

n77H	80	30	3939.99	CP	64QAM	Inner_Full	22.69	24.08
n77H	80	30	3939.99	CP	64QAM	Edge_1RB_Left	22.05	23.44
n77H	80	30	3939.99	CP	64QAM	Edge_1RB_Right	21.87	23.26
n77H	80	30	3939.99	CP	64QAM	Outer_Full	22.54	23.93
n77H	80	30	3939.99	CP	256QAM	Inner_Full	19.81	21.20
n77H	80	30	3939.99	CP	256QAM	Edge_1RB_Left	19.20	20.59
n77H	80	30	3939.99	CP	256QAM	Edge_1RB_Right	19.18	20.57
n77H	80	30	3939.99	CP	256QAM	Outer_Full	19.76	21.15
n77H	90	30	3745.02	DFT	pi/2 BPSK	Inner_Full	25.43	26.82
n77H	90	30	3745.02	DFT	pi/2 BPSK	Edge_1RB_Left	21.66	23.05
n77H	90	30	3745.02	DFT	pi/2 BPSK	Edge_1RB_Right	21.60	22.99
n77H	90	30	3745.02	DFT	pi/2 BPSK	Outer_Full	24.93	26.32
n77H	90	30	3745.02	DFT	QPSK	Inner_Full	25.50	26.89
n77H	90	30	3745.02	DFT	QPSK	Edge_1RB_Left	21.71	23.10
n77H	90	30	3745.02	DFT	QPSK	Edge_1RB_Right	21.48	22.87
n77H	90	30	3745.02	DFT	QPSK	Outer_Full	24.47	25.86
n77H	90	30	3745.02	DFT	16QAM	Inner_Full	24.45	25.84
n77H	90	30	3745.02	DFT	16QAM	Edge_1RB_Left	21.63	23.02
n77H	90	30	3745.02	DFT	16QAM	Edge_1RB_Right	21.56	22.95
n77H	90	30	3745.02	DFT	16QAM	Outer_Full	23.49	24.88
n77H	90	30	3745.02	DFT	64QAM	Inner_Full	22.86	24.25
n77H	90	30	3745.02	DFT	64QAM	Edge_1RB_Left	21.66	23.05
n77H	90	30	3745.02	DFT	64QAM	Edge_1RB_Right	21.55	22.94
n77H	90	30	3745.02	DFT	64QAM	Outer_Full	22.93	24.32
n77H	90	30	3745.02	DFT	256QAM	Inner_Full	21.02	22.41
n77H	90	30	3745.02	DFT	256QAM	Edge_1RB_Left	21.09	22.48
n77H	90	30	3745.02	DFT	256QAM	Edge_1RB_Right	20.79	22.18
n77H	90	30	3745.02	DFT	256QAM	Outer_Full	21.11	22.50
n77H	90	30	3745.02	CP	QPSK	Inner_Full	23.78	25.17
n77H	90	30	3745.02	CP	QPSK	Edge_1RB_Left	21.66	23.05
n77H	90	30	3745.02	CP	QPSK	Edge_1RB_Right	21.53	22.92
n77H	90	30	3745.02	CP	QPSK	Outer_Full	22.40	23.79
n77H	90	30	3745.02	CP	16QAM	Inner_Full	23.38	24.77
n77H	90	30	3745.02	CP	16QAM	Edge_1RB_Left	21.82	23.21
n77H	90	30	3745.02	CP	16QAM	Edge_1RB_Right	21.67	23.06
n77H	90	30	3745.02	CP	16QAM	Outer_Full	22.40	23.79
n77H	90	30	3745.02	CP	64QAM	Inner_Full	21.88	23.27
n77H	90	30	3745.02	CP	64QAM	Edge_1RB_Left	21.73	23.12
n77H	90	30	3745.02	CP	64QAM	Edge_1RB_Right	21.54	22.93
n77H	90	30	3745.02	CP	64QAM	Outer_Full	21.92	23.31
n77H	90	30	3745.02	CP	256QAM	Inner_Full	19.05	20.44

