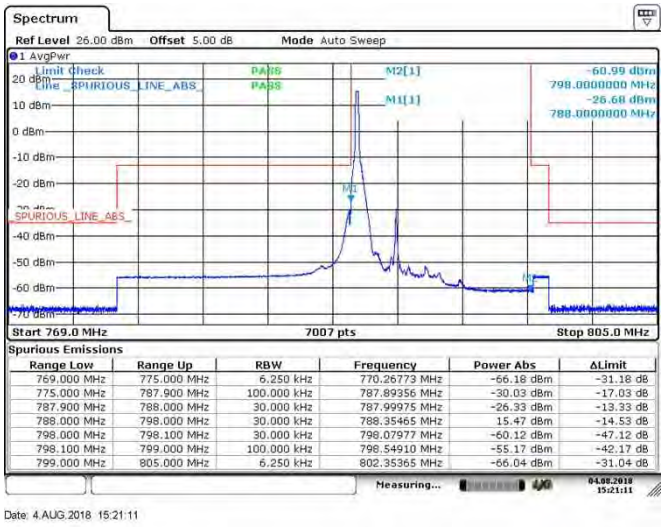


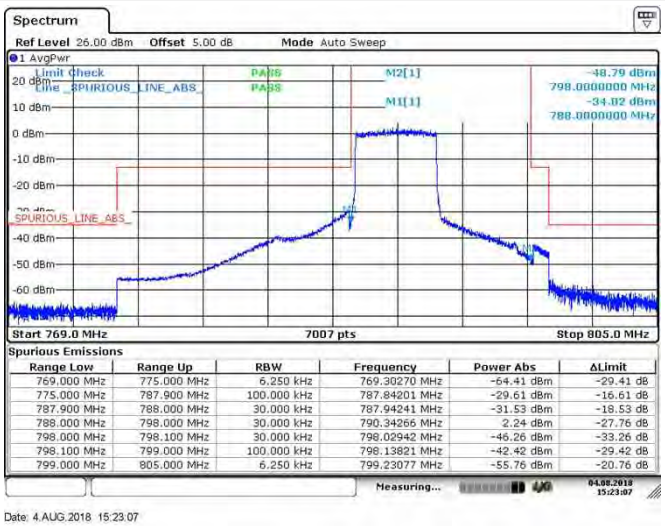
6. Band Edge Compliance

6.1. Test Plots

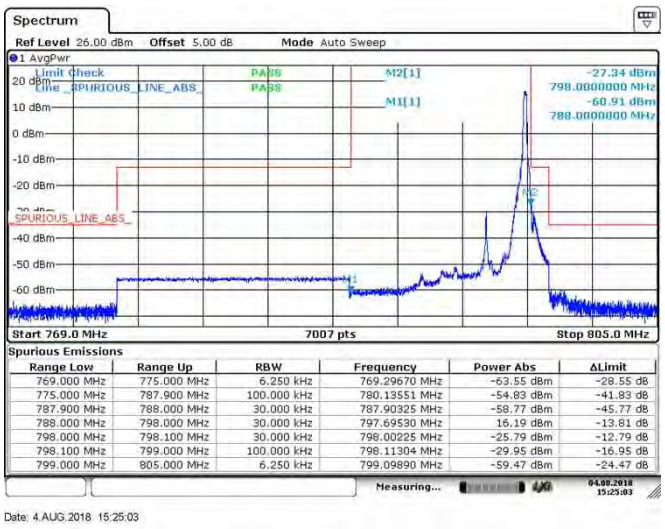
BAND 14_5MHz_QPSK_23305_1RB#0



BAND 14_5MHz_QPSK_23305_25RB#0



BAND 14_5MHz_QPSK_23355_1RB#24



Date: 4.AUG.2018 15:25:03

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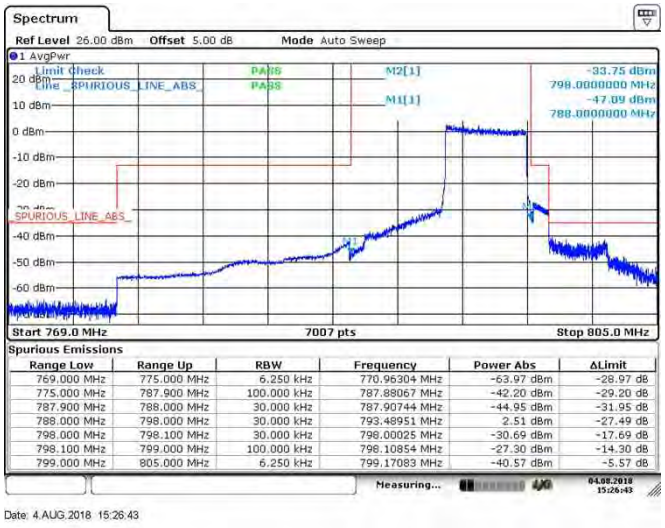

