

Antenna Port C 10MHz



Antenna Port C 20MHz



Antenna Port D 10MHz



Antenna Port D 20MHz



7.4. POWER SPECTRAL DENSITY

RULE PART(S)

FCC: §96.41 (b)

LIMITS

b) Power limits. Unless otherwise specified in this section, the maximum effective isotropic radiated power (EIRP) and maximum Power Spectral Density (PSD) of any CBSD and End User Device must comply with the limits shown in the table below.

Device	Maximum EIRP (dBm/10 megahertz)	Maximum PSD (dBm/MHz)
End User Device	23	n/a
Category A CBSD	30	20
Category B CBSD ¹	47	37

TEST PROCEDURE

The rules require “maximum power spectral density” measurements where the intent is to measure the maximum value of the time average of the power spectral density measured during a period of continuous transmission. To perform this measurement, the DUT must be configured to transmit continuously at full power. The procedure outlined in Section 5.2 of ANSI C63.26-2015 is acceptable.

Note: The power spectral density was only aggregated across on each individual MIMO transmitter A+B or C+D per 1MHz bandwidth.

PSD RESULTS FOR OMNI ANTENNA

Antenna Port A

Band	BW(MHz)	Mode	f (MHz)	PSD (dBm)	Limit (dBm)	Delta (dB)
LTE 48	10	QPSK	3555	14.711	37	-22.289
			3625	15.625	37	-21.375
			3695	16.333	37	-20.667
		16QAM	3555	15.810	37	-21.19
			3625	15.882	37	-21.118
			3695	16.064	37	-20.936
		64QAM	3555	14.790	37	-22.21
			3625	14.504	37	-22.496
			3695	15.794	37	-21.206
	20	QPSK	3560	14.566	37	-22.434
			3615	15.328	37	-21.672
			3670	15.872	37	-21.128
		16QAM	3560	15.564	37	-21.436
			3615	15.086	37	-21.914
			3670	15.402	37	-21.598
		64QAM	3560	14.939	37	-22.061
			3615	14.313	37	-22.687
			3670	15.344	37	-21.656

Antenna Port B

Band	BW(MHz)	Mode	f (MHz)	PSD (dBm)	Limit (dBm)	Delta (dB)
LTE 48	10	QPSK	3555	15.747	37	-21.253
			3625	15.532	37	-21.468
			3695	16.304	37	-20.696
		16QAM	3555	14.663	37	-22.337
			3625	16.092	37	-20.908
			3695	15.868	37	-21.132
		64QAM	3555	14.646	37	-22.354
			3625	14.806	37	-22.194
			3695	15.018	37	-21.982
	20	QPSK	3560	14.556	37	-22.444
			3615	15.041	37	-21.959
			3670	15.579	37	-21.421
		16QAM	3560	15.432	37	-21.568
			3615	15.023	37	-21.977
			3670	15.794	37	-21.206
		64QAM	3560	14.441	37	-22.559
			3615	14.732	37	-22.268
			3670	15.794	37	-21.206

Antenna Port C

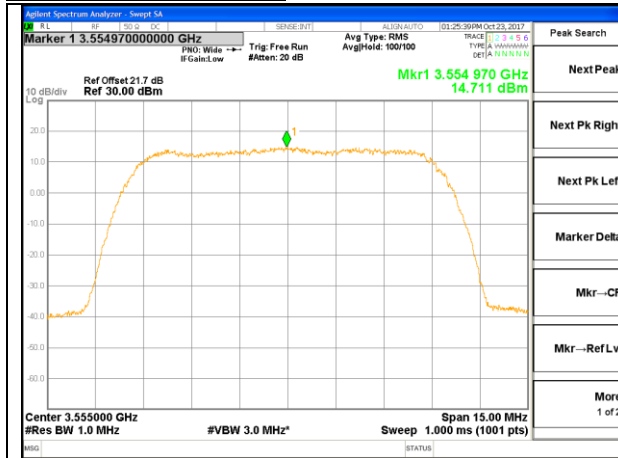
Band	BW(MHz)	Mode	f (MHz)	PSD (dBm)	Limit (dBm)	Delta (dB)
LTE 48	10	QPSK	3555	16.088	37	-20.912
			3625	16.307	37	-20.693
			3695	16.412	37	-20.588
		16QAM	3555	15.755	37	-21.245
			3625	16.279	37	-20.721
			3695	16.412	37	-20.588
		64QAM	3555	14.943	37	-22.057
			3625	15.242	37	-21.758
			3695	15.765	37	-21.235
	20	QPSK	3580	15.582	37	-21.418
			3635	15.579	37	-21.421
			3690	16.303	37	-20.697
		16QAM	3580	14.744	37	-22.256
			3635	15.680	37	-21.32
			3690	15.533	37	-21.467
		64QAM	3580	15.665	37	-21.335
			3635	15.205	37	-21.795
			3690	15.311	37	-21.689

Antenna Port D

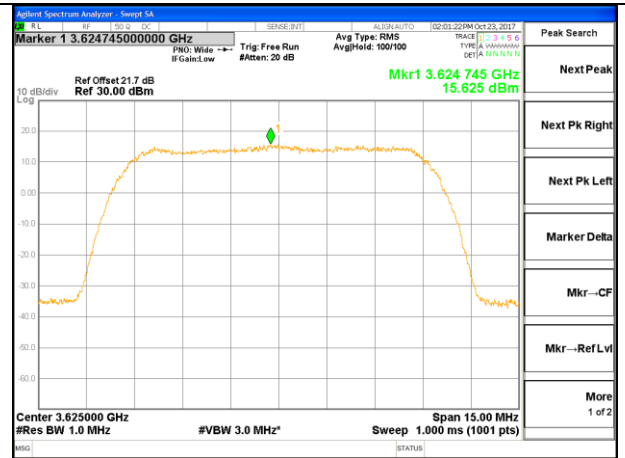
Band	BW(MHz)	Mode	f (MHz)	PSD (dBm)	Limit (dBm)	Delta (dB)
LTE 48	10	QPSK	3555	15.115	37	-21.885
			3625	15.867	37	-21.133
			3695	16.756	37	-20.244
		16QAM	3555	15.525	37	-21.475
			3625	15.711	37	-21.289
			3695	15.982	37	-21.018
		64QAM	3555	14.413	37	-22.587
			3625	14.994	37	-22.006
			3695	15.729	37	-21.271
	20	QPSK	3580	15.265	37	-21.735
			3635	15.973	37	-21.027
			3690	15.718	37	-21.282
		16QAM	3580	15.090	37	-21.91
			3635	15.150	37	-21.85
			3690	15.487	37	-21.513
		64QAM	3580	14.202	37	-22.798
			3635	15.131	37	-21.869
			3690	14.829	37	-22.171