n77H	90	30	3745.02	CP	256QAM	Edge_1RB_Left	19.01	20.40
n77H	90	30	3745.02	CP	256QAM	Edge_1RB_Right	18.86	20.25
n77H	90	30	3745.02	CP	256QAM	Outer_Full	19.08	20.47
n77H	90	30	3840	DFT	pi/2 BPSK	Inner_Full	25.95	27.34
n77H	90	30	3840	DFT	pi/2 BPSK	Edge_1RB_Left	21.44	22.83
n77H	90	30	3840	DFT	pi/2 BPSK	Edge_1RB_Right	21.86	23.25
n77H	90	30	3840	DFT	pi/2 BPSK	Outer_Full	25.29	26.68
n77H	90	30	3840	DFT	QPSK	Inner_Full	25.96	27.35
n77H	90	30	3840	DFT	QPSK	Edge_1RB_Left	21.40	22.79
n77H	90	30	3840	DFT	QPSK	Edge_1RB_Right	21.86	23.25
n77H	90	30	3840	DFT	QPSK	Outer_Full	24.77	26.16
n77H	90	30	3840	DFT	16QAM	Inner_Full	24.91	26.30
n77H	90	30	3840	DFT	16QAM	Edge_1RB_Left	21.28	22.67
n77H	90	30	3840	DFT	16QAM	Edge_1RB_Right	21.86	23.25
n77H	90	30	3840	DFT	16QAM	Outer_Full	23.68	25.07
n77H	90	30	3840	DFT	64QAM	Inner_Full	23.44	24.83
n77H	90	30	3840	DFT	64QAM	Edge_1RB_Left	21.49	22.88
n77H	90	30	3840	DFT	64QAM	Edge_1RB_Right	21.81	23.20
n77H	90	30	3840	DFT	64QAM	Outer_Full	23.33	24.72
n77H	90	30	3840	DFT	256QAM	Inner_Full	21.64	23.03
n77H	90	30	3840	DFT	256QAM	Edge_1RB_Left	20.95	22.34
n77H	90	30	3840	DFT	256QAM	Edge_1RB_Right	21.47	22.86
n77H	90	30	3840	DFT	256QAM	Outer_Full	21.40	22.79
n77H	90	30	3840	CP	QPSK	Inner_Full	24.36	25.75
n77H	90	30	3840	CP	QPSK	Edge_1RB_Left	21.33	22.72
n77H	90	30	3840	CP	QPSK	Edge_1RB_Right	21.81	23.20
n77H	90	30	3840	CP	QPSK	Outer_Full	22.75	24.14
n77H	90	30	3840	CP	16QAM	Inner_Full	23.84	25.23
n77H	90	30	3840	CP	16QAM	Edge_1RB_Left	21.59	22.98
n77H	90	30	3840	CP	16QAM	Edge_1RB_Right	21.83	23.22
n77H	90	30	3840	CP	16QAM	Outer_Full	22.73	24.12
n77H	90	30	3840	CP	64QAM	Inner_Full	22.37	23.76
n77H	90	30	3840	CP	64QAM	Edge_1RB_Left	21.56	22.95
n77H	90	30	3840	CP	64QAM	Edge_1RB_Right	21.72	23.11
n77H	90	30	3840	CP	64QAM	Outer_Full	22.18	23.57
n77H	90	30	3840	CP	256QAM	Inner_Full	19.45	20.84
n77H	90	30	3840	CP	256QAM	Edge_1RB_Left	18.80	20.19
n77H	90	30	3840	CP	256QAM	Edge_1RB_Right	19.17	20.56
n77H	90	30	3840	CP	256QAM	Outer_Full	19.32	20.71
n77H	90	30	3934.98	DFT	pi/2 BPSK	Inner_Full	26.26	27.65
n77H	90	30	3934.98	DFT	pi/2 BPSK	Edge_1RB_Left	21.74	23.13

n77H	90	30	3934.98	DFT	pi/2 BPSK	Edge_1RB_Right	21.47	22.86
n77H	90	30	3934.98	DFT	pi/2 BPSK	Outer_Full	25.53	26.92
n77H	90	30	3934.98	DFT	QPSK	Inner_Full	26.31	27.70
n77H	90	30	3934.98	DFT	QPSK	Edge_1RB_Left	21.76	23.15
n77H	90	30	3934.98	DFT	QPSK	Edge_1RB_Right	21.49	22.88
n77H	90	30	3934.98	DFT	QPSK	Outer_Full	25.11	26.50
n77H	90	30	3934.98	DFT	16QAM	Inner_Full	25.28	26.67
n77H	90	30	3934.98	DFT	16QAM	Edge_1RB_Left	21.72	23.11
n77H	90	30	3934.98	DFT	16QAM	Edge_1RB_Right	21.44	22.83
n77H	90	30	3934.98	DFT	16QAM	Outer_Full	24.05	25.44
n77H	90	30	3934.98	DFT	64QAM	Inner_Full	23.83	25.22
n77H	90	30	3934.98	DFT	64QAM	Edge_1RB_Left	21.74	23.13
n77H	90	30	3934.98	DFT	64QAM	Edge_1RB_Right	21.48	22.87
n77H	90	30	3934.98	DFT	64QAM	Outer_Full	23.59	24.98
n77H	90	30	3934.98	DFT	256QAM	Inner_Full	21.93	23.32
n77H	90	30	3934.98	DFT	256QAM	Edge_1RB_Left	21.11	22.50
n77H	90	30	3934.98	DFT	256QAM	Edge_1RB_Right	20.79	22.18
n77H	90	30	3934.98	DFT	256QAM	Outer_Full	21.75	23.14
n77H	90	30	3934.98	CP	QPSK	Inner_Full	24.76	26.15
n77H	90	30	3934.98	CP	QPSK	Edge_1RB_Left	21.74	23.13
n77H	90	30	3934.98	CP	QPSK	Edge_1RB_Right	21.54	22.93
n77H	90	30	3934.98	CP	QPSK	Outer_Full	23.02	24.41
n77H	90	30	3934.98	CP	16QAM	Inner_Full	24.18	25.57
n77H	90	30	3934.98	CP	16QAM	Edge_1RB_Left	21.84	23.23
n77H	90	30	3934.98	CP	16QAM	Edge_1RB_Right	21.60	22.99
n77H	90	30	3934.98	CP	16QAM	Outer_Full	23.05	24.44
n77H	90	30	3934.98	CP	64QAM	Inner_Full	22.69	24.08
n77H	90	30	3934.98	CP	64QAM	Edge_1RB_Left	21.66	23.05
n77H	90	30	3934.98	CP	64QAM	Edge_1RB_Right	21.48	22.87
n77H	90	30	3934.98	CP	64QAM	Outer_Full	22.61	24.00
n77H	90	30	3934.98	CP	256QAM	Inner_Full	19.84	21.23
n77H	90	30	3934.98	CP	256QAM	Edge_1RB_Left	19.21	20.60
n77H	90	30	3934.98	CP	256QAM	Edge_1RB_Right	18.76	20.15
n77H	90	30	3934.98	CP	256QAM	Outer_Full	19.76	21.15
n77H	100	30	3750	DFT	pi/2 BPSK	Inner_Full	25.43	26.82
n77H	100	30	3750	DFT	pi/2 BPSK	Edge_1RB_Left	21.53	22.92
n77H	100	30	3750	DFT	pi/2 BPSK	Edge_1RB_Right	21.32	22.71
n77H	100	30	3750	DFT	pi/2 BPSK	Outer_Full	24.96	26.35
n77H	100	30	3750	DFT	QPSK	Inner_Full	25.47	26.86
n77H	100	30	3750	DFT	QPSK	Edge_1RB_Left	21.58	22.97
n77H	100	30	3750	DFT	QPSK	Edge_1RB_Right	21.23	22.62