Date: 4.AUG.2018 15:26:43

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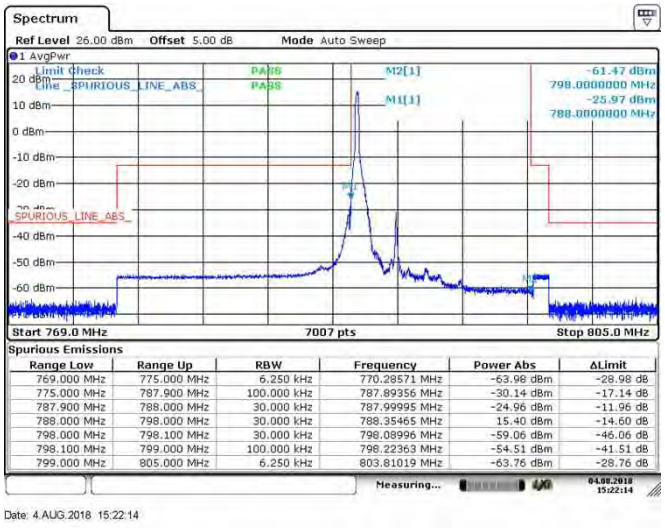

Date: 4.AUG.2018 15:22:14

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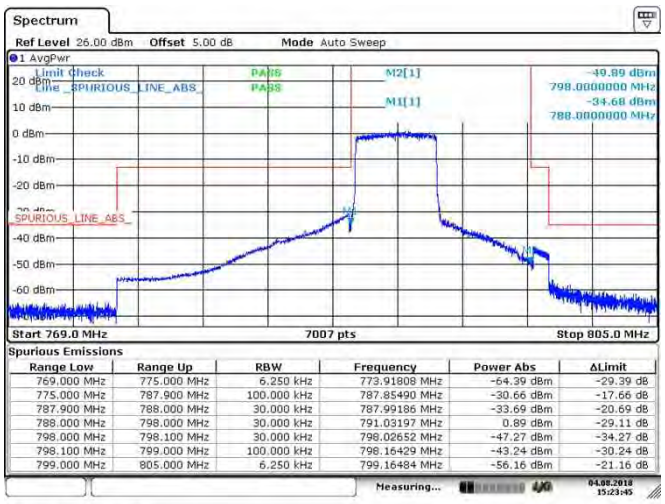
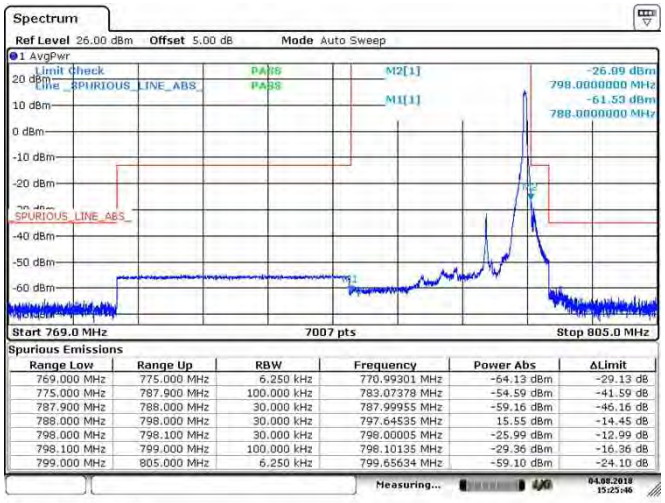