PSD PLOTS FOR OMNI ANTENNA

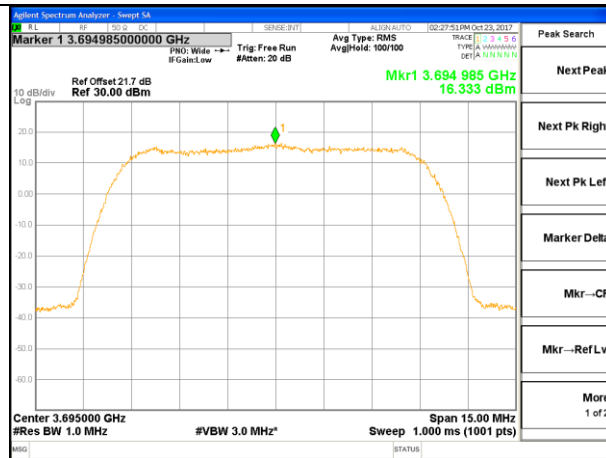
Antenna Port A 10MHz



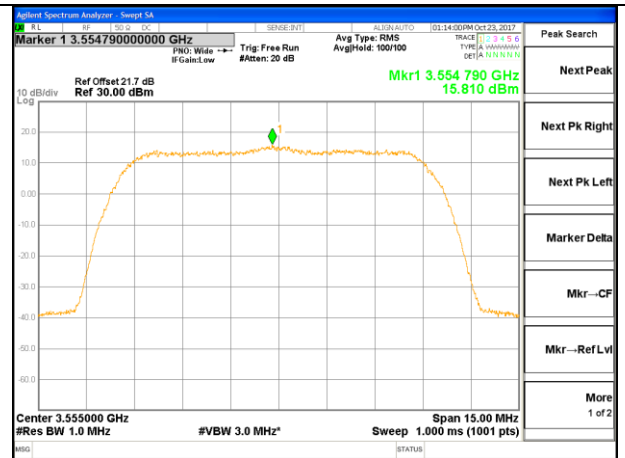
LTE B48 10MHz QPSK Low Channel



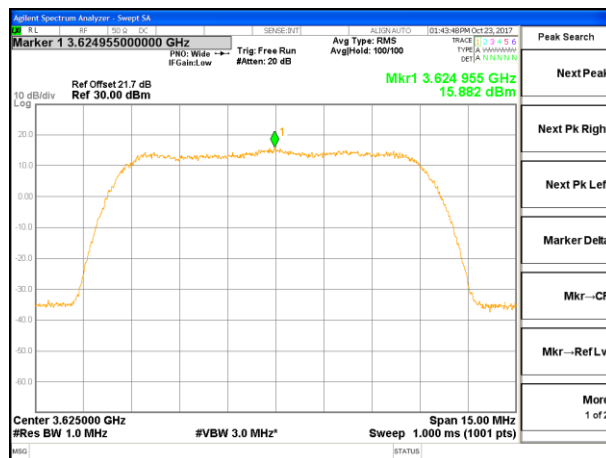
LTE B48 10MHz QPSK Middle Channel



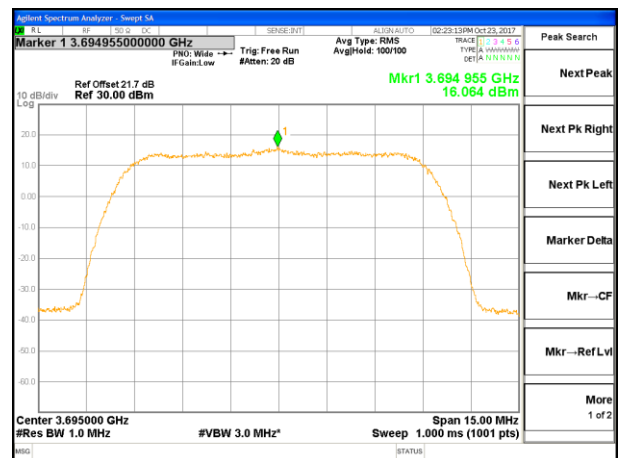
LTE B48 10MHz QPSK High Channel



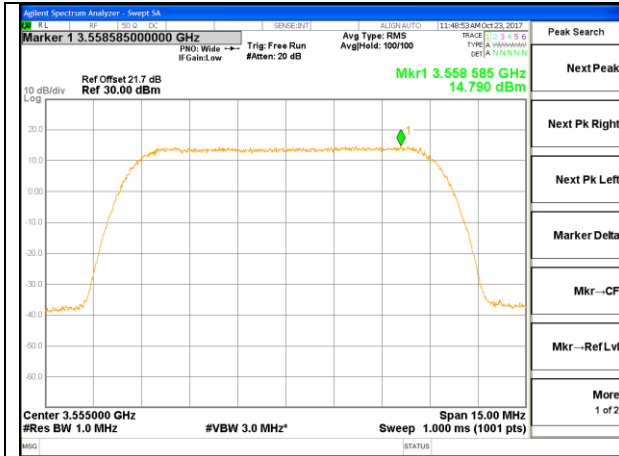
LTE B48 10MHz 16QAM Low Channel



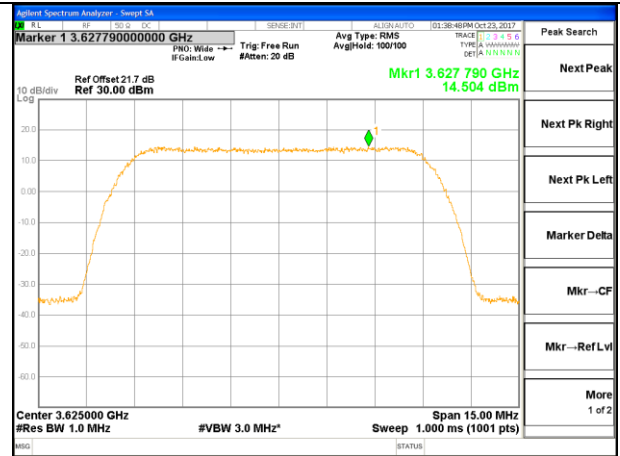
LTE B48 10MHz 16QAM Middle Channel



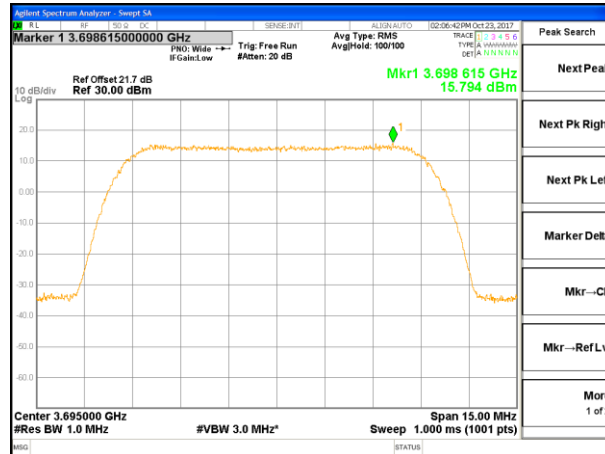
LTE B48 10MHz 16QAM High Channel



LTE B48 10MHz 64QAM Low Channel