n77H	100	30	3750	DFT	QPSK	Outer_Full	24.48	25.87
n77H	100	30	3750	DFT	16QAM	Inner_Full	24.44	25.83
n77H	100	30	3750	DFT	16QAM	Edge_1RB_Left	21.60	22.99
n77H	100	30	3750	DFT	16QAM	Edge_1RB_Right	21.25	22.64
n77H	100	30	3750	DFT	16QAM	Outer_Full	23.47	24.86
n77H	100	30	3750	DFT	64QAM	Inner_Full	22.94	24.33
n77H	100	30	3750	DFT	64QAM	Edge_1RB_Left	21.57	22.96
n77H	100	30	3750	DFT	64QAM	Edge_1RB_Right	21.21	22.60
n77H	100	30	3750	DFT	64QAM	Outer_Full	23.01	24.40
n77H	100	30	3750	DFT	256QAM	Inner_Full	21.07	22.46
n77H	100	30	3750	DFT	256QAM	Edge_1RB_Left	20.85	22.24
n77H	100	30	3750	DFT	256QAM	Edge_1RB_Right	20.55	21.94
n77H	100	30	3750	DFT	256QAM	Outer_Full	21.18	22.57
n77H	100	30	3750	CP	QPSK	Inner_Full	23.89	25.28
n77H	100	30	3750	CP	QPSK	Edge_1RB_Left	21.57	22.96
n77H	100	30	3750	CP	QPSK	Edge_1RB_Right	21.37	22.76
n77H	100	30	3750	CP	QPSK	Outer_Full	22.43	23.82
n77H	100	30	3750	CP	16QAM	Inner_Full	23.44	24.83
n77H	100	30	3750	CP	16QAM	Edge_1RB_Left	21.59	22.98
n77H	100	30	3750	CP	16QAM	Edge_1RB_Right	21.44	22.83
n77H	100	30	3750	CP	16QAM	Outer_Full	22.41	23.80
n77H	100	30	3750	CP	64QAM	Inner_Full	21.87	23.26
n77H	100	30	3750	CP	64QAM	Edge_1RB_Left	21.59	22.98
n77H	100	30	3750	CP	64QAM	Edge_1RB_Right	21.50	22.89
n77H	100	30	3750	CP	64QAM	Outer_Full	21.91	23.30
n77H	100	30	3750	CP	256QAM	Inner_Full	19.05	20.44
n77H	100	30	3750	CP	256QAM	Edge_1RB_Left	18.93	20.32
n77H	100	30	3750	CP	256QAM	Edge_1RB_Right	18.73	20.12
n77H	100	30	3750	CP	256QAM	Outer_Full	19.07	20.46
n77H	100	30	3840	DFT	pi/2 BPSK	Inner_Full	25.82	27.21
n77H	100	30	3840	DFT	pi/2 BPSK	Edge_1RB_Left	21.26	22.65
n77H	100	30	3840	DFT	pi/2 BPSK	Edge_1RB_Right	21.59	22.98
n77H	100	30	3840	DFT	pi/2 BPSK	Outer_Full	25.16	26.55
n77H	100	30	3840	DFT	QPSK	Inner_Full	25.86	27.25
n77H	100	30	3840	DFT	QPSK	Edge_1RB_Left	21.32	22.71
n77H	100	30	3840	DFT	QPSK	Edge_1RB_Right	21.46	22.85
n77H	100	30	3840	DFT	QPSK	Outer_Full	24.63	26.02
n77H	100	30	3840	DFT	16QAM	Inner_Full	24.82	26.21
n77H	100	30	3840	DFT	16QAM	Edge_1RB_Left	21.23	22.62
n77H	100	30	3840	DFT	16QAM	Edge_1RB_Right	21.77	23.16
n77H	100	30	3840	DFT	16QAM	Outer_Full	23.61	25.00