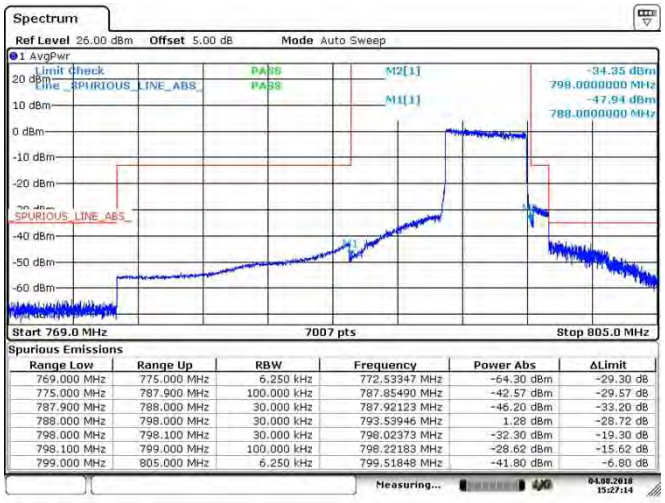
Date: 4.AUG.2018 15:23:46

BAND 14_5MHz_16QAM_23355_1RB#24



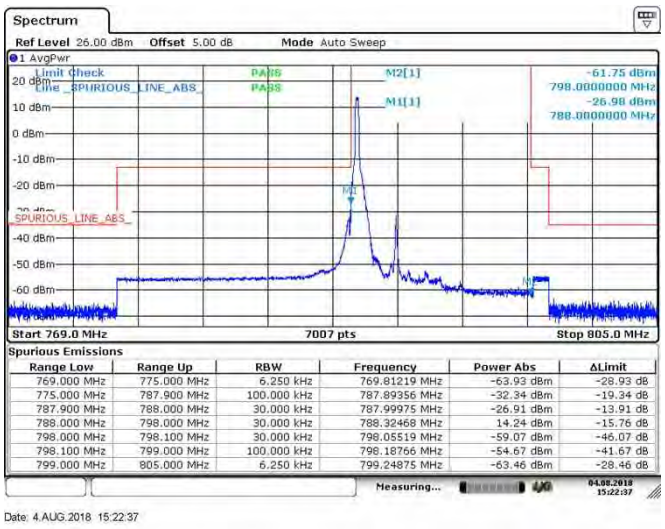
Date: 4.AUG.2018 15:25:46

BAND 14_5MHz_16QAM_23355_25RB#0



Date: 4.AUG.2018 15:27:14

BAND 14_5MHz_64QAM_23305_1RB#0



Date: 4.AUG.2018 15:22:37

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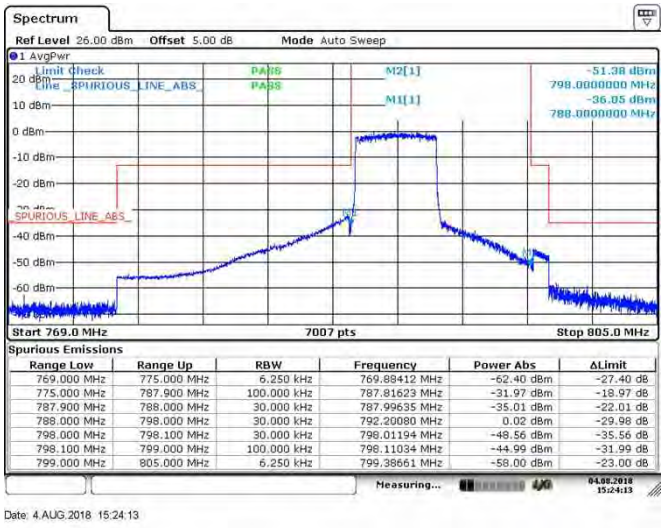

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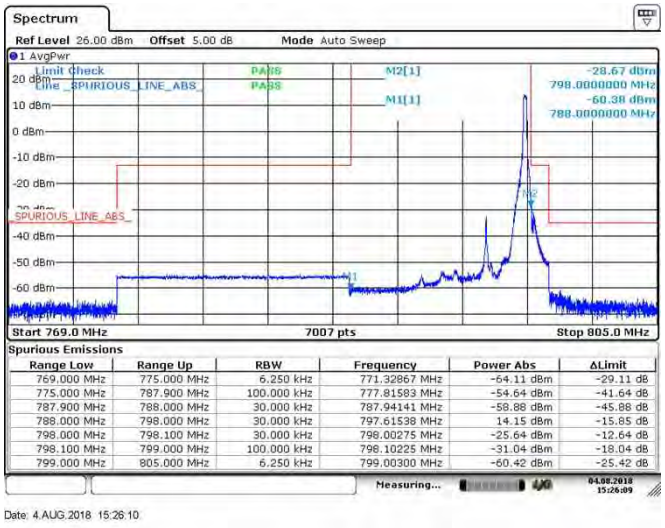
BAND 14_5MHz_64QAM_23355_1RB#24