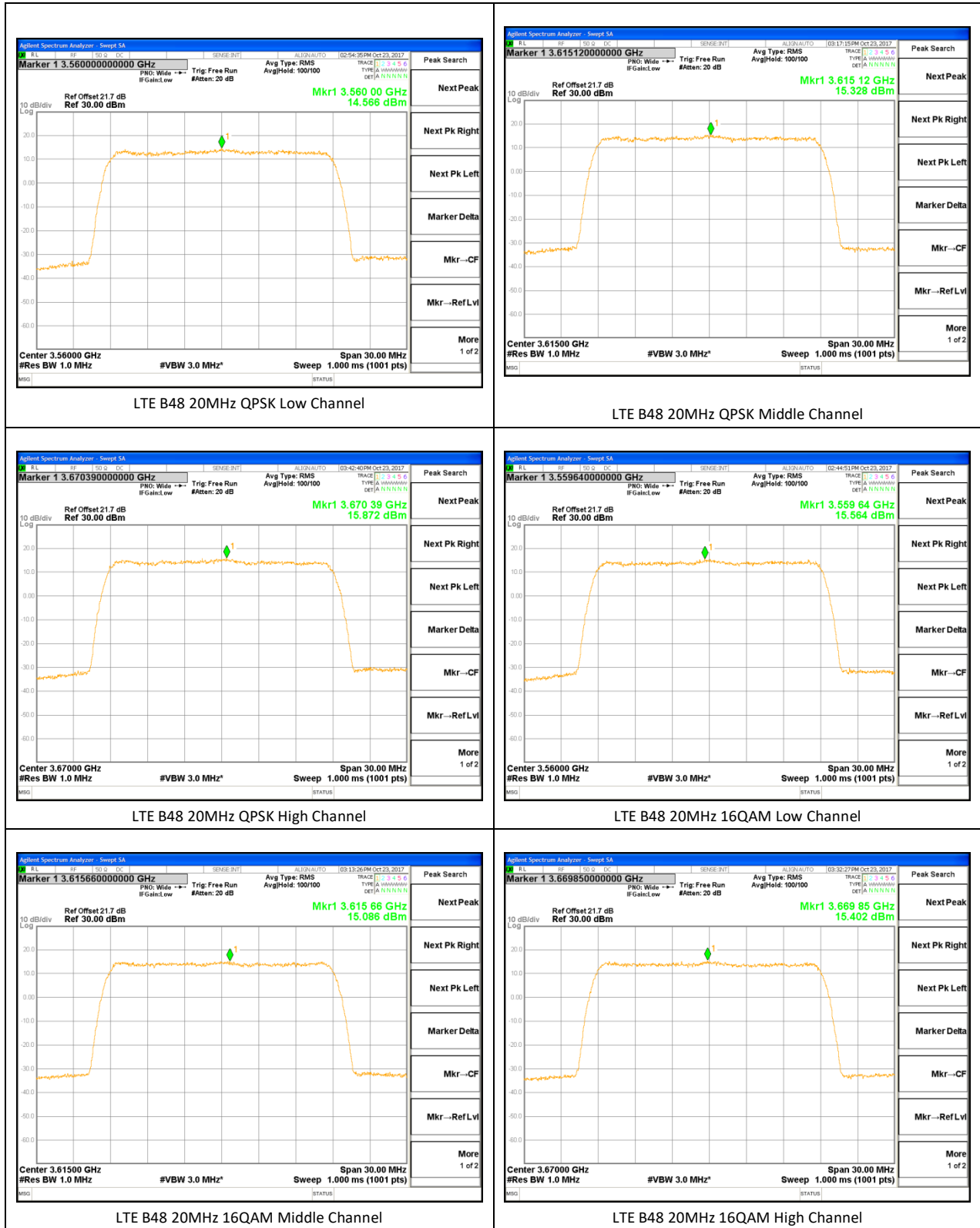


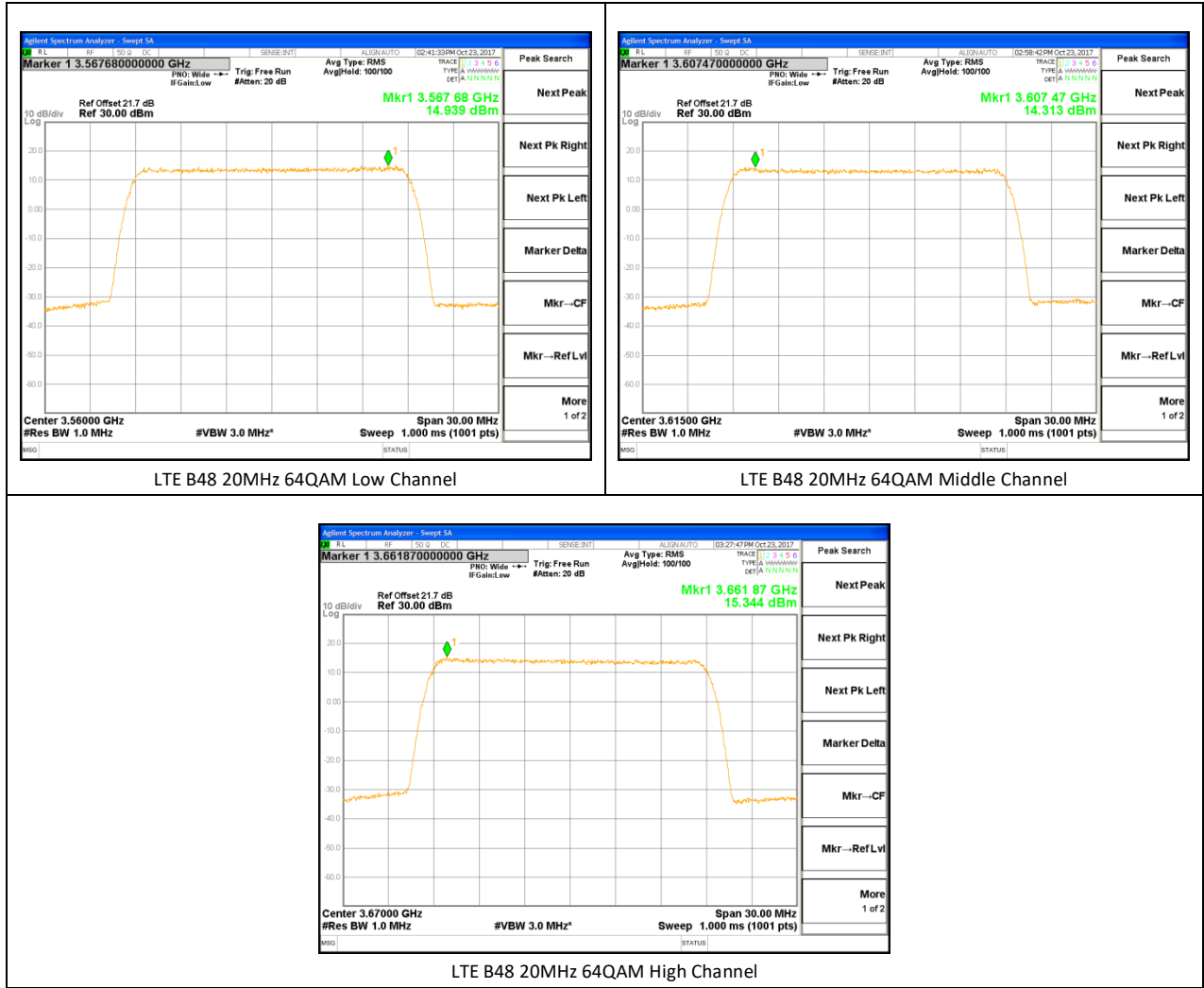
LTE B48 10MHz 64QAM Middle Channel



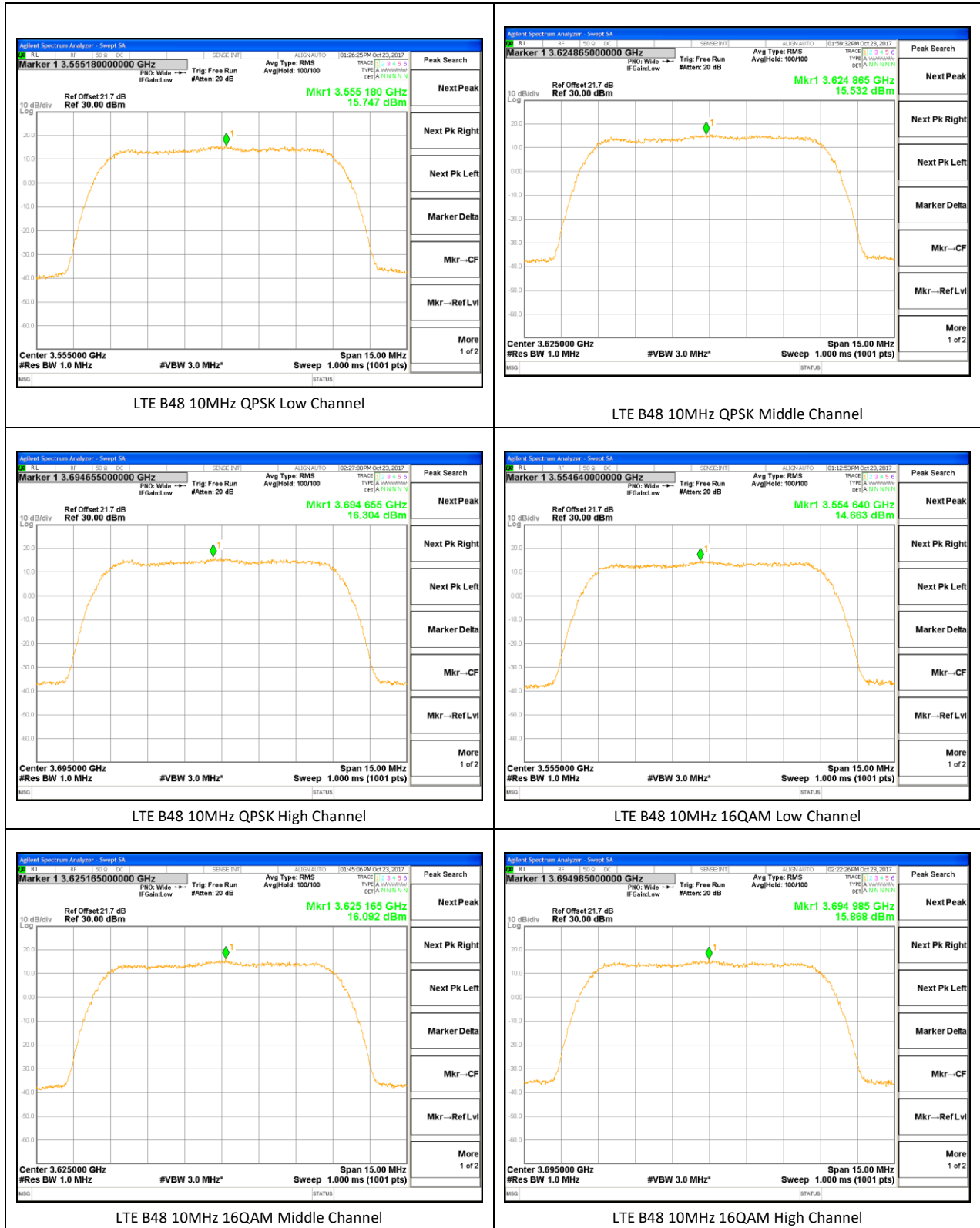
LTE B48 10MHz 64QAM High Channel

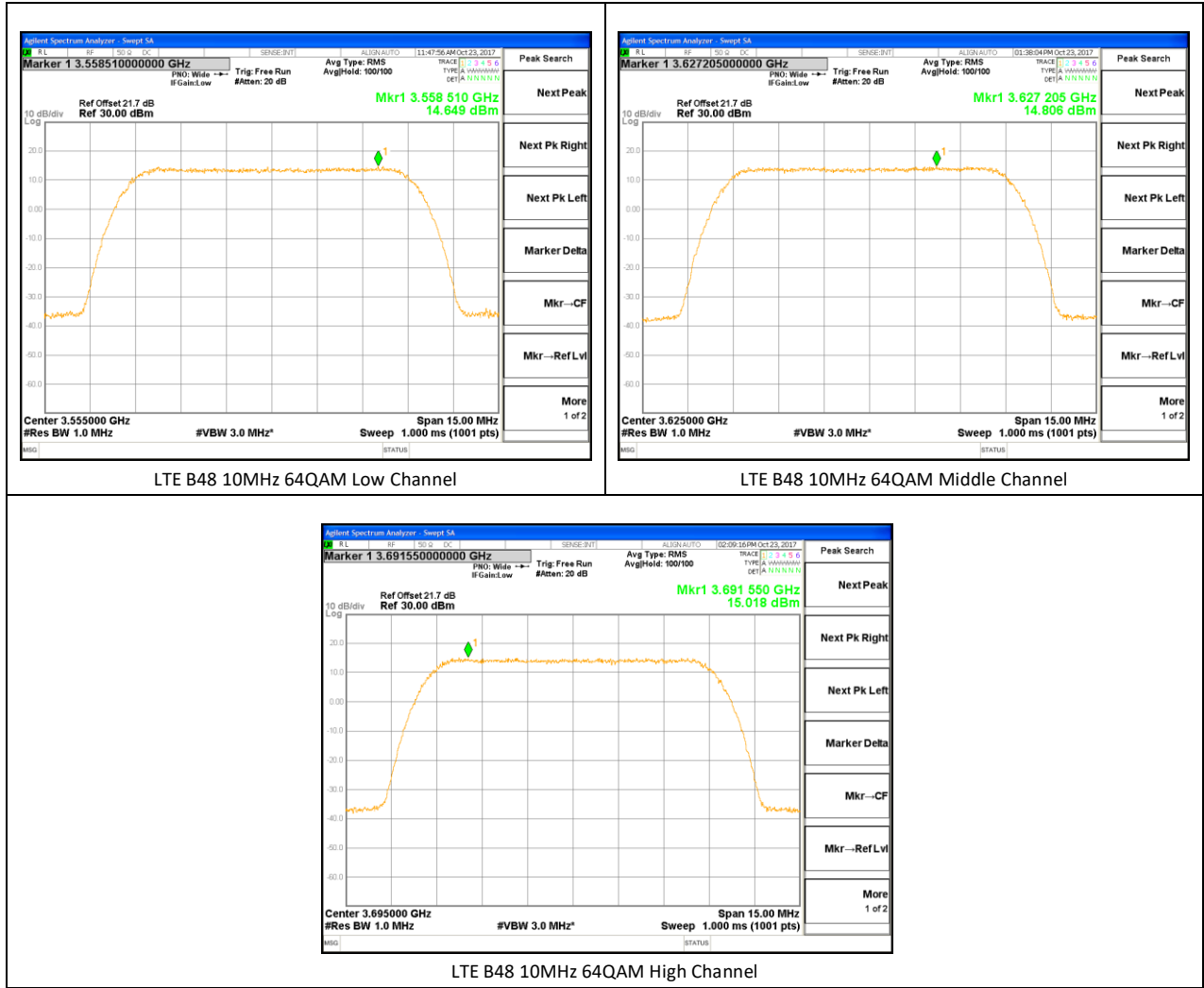
Antenna Port A 20MHz



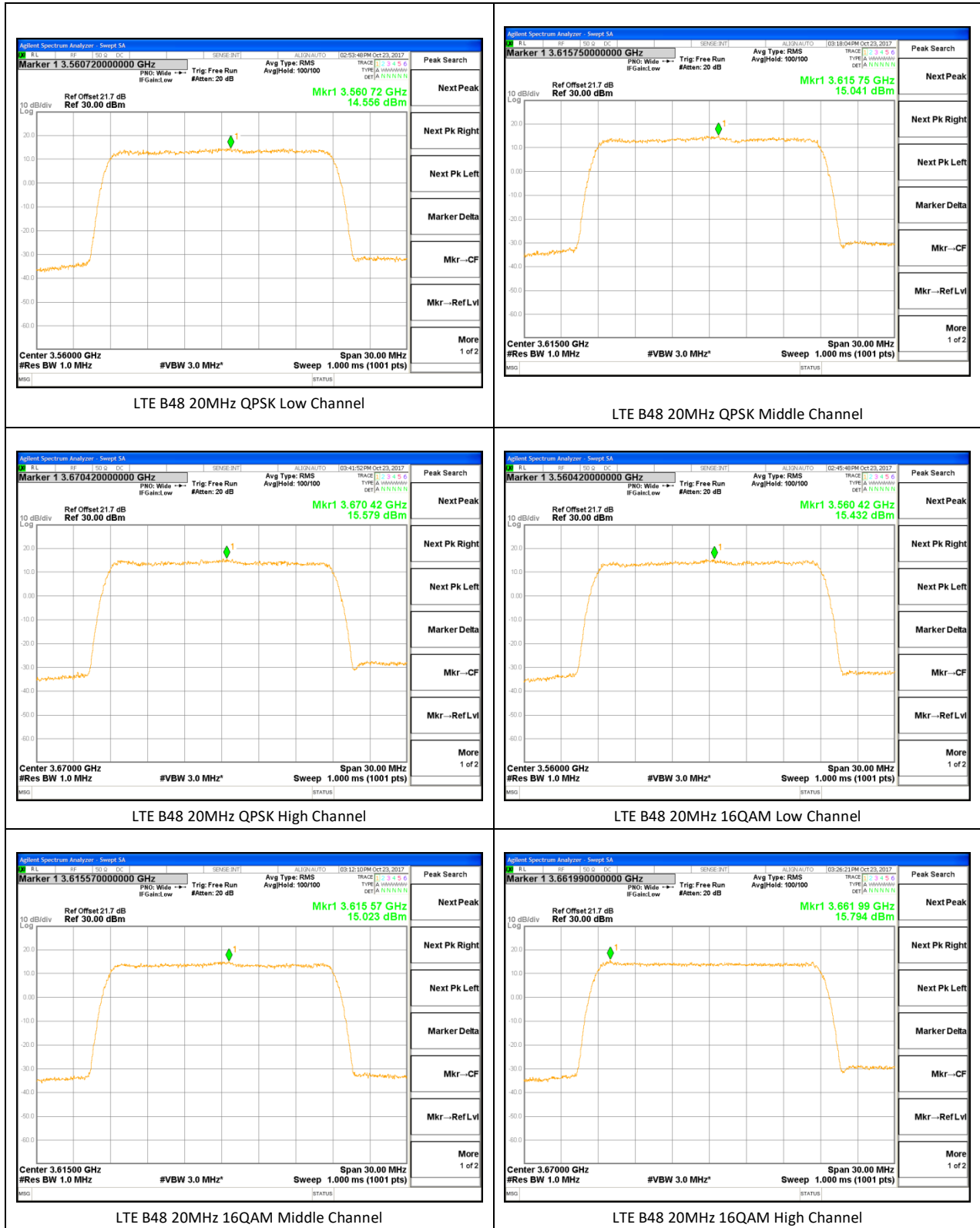


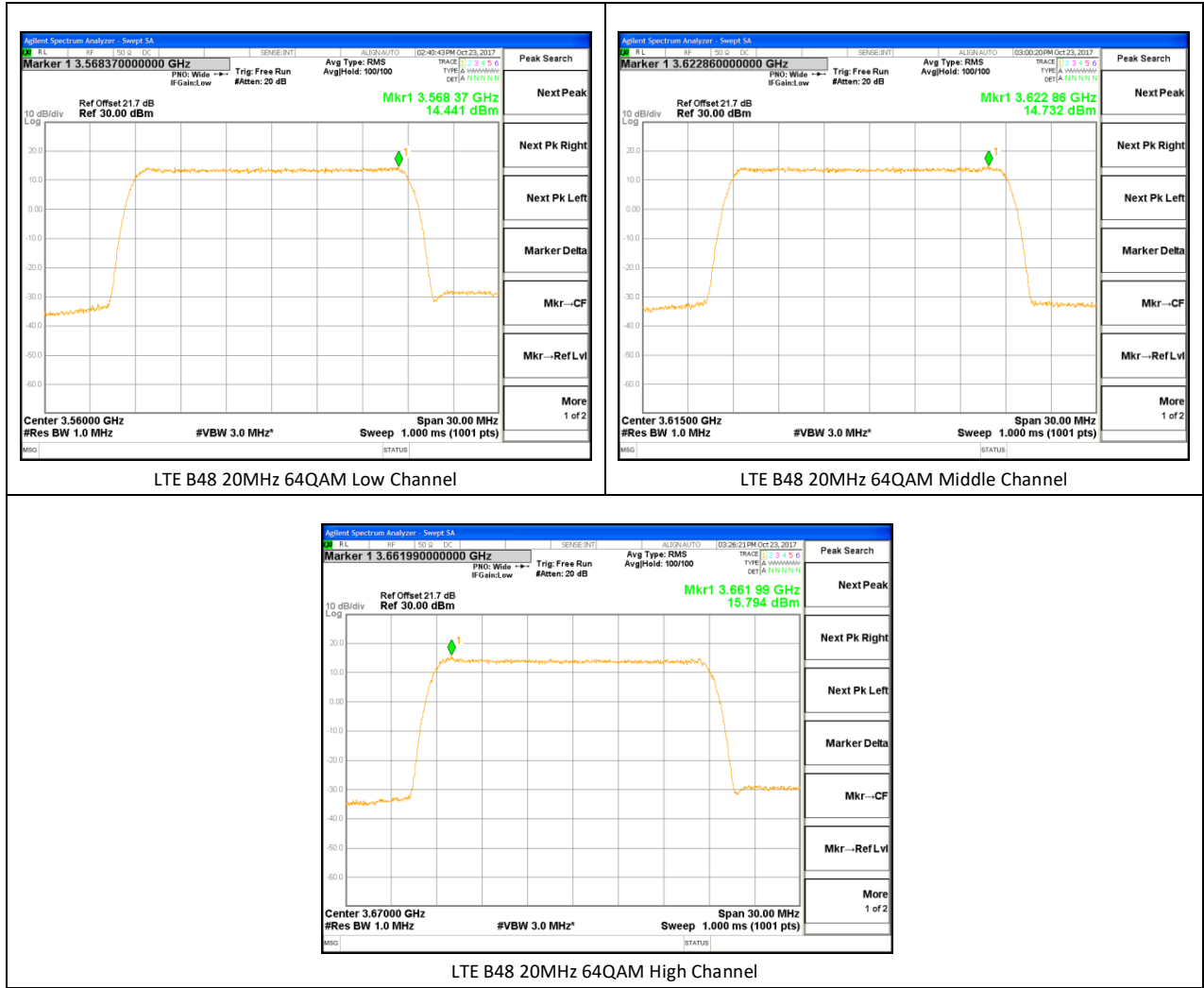
Antenna Port B 10MHz



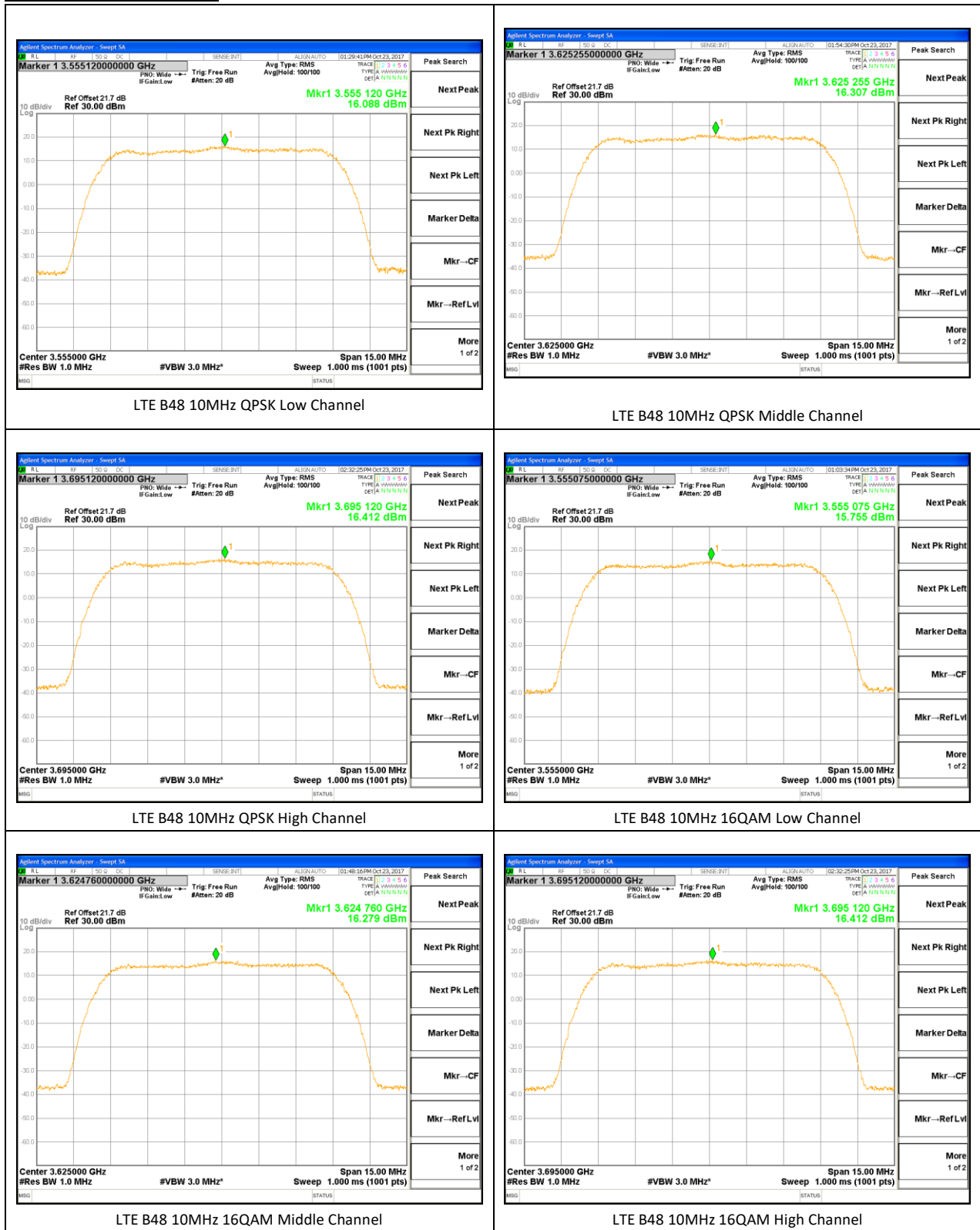


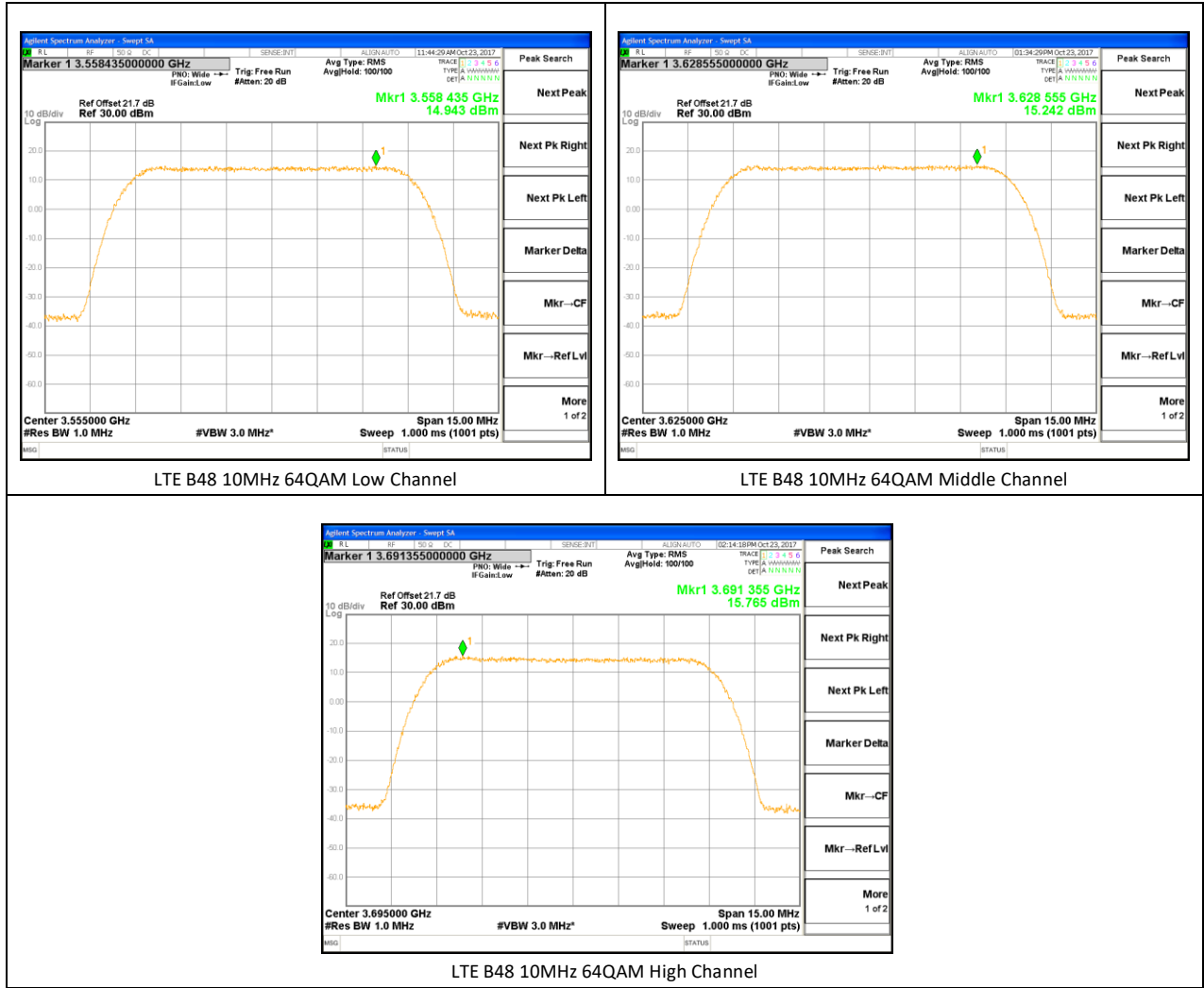
Antenna Port B 20MHz



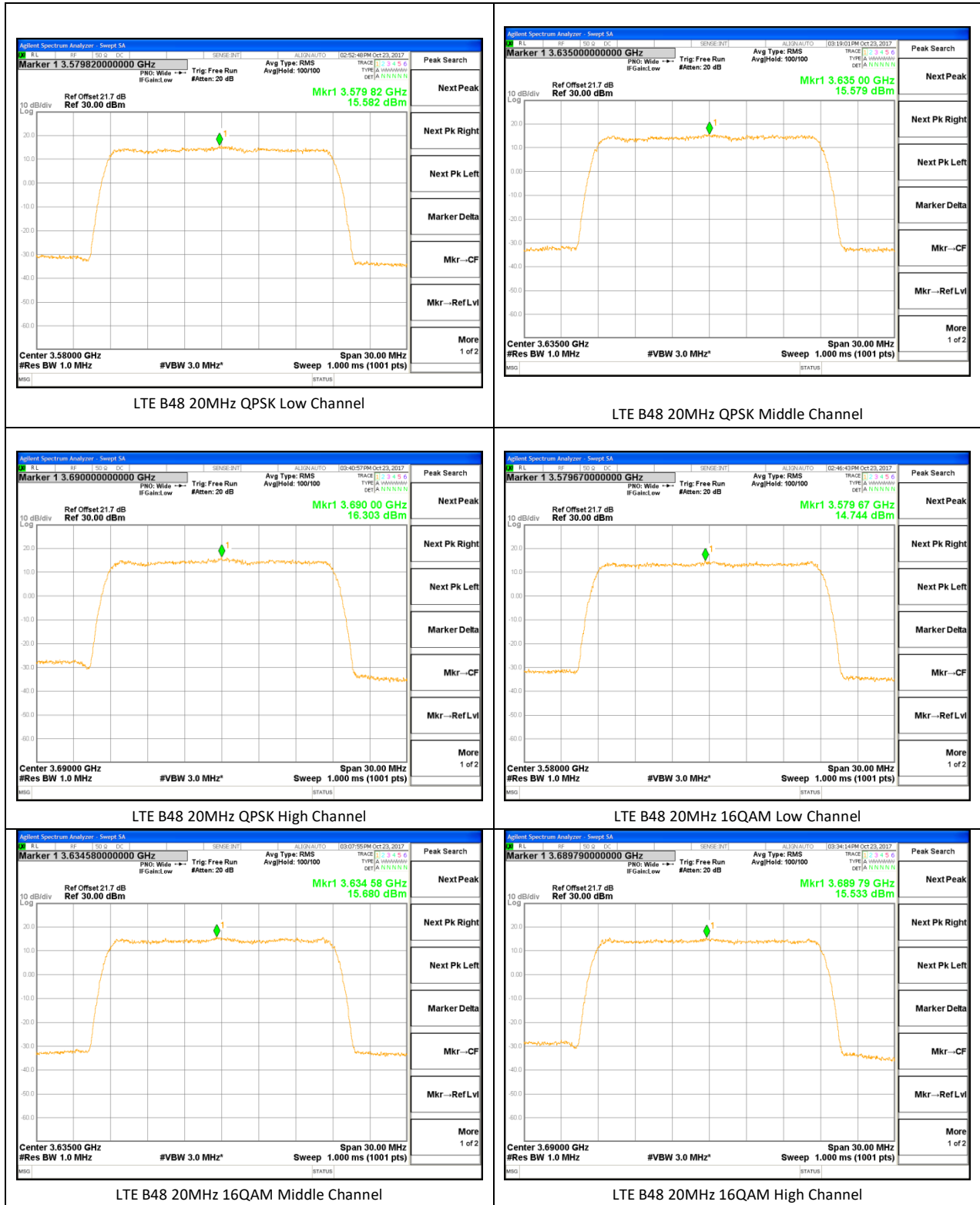


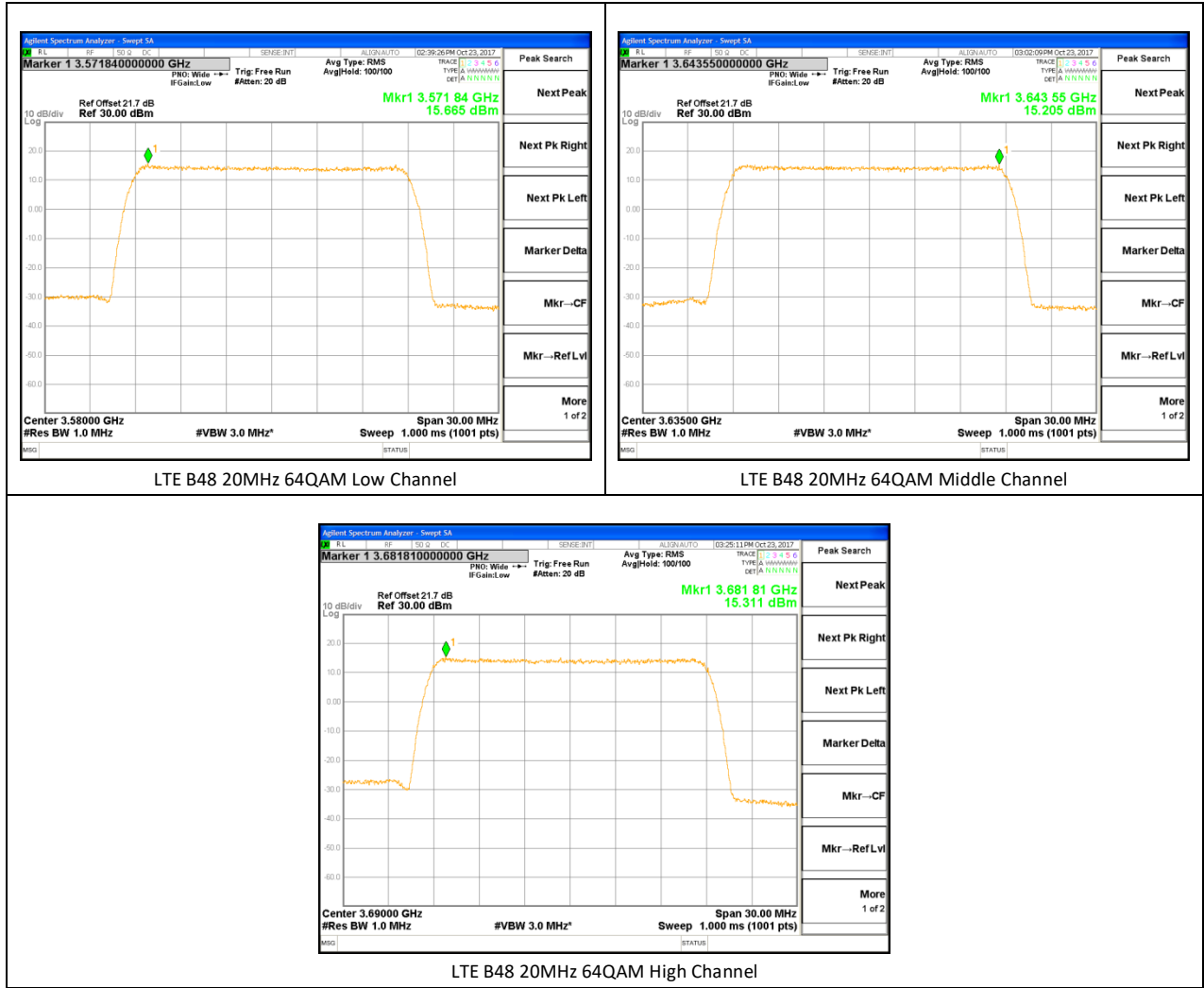
Antenna Port C 10MHz



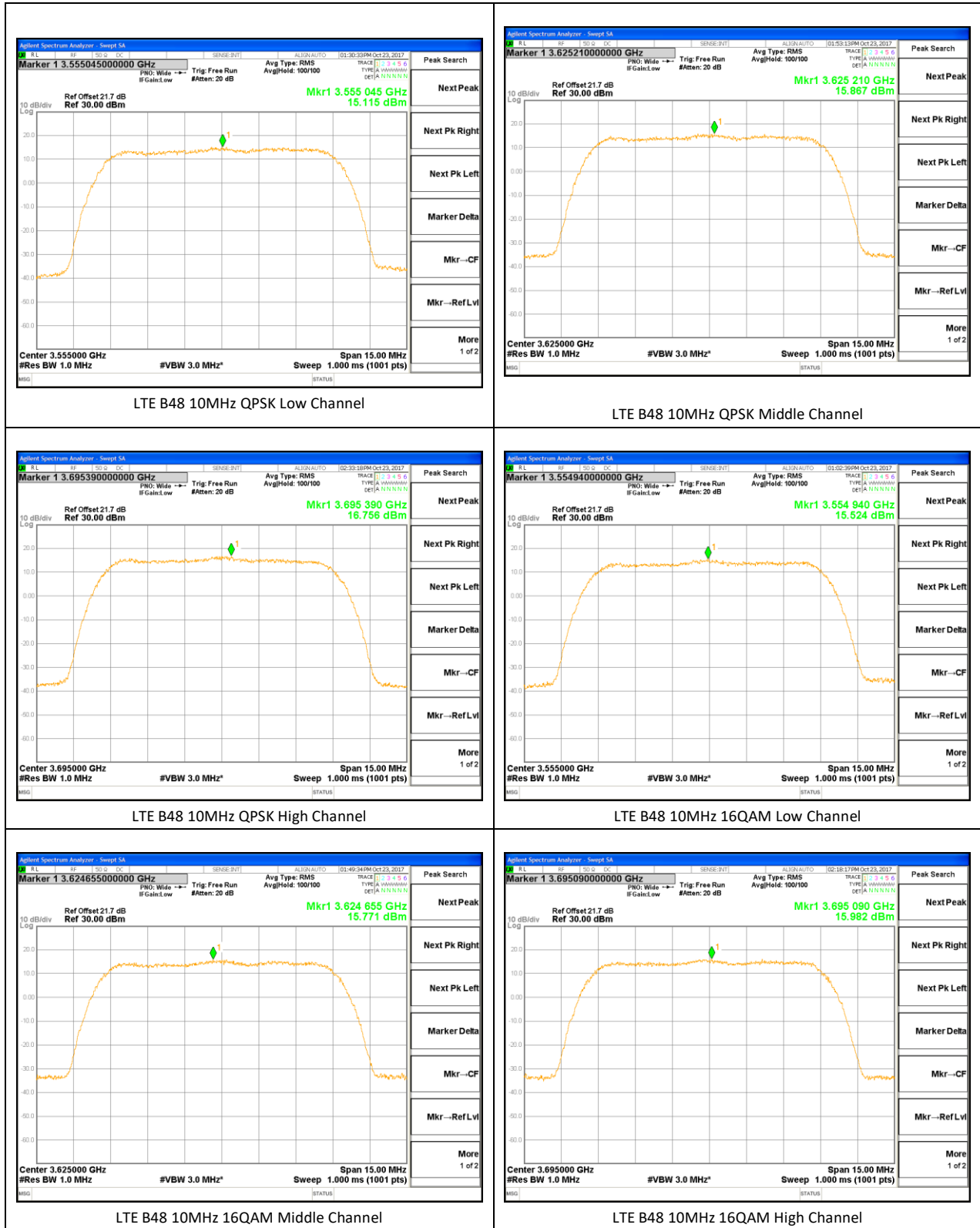