n77H	100	30	3840	DFT	64QAM	Inner_Full	23.27	24.66
n77H	100	30	3840	DFT	64QAM	Edge_1RB_Left	21.59	22.98
n77H	100	30	3840	DFT	64QAM	Edge_1RB_Right	21.65	23.04
n77H	100	30	3840	DFT	64QAM	Outer_Full	23.15	24.54
n77H	100	30	3840	DFT	256QAM	Inner_Full	21.47	22.86
n77H	100	30	3840	DFT	256QAM	Edge_1RB_Left	20.54	21.93
n77H	100	30	3840	DFT	256QAM	Edge_1RB_Right	20.82	22.21
n77H	100	30	3840	DFT	256QAM	Outer_Full	21.33	22.72
n77H	100	30	3840	CP	QPSK	Inner_Full	24.35	25.74
n77H	100	30	3840	CP	QPSK	Edge_1RB_Left	21.30	22.69
n77H	100	30	3840	CP	QPSK	Edge_1RB_Right	21.58	22.97
n77H	100	30	3840	CP	QPSK	Outer_Full	22.54	23.93
n77H	100	30	3840	CP	16QAM	Inner_Full	23.89	25.28
n77H	100	30	3840	CP	16QAM	Edge_1RB_Left	21.35	22.74
n77H	100	30	3840	CP	16QAM	Edge_1RB_Right	21.56	22.95
n77H	100	30	3840	CP	16QAM	Outer_Full	22.62	24.01
n77H	100	30	3840	CP	64QAM	Inner_Full	22.25	23.64
n77H	100	30	3840	CP	64QAM	Edge_1RB_Left	21.18	22.57
n77H	100	30	3840	CP	64QAM	Edge_1RB_Right	21.82	23.21
n77H	100	30	3840	CP	64QAM	Outer_Full	22.05	23.44
n77H	100	30	3840	CP	256QAM	Inner_Full	19.50	20.89
n77H	100	30	3840	CP	256QAM	Edge_1RB_Left	18.57	19.96
n77H	100	30	3840	CP	256QAM	Edge_1RB_Right	18.91	20.30
n77H	100	30	3840	CP	256QAM	Outer_Full	19.23	20.62
n77H	100	30	3930	DFT	pi/2 BPSK	Inner_Full	26.21	27.60
n77H	100	30	3930	DFT	pi/2 BPSK	Edge_1RB_Left	21.69	23.08
n77H	100	30	3930	DFT	pi/2 BPSK	Edge_1RB_Right	21.40	22.79
n77H	100	30	3930	DFT	pi/2 BPSK	Outer_Full	25.50	26.89
n77H	100	30	3930	DFT	QPSK	Inner_Full	26.27	27.66
n77H	100	30	3930	DFT	QPSK	Edge_1RB_Left	21.67	23.06
n77H	100	30	3930	DFT	QPSK	Edge_1RB_Right	21.18	22.57
n77H	100	30	3930	DFT	QPSK	Outer_Full	25.01	26.40
n77H	100	30	3930	DFT	16QAM	Inner_Full	25.30	26.69
n77H	100	30	3930	DFT	16QAM	Edge_1RB_Left	21.56	22.95
n77H	100	30	3930	DFT	16QAM	Edge_1RB_Right	21.25	22.64
n77H	100	30	3930	DFT	16QAM	Outer_Full	24.10	25.49
n77H	100	30	3930	DFT	64QAM	Inner_Full	23.78	25.17
n77H	100	30	3930	DFT	64QAM	Edge_1RB_Left	21.71	23.10
n77H	100	30	3930	DFT	64QAM	Edge_1RB_Right	21.69	23.08
n77H	100	30	3930	DFT	64QAM	Outer_Full	23.53	24.92
n77H	100	30	3930	DFT	256QAM	Inner_Full	21.91	23.30

n77H	100	30	3930	DFT	256QAM	Edge_1RB_Left	21.19	22.58
n77H	100	30	3930	DFT	256QAM	Edge_1RB_Right	20.78	22.17
n77H	100	30	3930	DFT	256QAM	Outer_Full	21.71	23.10
n77H	100	30	3930	CP	QPSK	Inner_Full	24.73	26.12
n77H	100	30	3930	CP	QPSK	Edge_1RB_Left	21.55	22.94
n77H	100	30	3930	CP	QPSK	Edge_1RB_Right	21.41	22.80
n77H	100	30	3930	CP	QPSK	Outer_Full	22.90	24.29
n77H	100	30	3930	CP	16QAM	Inner_Full	24.30	25.69
n77H	100	30	3930	CP	16QAM	Edge_1RB_Left	21.49	22.88
n77H	100	30	3930	CP	16QAM	Edge_1RB_Right	21.22	22.61
n77H	100	30	3930	CP	16QAM	Outer_Full	22.95	24.34
n77H	100	30	3930	CP	64QAM	Inner_Full	22.65	24.04
n77H	100	30	3930	CP	64QAM	Edge_1RB_Left	21.69	23.08
n77H	100	30	3930	CP	64QAM	Edge_1RB_Right	21.50	22.89
n77H	100	30	3930	CP	64QAM	Outer_Full	22.47	23.86
n77H	100	30	3930	CP	256QAM	Inner_Full	19.84	21.23
n77H	100	30	3930	CP	256QAM	Edge_1RB_Left	18.95	20.34
n77H	100	30	3930	CP	256QAM	Edge_1RB_Right	18.77	20.16
n77H	100	30	3930	CP	256QAM	Outer_Full	19.61	21.00