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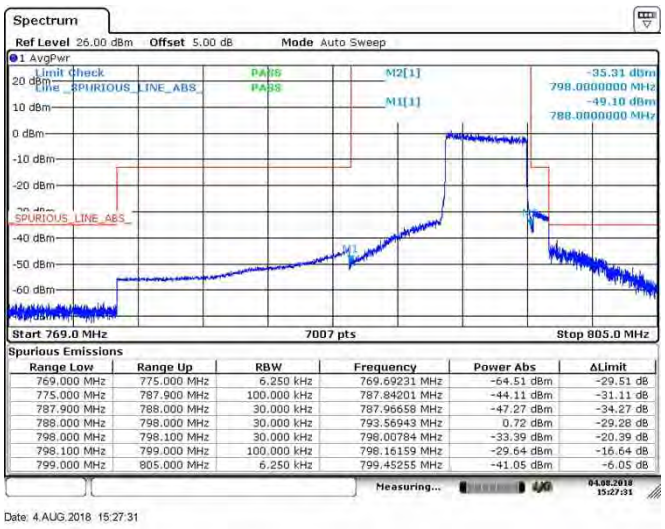

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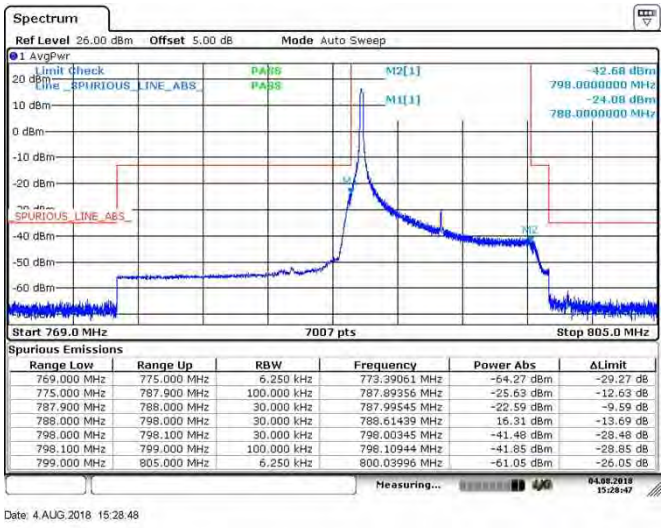

Date: 4.AUG.2018 15:28:48

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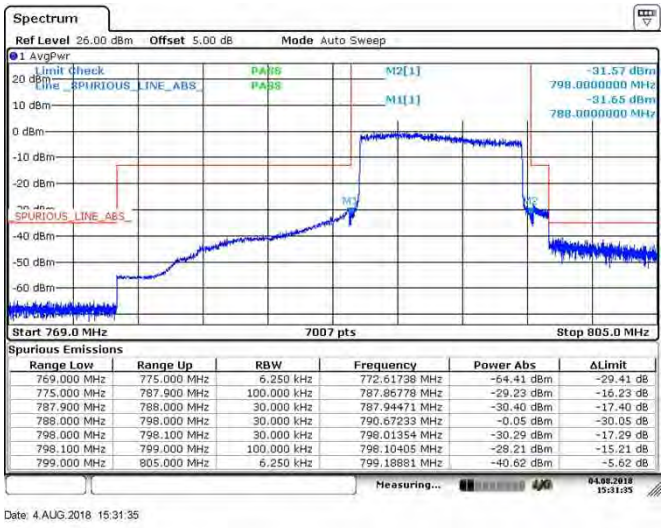

Date: 4.AUG.2018 15:31:35

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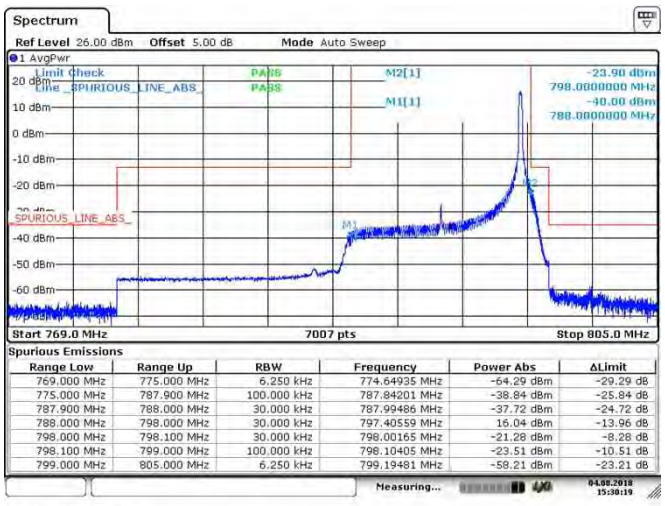