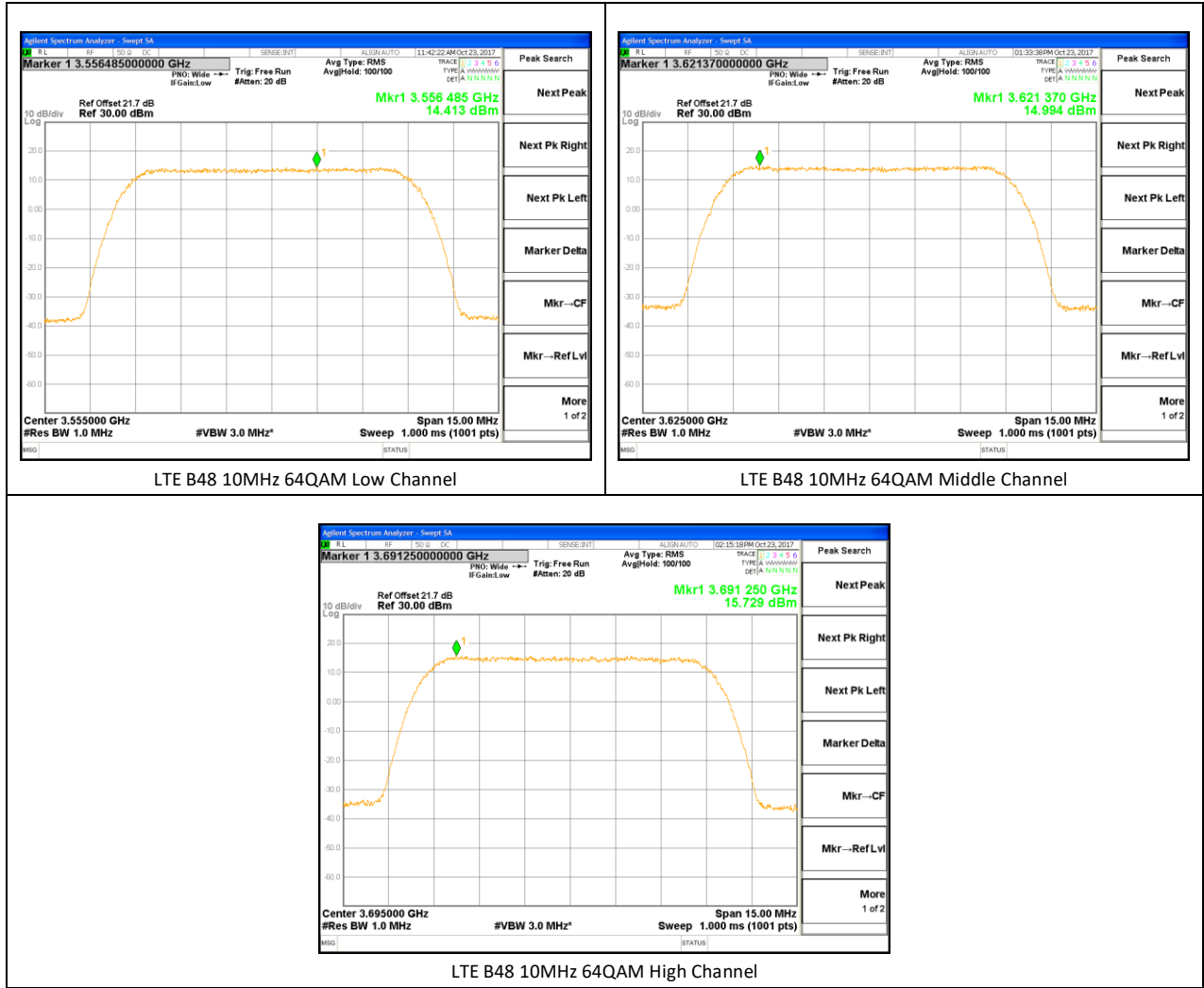
Antenna Port C 20MHz



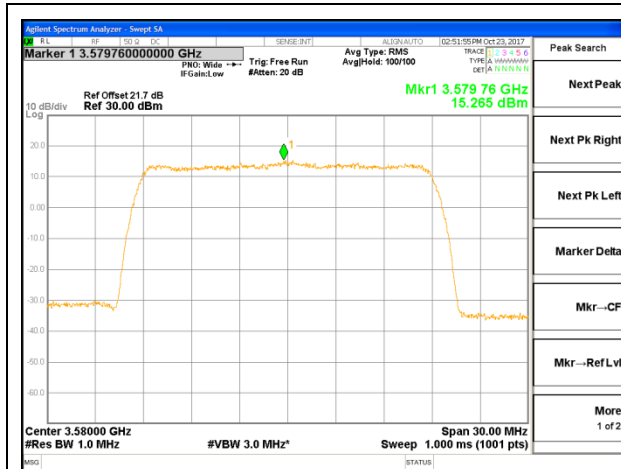


Antenna Port D 10MHz

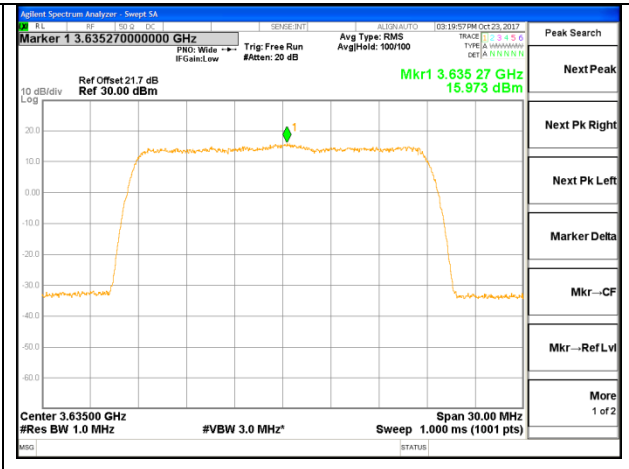




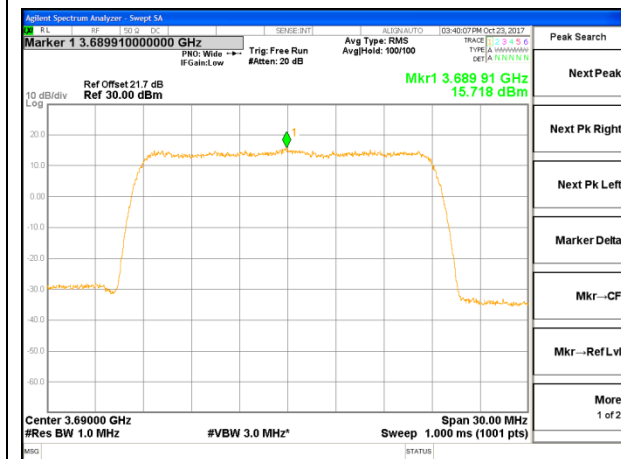
Antenna Port D 20MHz



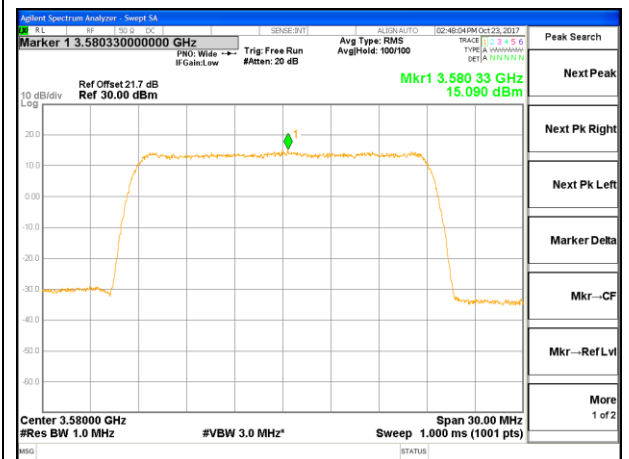
LTE B48 20MHz QPSK Low Channel



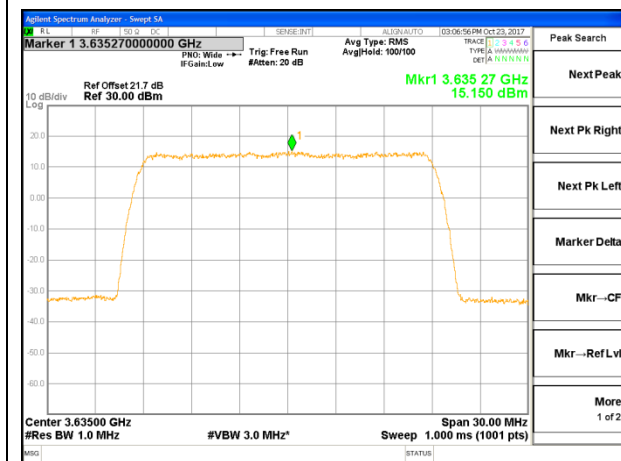
LTE B48 20MHz QPSK Middle Channel



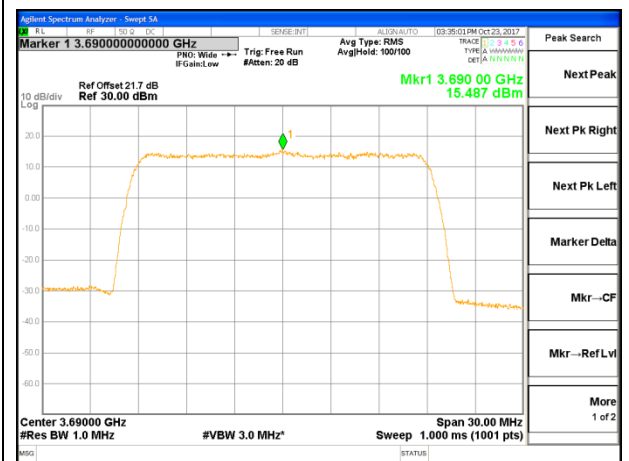
LTE B48 20MHz QPSK High Channel



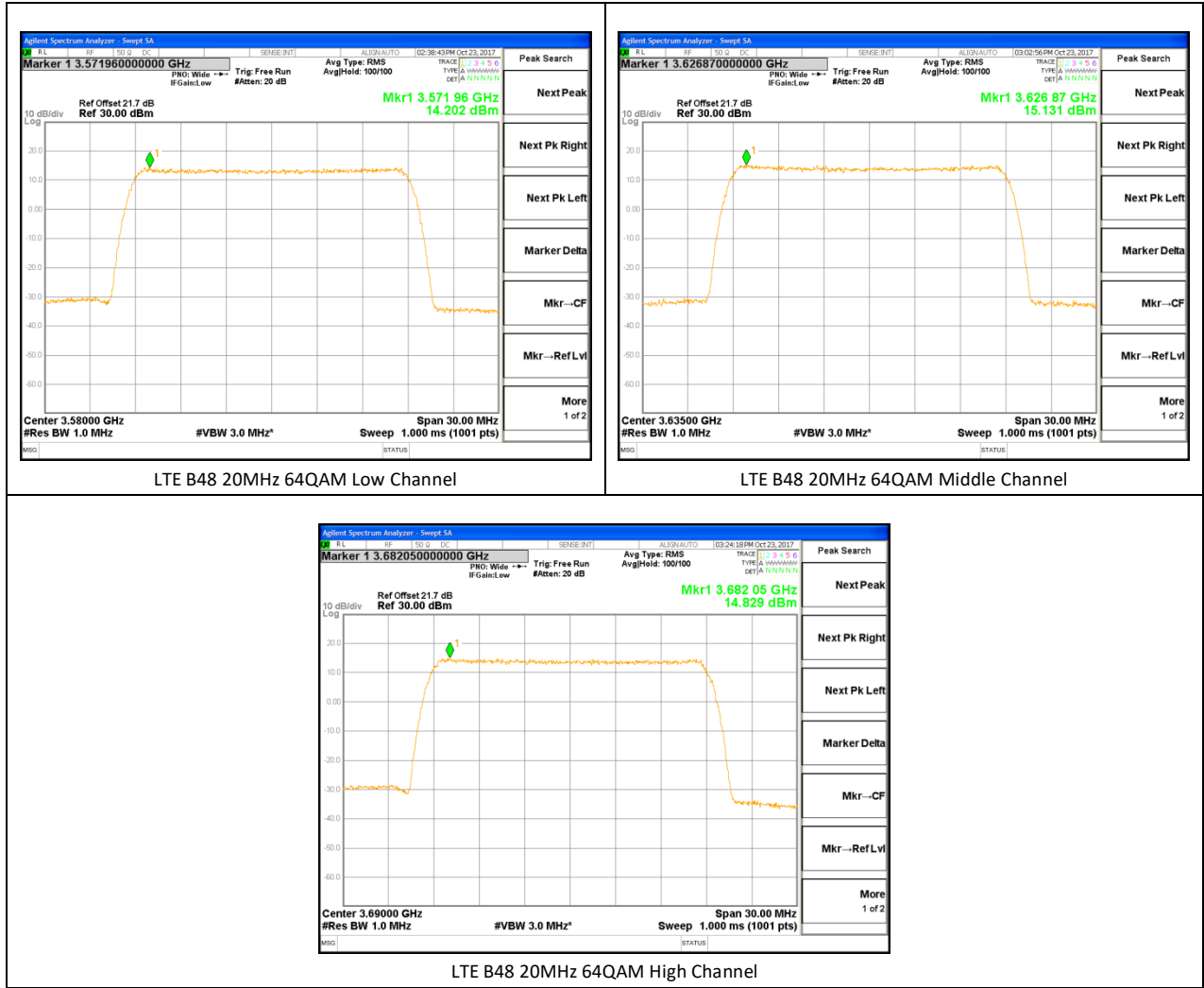
LTE B48 20MHz 16QAM Low Channel



LTE B48 20MHz 16QAM Middle Channel