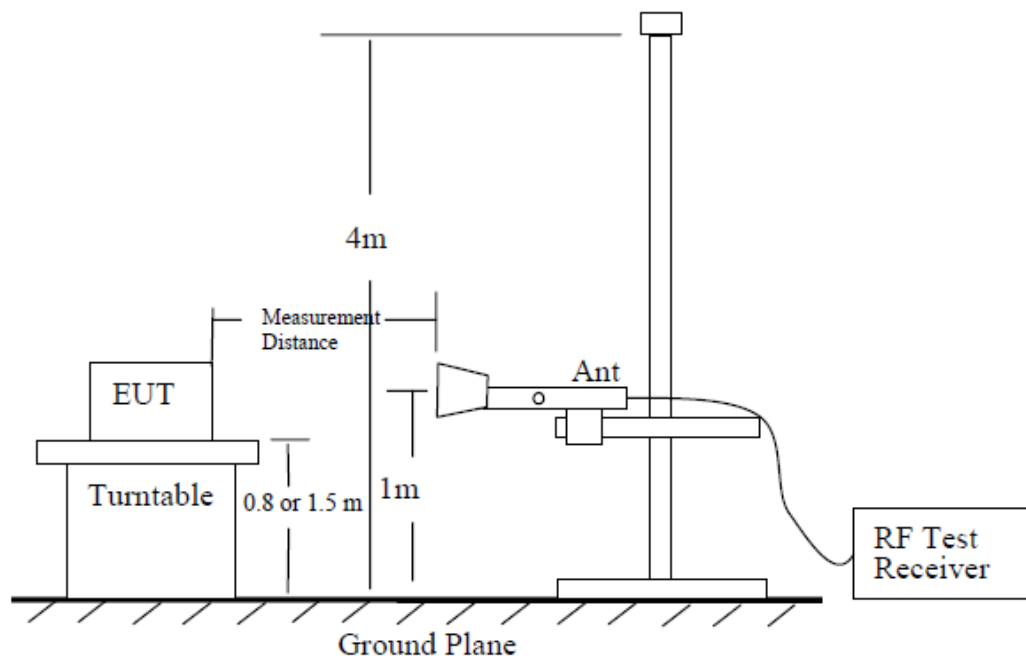
A.2 Emission Limit

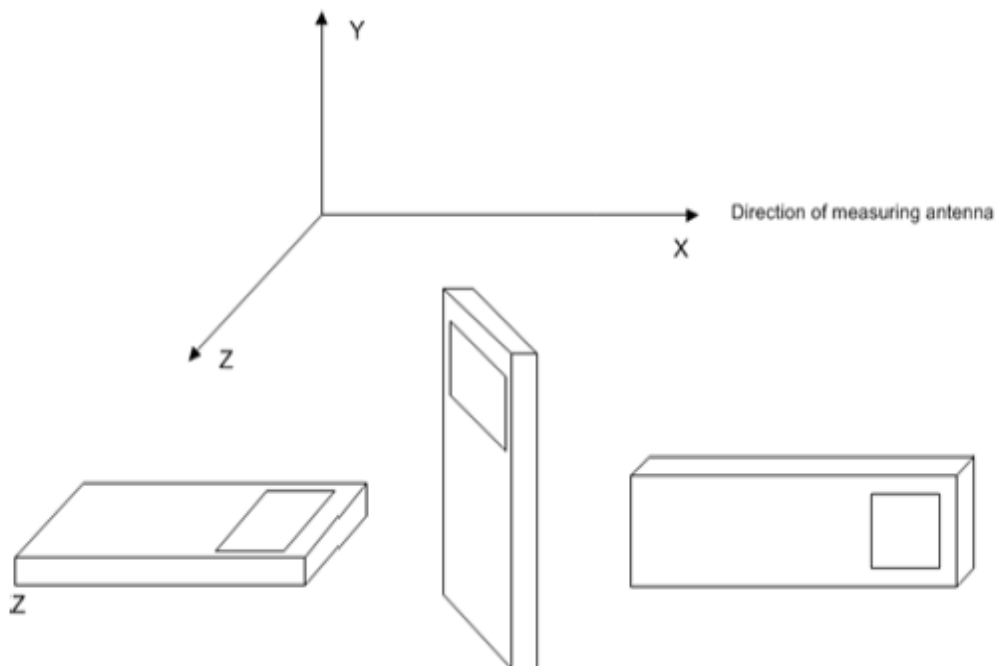
The measurements procedures in C63.26 are used.

The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier. The resolution bandwidth is set 1MHz. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the NR Bands 25/41/66/71.

The procedure of radiated spurious emissions is as follows:

Using the test configuration as follow, measure the radiated emissions directly from the EUT and convert the measured field strength or received power to ERP or EIRP, as required, for comparison to the applicable limits.





The emission characteristics of the EUT can be identified from the pre-scan measurement information.

Exploratory radiated measurements (pre-scans) may be performed to determine the general EUT radiated emissions characteristics and, when necessary, the EUT-to-measurement antenna orientation that produces the maximum emission amplitude. Pre-scans shall only be used to determine the emission frequencies (i.e., not amplitude levels). The information garnered from a pre-scan can then be used to perform final compliance measurements using either the substitution or direct field strength method.