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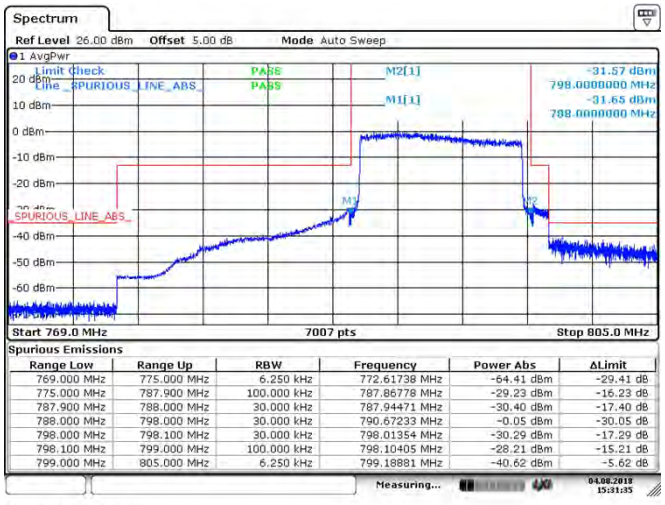

Date: 4.AUG.2018 15:31:35

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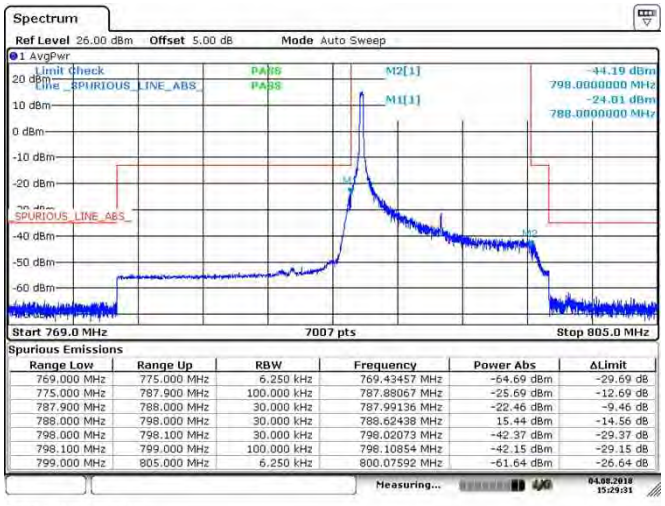

Date: 4.AUG.2018 15:29:32

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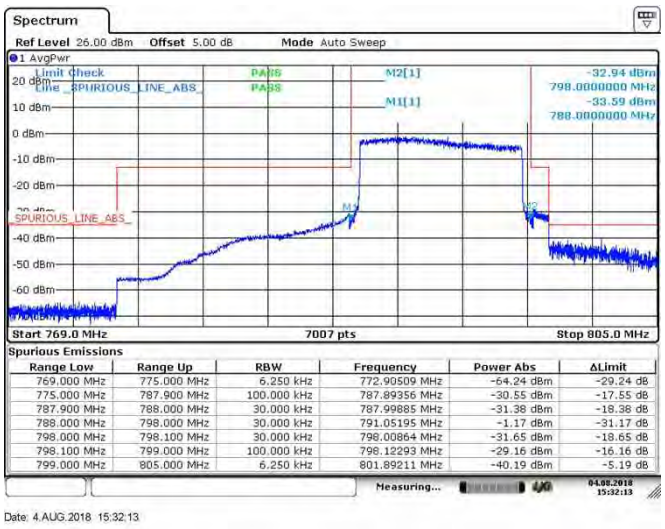

Date: 4.AUG.2018 15:32:13

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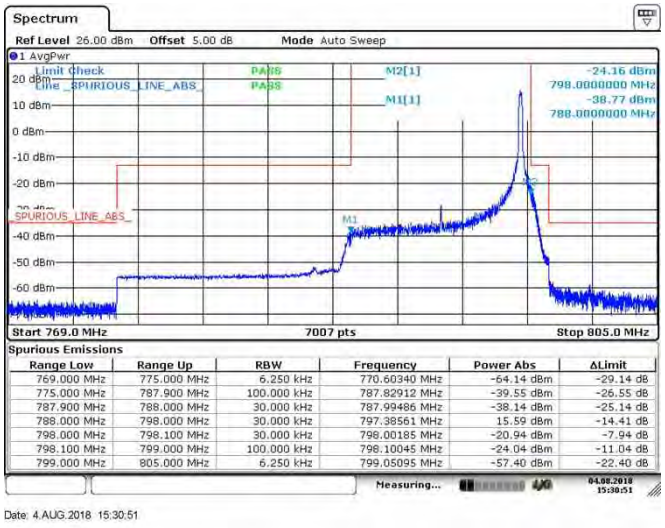