LTE B48 20MHz 16QAM High Channel



PSD RESULTS FOR DIRECTIONAL ANTENNA

Antenna Port A

Band	BW(MHz)	Mode	f (MHz)	PSD (dBm)	Limit (dBm)	Delta (dB)
LTE 48	10	QPSK	3555	10.992	37	-26.008
			3625	11.423	37	-25.577
			3695	11.931	37	-25.069
		16QAM	3555	11.785	37	-25.215
			3625	11.495	37	-25.505
			3695	11.480	37	-25.52
		64QAM	3555	10.384	37	-26.616
			3625	10.710	37	-26.29
			3695	11.226	37	-25.774
	20	QPSK	3560	13.288	37	-23.712
			3615	12.350	37	-24.65
			3670	12.130	37	-24.87
		16QAM	3560	12.786	37	-24.214
			3615	12.063	37	-24.937
			3670	11.679	37	-25.321
		64QAM	3560	12.482	37	-24.518
			3615	11.914	37	-25.086
			3670	12.394	37	-24.606

Antenna Port B

Band	BW(MHz)	Mode	f (MHz)	PSD (dBm)	Limit (dBm)	Delta (dB)
LTE 48	10	QPSK	3555	11.684	37	-25.316
			3625	10.949	37	-26.051
			3695	11.290	37	-25.71
		16QAM	3555	11.612	37	-25.388
			3625	11.859	37	-25.141
			3695	12.280	37	-24.72
		64QAM	3555	10.816	37	-26.184
			3625	10.190	37	-26.81
			3695	11.319	37	-25.681
	20	QPSK	3560	12.334	37	-24.666
			3615	11.943	37	-25.057
			3670	12.562	37	-24.438
		16QAM	3560	12.417	37	-24.583
			3615	11.890	37	-25.11
			3670	12.358	37	-24.642
		64QAM	3560	11.521	37	-25.479
			3615	11.867	37	-25.133