For radiated emissions measurements performed at frequencies less than or equal to 1 GHz, the EUT shall be placed on a RF-transparent table or support at a nominal height of 80 cm above the reference ground plane. Radiated measurements shall be made with the measurement antenna positioned in both horizontal and vertical polarization. The measurement antenna shall be varied from 1 m to 4 m in height above the reference ground in a search for the relative positioning that produces the maximum radiated signal level (i.e., field strength or received power). When orienting the measurement antenna in vertical polarization, the minimum height of the lowest element of the antenna shall clear the site reference ground plane by at least 25 cm.

The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector.

For radiated measurements performed at frequencies above 1 GHz, the EUT shall be placed on an RF transparent table or support at a nominal height of 1.5 m above the ground plane. When maximizing the emissions from the EUT for measurement, the EUT and its transmitting antenna(s) shall be rotated through 360°. For each mode of operation to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored. Final measurements shall be performed for the worst case combination(s) of variable technical parameters that result in the maximum measured emission amplitude, record the frequency and amplitude of the highest fundamental emission (if applicable), and the frequency and amplitude data for the six highest-amplitude spurious emissions.

A.2.2 Measurement Limit

n25: 24.238 specify that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

n41: 27.53(m) (4) specifies " For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. ".

n66: 27.53(h) specifies "AWS emission limits—(1) General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB"

n71: 27.53(g) specifies " For operations in the 600 MHz band and the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution band-width of 100 kilohertz or greater. How-ever, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed. "

A.2.3 Measurement Results

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the NR Bands. It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the NR Bands into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this. The range of evaluated frequency is from 30MHz to 40GHz.

Measurement Results:
NR n25, 5MHz, Channel 370500

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3690.01	-60.25	6.45	8.47	-58.23	-13.00	45.23	H
5582.01	-58.83	7.22	10.58	-55.47	-13.00	42.47	H
7388.01	-53.59	8.11	12.07	-49.63	-13.00	36.63	V
9265.01	-52.18	9.07	13.26	-47.99	-13.00	34.99	V
11093.00	-49.38	9.85	13.18	-46.05	-13.00	33.05	V
12995.00	-47.64	10.47	13.50	-44.61	-13.00	31.61	H

NR n25, 5MHz, Channel 376500

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3760.01	-59.20	6.26	8.56	-56.90	-13.00	43.90	V
5641.01	-52.34	7.27	10.57	-49.04	-13.00	36.04	H
7526.01	-54.03	8.28	12.22	-50.09	-13.00	37.09	V
9371.01	-53.61	9.07	13.32	-49.36	-13.00	36.36	V
11251.00	-49.41	9.70	13.15	-45.96	-13.00	32.96	V
13133.00	-43.91	10.79	13.69	-41.01	-13.00	28.01	V

NR n25, 5MHz, Channel 382500

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3825.01	-60.69	6.06	8.66	-58.09	-13.00	45.09	V
5740.01	-54.49	7.28	10.55	-51.22	-13.00	38.22	V
7641.01	-54.95	8.16	12.31	-50.80	-13.00	37.80	V
9555.01	-53.00	9.34	13.34	-49.00	-13.00	36.00	V
11462.00	-48.61	9.91	13.11	-45.41	-13.00	32.41	V
13410.00	-44.07	10.57	14.07	-40.57	-13.00	27.57	H

NR n41, 20MHz, Channel 201204

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5197.01	-60.22	6.96	10.18	-57.00	-25.00	32.00	V
7762.01	-55.14	8.34	12.41	-51.07	-25.00	26.07	V
10359.01	-50.75	9.74	13.04	-47.45	-25.00	22.45	V
12975.00	-47.65	10.48	13.49	-44.64	-25.00	19.64	H
15543.00	-42.97	11.51	13.70	-40.78	-25.00	15.78	H
16841.00	-39.07	12.07	13.74	-37.40	-25.00	12.40	H

NR n41, 20MHz, Channel 518598

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5201.01	-59.82	6.96	10.18	-56.60	-25.00	31.60	H
7769.01	-54.56	8.33	12.42	-50.47	-25.00	25.47	V
10400.01	-50.57	9.80	13.06	-47.31	-25.00	22.31	V
12979.00	-46.92	10.47	13.49	-43.90	-25.00	18.90	H
15538.00	-43.81	11.52	13.70	-41.63	-25.00	16.63	H
16838.00	-39.64	12.07	13.74	-37.97	-25.00	12.97	H

NR n41, 20MHz, Channel 535990

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5165.01	-59.99	6.91	10.13	-56.77	-25.00	31.77	H
7750.01	-54.74	8.36	12.40	-50.70	-25.00	25.70	V
10358.01	-50.61	9.73	13.04	-47.30	-25.00	22.30	V
12981.00	-47.88	10.47	13.49	-44.86	-25.00	19.86	H
15554.00	-43.26	11.51	13.70	-41.07	-25.00	16.07	H
16874.00	-40.14	12.03	13.75	-38.42	-25.00	13.42	H

NR n66, 5MHz, Channel 342500

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3443.01	-72.92	5.42	8.06	-70.28	-13.00	57.28	H
5139.01	-68.12	6.86	10.09	-64.89	-13.00	51.89	H
6841.01	-64.57	7.84	11.41	-61.00	-13.00	48.00	V
8581.01	-64.03	8.53	13.02	-59.54	-13.00	46.54	V
10294.01	-61.70	9.62	13.02	-58.30	-13.00	45.30	V
11996.00	-58.67	10.07	13.00	-55.74	-13.00	42.74	V