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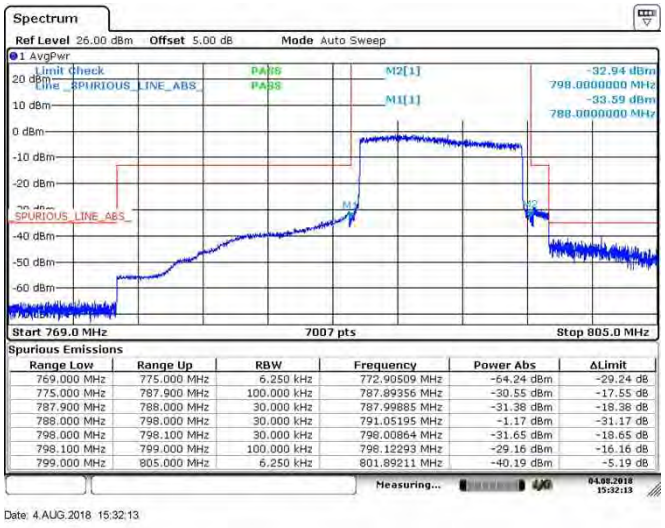

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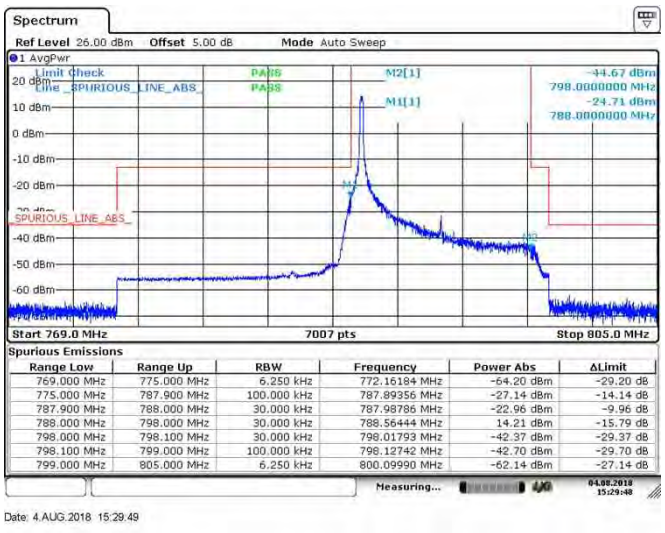
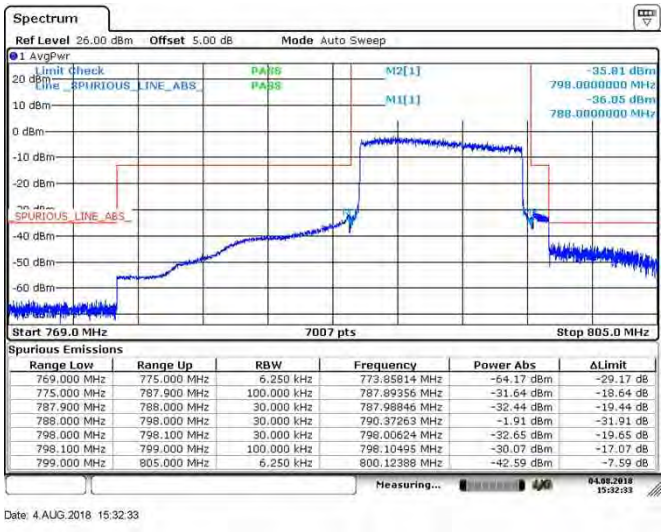