			3670	12.475	37	-24.525

Antenna Port C

Band	BW(MHz)	Mode	f (MHz)	PSD (dBm)	Limit (dBm)	Delta (dB)
LTE 48	10	QPSK	3555	12.035	37	-24.965
			3625	11.548	37	-25.452
			3695	12.598	37	-24.402
		16QAM	3555	11.858	37	-25.142
			3625	11.493	37	-25.507
			3695	12.362	37	-24.638
		64QAM	3555	11.033	37	-25.967
			3625	11.414	37	-25.586
			3695	11.408	37	-25.592
	20	QPSK	3580	12.714	37	-24.286
			3635	13.264	37	-23.736
			3690	13.090	37	-23.91
		16QAM	3580	12.468	37	-24.532
			3635	12.314	37	-24.686
			3690	12.850	37	-24.15
		64QAM	3580	12.414	37	-24.586
			3635	12.593	37	-24.407
			3690	12.813	37	-24.187

Antenna Port D

Band	BW(MHz)	Mode	f (MHz)	PSD (dBm)	Limit (dBm)	Delta (dB)
LTE 48	10	QPSK	3555	11.364	37	-25.636
			3625	12.233	37	-24.767
			3695	11.920	37	-25.08
		16QAM	3555	11.861	37	-25.139
			3625	12.309	37	-24.691
			3695	12.153	37	-24.847
		64QAM	3555	10.477	37	-26.523
			3625	11.221	37	-25.779
			3695	11.203	37	-25.797
	20	QPSK	3580	12.405	37	-24.595
			3635	13.024	37	-23.976
			3690	12.554	37	-24.446
		16QAM	3580	12.149	37	-24.851
			3635	12.717	37	-24.283
			3690	12.591	37	-24.409
		64QAM	3580	11.910	37	-25.09
			3635	12.553	37	-24.447
			3690	11.886	37	-25.114