NR n66, 5MHz, Channel 349000

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3490.01	-70.46	5.50	8.18	-67.78	-13.00	54.78	H
5236.01	-65.86	7.00	10.23	-62.63	-13.00	49.63	V
6988.01	-64.44	8.21	11.59	-61.06	-13.00	48.06	V
8744.01	-63.82	8.49	13.05	-59.26	-13.00	46.26	V
10450.01	-60.28	9.73	13.08	-56.93	-13.00	43.93	V
12213.00	-58.73	10.05	13.09	-55.69	-13.00	42.69	V

NR n66, 5MHz, Channel 355500

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3506.01	-71.89	5.53	8.21	-69.21	-13.00	56.21	H
5220.01	-70.44	6.99	10.21	-67.22	-13.00	54.22	H
6993.01	-64.37	8.24	11.59	-61.02	-13.00	48.02	V
8730.01	-63.83	8.45	13.05	-59.23	-13.00	46.23	V
10457.01	-60.13	9.72	13.08	-56.77	-13.00	43.77	V
12228.00	-58.68	10.04	13.09	-55.63	-13.00	42.63	V

NR n71, 5MHz, Channel 133100

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1327.51	-55.77	3.15	4.60	2.15	-56.47	-13.00	43.47	H
2004.00	-48.44	4.06	4.61	2.15	-50.04	-13.00	37.04	H
2676.50	-45.62	4.77	6.42	2.15	-46.12	-13.00	33.12	H
3338.48	-60.97	5.31	7.81	2.15	-60.62	-13.00	47.62	V
3998.70	-59.10	6.07	8.90	2.15	-58.42	-13.00	45.42	H
4644.98	-59.33	6.46	9.54	2.15	-58.40	-13.00	45.40	V

NR n71, 5MHz, Channel 136100

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1372.51	-56.50	3.20	4.84	2.15	-57.01	-13.00	44.01	V
2033.50	-50.72	4.13	4.70	2.15	-52.30	-13.00	39.30	H
2709.50	-44.77	4.80	6.48	2.15	-45.24	-13.00	32.24	H
3394.20	-61.47	5.36	7.95	2.15	-61.03	-13.00	48.03	V
4096.89	-56.98	6.04	9.00	2.15	-56.17	-13.00	43.17	V
4768.25	-58.66	6.61	9.67	2.15	-57.75	-13.00	44.75	V

NR n71, 5MHz, Channel 139100

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1404.51	-56.19	3.24	5.00	2.15	-56.58	-13.00	43.58	H
2098.00	-50.29	4.19	4.89	2.15	-51.74	-13.00	38.74	V
2779.50	-46.58	4.88	6.60	2.15	-47.01	-13.00	34.01	V
3469.41	-60.35	5.46	8.13	2.15	-59.83	-13.00	46.83	H
4171.41	-57.46	6.14	9.07	2.15	-56.68	-13.00	43.68	H
4865.05	-56.87	6.72	9.77	2.15	-55.97	-13.00	42.97	V

NR DC_2A_n25A, 5MHz, Channel 370500

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3677.01	-60.01	6.48	8.45	-58.04	-13.00	45.04	V
5559.01	-54.15	7.19	10.59	-50.75	-13.00	37.75	V
7403.01	-53.51	8.13	12.08	-49.56	-13.00	36.56	V
9268.01	-51.80	9.08	13.26	-47.62	-13.00	34.62	V
11095.00	-50.20	9.85	13.18	-46.87	-13.00	33.87	V
12986.00	-47.34	10.47	13.49	-44.32	-13.00	31.32	V

NR DC_2A_n25A, 5MHz, Channel 376500

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3765.01	-56.66	6.25	8.57	-54.34	-13.00	41.34	H
5650.01	-44.51	7.27	10.57	-41.21	-13.00	28.21	H
7546.01	-54.00	8.20	12.24	-49.96	-13.00	36.96	V
9406.01	-53.26	9.07	13.34	-48.99	-13.00	35.99	V
11324.00	-49.08	10.01	13.14	-45.95	-13.00	32.95	V
13173.00	-44.54	10.62	13.74	-41.42	-13.00	28.42	V

NR DC_2A_n25A, 5MHz, Channel 382500

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3825.01	-60.59	6.06	8.66	-57.99	-13.00	44.99	H
5737.01	-55.97	7.28	10.55	-52.70	-13.00	39.70	V
7625.01	-54.99	8.09	12.30	-50.78	-13.00	37.78	V
9569.01	-54.00	9.29	13.33	-49.96	-13.00	36.96	V
11493.00	-49.44	9.83	13.10	-46.17	-13.00	33.17	V
13396.00	-43.96	10.57	14.05	-40.48	-13.00	27.48	H

NR DC_2A_n41A, 20MHz, Channel 201204

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5030.01	-59.47	6.57	9.94	-56.10	-25.00	31.10	H
7489.01	-53.45	8.36	12.19	-49.62	-25.00	24.62	V
10052.01	-52.32	9.33	12.92	-48.73	-25.00	23.73	V
12548.00	-47.24	10.31	13.23	-44.32	-25.00	19.32	V
15033.00	-42.97	11.26	13.98	-40.25	-25.00	15.25	H
17550.00	-39.72	12.92	14.97	-37.67	-25.00	12.67	V