BAND 14_10MHz_64QAM_23330_50RB#0



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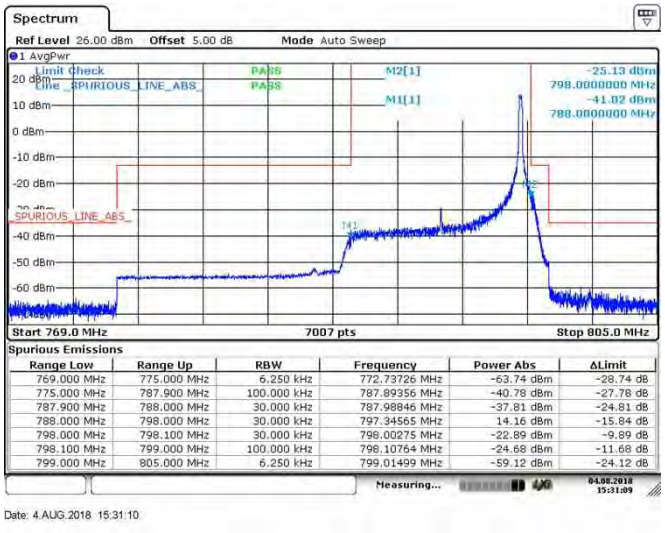
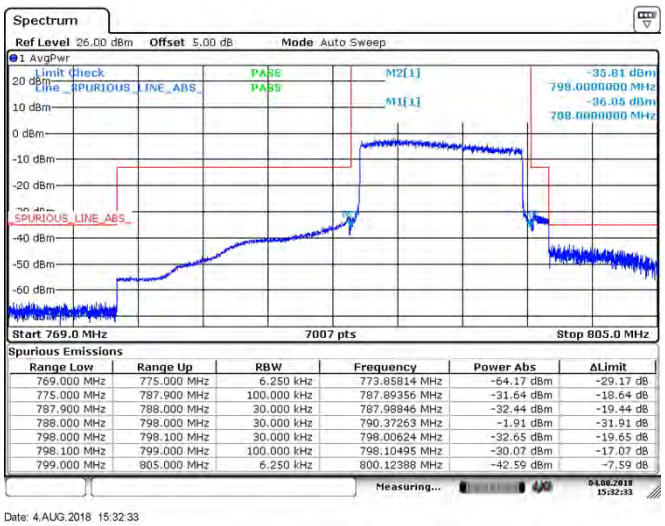


BAND 14_10MHz_64QAM_23330_50RB#0



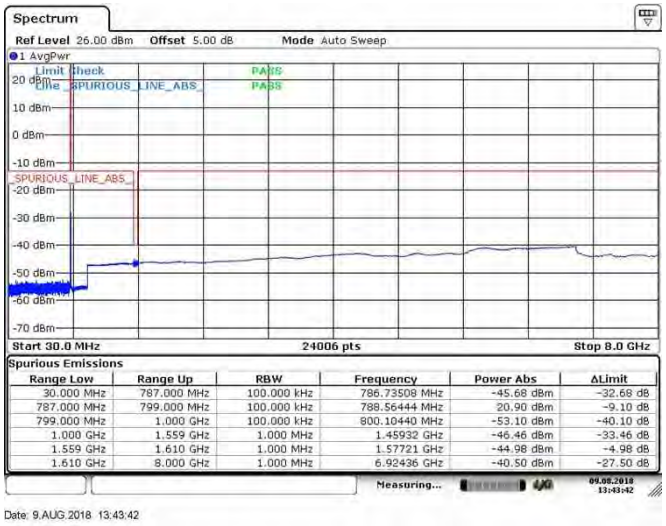
7. Spurious Emission at Antenna Terminal

NNOTE1: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of < RBW/2 so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = k * (Span / RBW)" with k between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

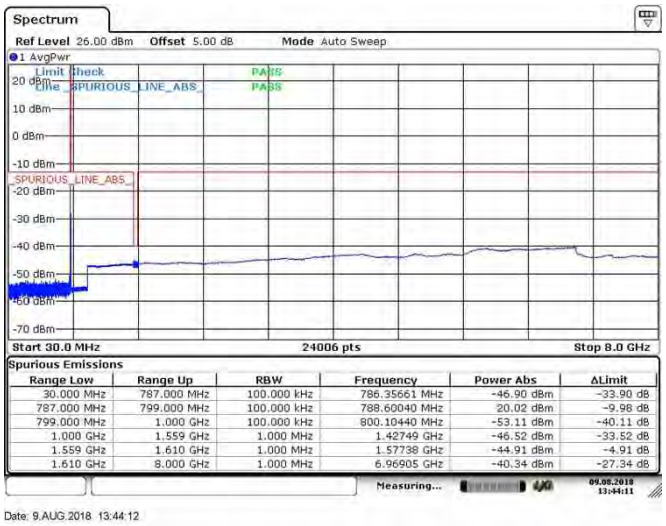
NOTE2: only the worst case data displayed in this report.

7.1. Test Plots

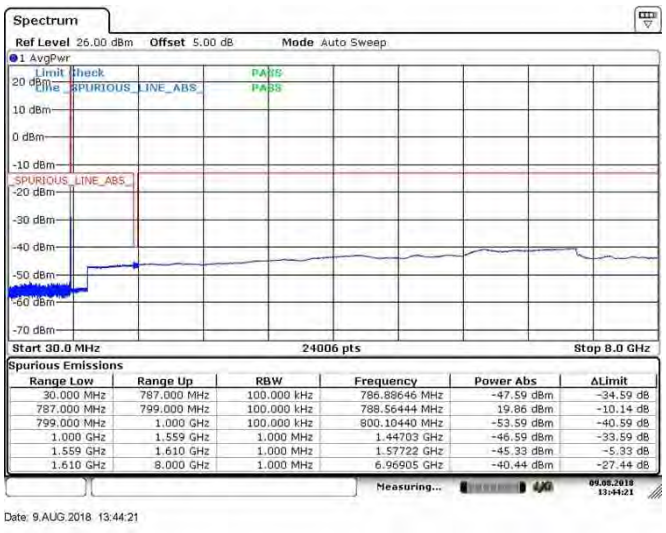
BAND14_10MHz_QPSK_23330_1RB#0



BAND14_10MHz_16QAM_23330_1RB#0



BAND14_10MHz_64QAM_23330_1RB#0



8. Field Strength of Spurious Radiation

8.1. Test BAND = LTE BAND 14

8.1.1. Test Mode =LTE/TM1 10MHz

8.1.1.1. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
65.046667	-81.87	-13.00	68.87	Vertical
104.293333	-85.36	-13.00	72.36	Vertical
316.066667	-86.69	-13.00	73.69	Vertical
1577.000000	-65.69	-40.00	25.69	Vertical
2365.500000	-59.29	-13.00	46.29	Vertical
3058.987500	-69.25	-13.00	56.25	Vertical
62.526667	-77.70	-13.00	64.70	Horizontal
104.293333	-89.87	-13.00	76.87	Horizontal
259.413333	-87.89	-13.00	74.89	Horizontal
1577.000000	-59.46	-40.00	19.46	Horizontal
2359.000000	-59.30	-13.00	46.30	Horizontal
3137.962500	-69.43	-13.00	56.43	Horizontal

NOTE:

1) All modes are tested, but the data presented above is the worst case.the disturbance below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.
2) We have tested all modulation and all Bandwidth, but only the worst case data presented in this report.

9. Frequency Stability

9.1. Frequency Vs Voltage

Voltage										
BAND	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
BAND14	10MHz	QPSK	23330	50RB#0	VH	NT	2.60	0.003279	±1.25	PASS
				50RB#0	VL	NT	1.10	0.001387	±1.25	PASS
				50RB#0	VN	NT	2.90	0.003657	±1.25	PASS
		16QAM	23330	50RB#0	VH	NT	1.30	0.001639	±1.25	PASS
				50RB#0	VL	NT	5.20	0.006557	±1.25	PASS
				50RB#0	VN	NT	1.30	0.001639	±1.25	PASS
		64QAM	23330	50RB#0	VH	NT	0.90	0.001135	±1.25	PASS
				50RB#0	VL	NT	2.00	0.002522	±1.25	PASS
				50RB#0	VN	NT	4.60	0.005801	±1.25	PASS

9.2. Frequency Vs Temperature

Temperature										
BAND	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
BAND14	10MHz	QPSK	23330	50RB#0	NV	0	1.00	0.001261	±1.25	PASS
				50RB#0	NV	10	3.10	0.003909	±1.25	PASS
				50RB#0	NV	20	2.00	0.002522	±1.25	PASS
				50RB#0	NV	-20	3.40	0.004288	±1.25	PASS
				50RB#0	NV	-30	3.90	0.004918	±1.25	PASS
		16QAM	23330	50RB#0	NV	0	1.30	0.001639	±1.25	PASS
				50RB#0	NV	10	1.90	0.002396	±1.25	PASS
				50RB#0	NV	20	3.10	0.003909	±1.25	PASS
				50RB#0	NV	-20	3.70	0.004666	±1.25	PASS
				50RB#0	NV	-30	2.60	0.003279	±1.25	PASS
		64QAM	23330	50RB#0	NV	0	-0.20	-0.000252	±1.25	PASS
				50RB#0	NV	10	0.80	0.001009	±1.25	PASS
				50RB#0	NV	20	3.20	0.004035	±1.25	PASS
				50RB#0	NV	-20	-0.70	-0.000883	±1.25	PASS
				50RB#0	NV	-30	2.00	0.002522	±1.25	PASS

The End