NR DC_2A_n41A, 20MHz, Channel 518598

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5185.01	-59.09	6.94	10.16	-55.87	-25.00	30.87	V
7771.01	-54.81	8.33	12.42	-50.72	-25.00	25.72	V
10380.01	-50.51	9.77	13.05	-47.23	-25.00	22.23	V
12973.00	-47.31	10.48	13.48	-44.31	-25.00	19.31	V
15566.00	-43.35	11.50	13.70	-41.15	-25.00	16.15	H
16852.00	-39.41	12.05	13.74	-37.72	-25.00	12.72	H

NR DC_2A_n41A, 20MHz, Channel 535990

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
5335.01	-59.41	6.97	10.37	-56.01	-25.00	31.01	V
8058.01	-53.99	8.32	12.65	-49.66	-25.00	24.66	V
10723.00	-50.56	9.36	13.14	-46.78	-25.00	21.78	V
13405.00	-43.23	10.57	14.07	-39.73	-25.00	14.73	H
16054.00	-42.67	11.84	13.69	-40.82	-25.00	15.82	H
17433.00	-38.45	12.57	14.75	-36.27	-25.00	11.27	H

NR DC_2A_n66A, 5MHz, Channel 342500

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3425.01	-62.39	5.38	8.02	-59.75	-13.00	46.75	V
5144.01	-59.09	6.87	10.10	-55.86	-13.00	42.86	V
6868.01	-54.26	7.80	11.44	-50.62	-13.00	37.62	V
8590.01	-53.79	8.51	13.02	-49.28	-13.00	36.28	V
10293.01	-51.31	9.62	13.02	-47.91	-13.00	34.91	V
12017.00	-48.22	10.10	13.01	-45.31	-13.00	32.31	V

NR DC_2A_n66A, 5MHz, Channel 349000

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3490.01	-60.87	5.50	8.18	-58.19	-13.00	45.19	V
5208.01	-59.37	6.97	10.19	-56.15	-13.00	43.15	V
6998.01	-54.41	8.28	11.60	-51.09	-13.00	38.09	V
8753.01	-53.37	8.52	13.05	-48.84	-13.00	35.84	V
10477.01	-50.24	9.69	13.09	-46.84	-13.00	33.84	H
12198.00	-47.98	10.06	13.08	-44.96	-13.00	31.96	V

NR DC_2A_n66A, 5MHz, Channel 355500

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3569.01	-60.03	6.02	8.30	-57.75	-13.00	44.75	H
5318.01	-59.12	6.99	10.35	-55.76	-13.00	42.76	V
7126.01	-55.52	8.17	11.75	-51.94	-13.00	38.94	V
8886.01	-53.97	8.82	13.08	-49.71	-13.00	36.71	V
10661.00	-49.60	9.30	13.13	-45.77	-13.00	32.77	V
12471.00	-48.60	10.25	13.19	-45.66	-13.00	32.66	V

NR DC_2A_n71A, 5MHz, Channel 133100

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1320.51	-55.68	3.14	4.57	2.15	-56.40	-13.00	43.40	H
2000.01	-50.00	4.05	4.60	2.15	-51.60	-13.00	38.60	H
2670.50	-45.77	4.76	6.41	2.15	-46.27	-13.00	33.27	H
3329.43	-61.03	5.30	7.79	2.15	-60.69	-13.00	47.69	V
3986.86	-58.93	6.08	8.88	2.15	-58.28	-13.00	45.28	V
4665.87	-58.93	6.48	9.57	2.15	-57.99	-13.00	44.99	V

NR DC_2A_n71A, 5MHz, Channel 136100

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1368.51	-57.05	3.20	4.82	2.15	-57.58	-13.00	44.58	H
2046.00	-50.87	4.14	4.74	2.15	-52.42	-13.00	39.42	H
2727.00	-44.26	4.81	6.51	2.15	-44.71	-13.00	31.71	H
3402.55	-61.15	5.36	7.97	2.15	-60.69	-13.00	47.69	V
4080.87	-57.59	6.04	8.98	2.15	-56.80	-13.00	43.80	V
4773.82	-57.38	6.62	9.67	2.15	-56.48	-13.00	43.48	V

NR DC_2A_n71A, 5MHz, Channel 139100

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1391.51	-56.50	3.23	4.94	2.15	-56.94	-13.00	43.94	V
2100.00	-49.84	4.19	4.90	2.15	-51.28	-13.00	38.28	V
2777.50	-45.93	4.88	6.60	2.15	-46.36	-13.00	33.36	V
3477.07	-58.09	5.48	8.14	2.15	-57.58	-13.00	44.58	V
4173.50	-57.24	6.15	9.07	2.15	-56.47	-13.00	43.47	V
4865.05	-56.94	6.72	9.77	2.15	-56.04	-13.00	43.04	V

Sample: 1391.51 MHz

$$\text{Power (EIRP)} = P_{\text{Mea}} - P_{\text{pl}} + G_a$$

$$\text{Power (-56.94dBm)} = P_{\text{Mea}} (-56.50\text{dBm}) - P_{\text{pl}} (3.23\text{dB}) + G_a (4.94\text{dBi})$$

Note: Expanded measurement uncertainty

Frequency range	Expanded measurement uncertainty
30MHz-1GHz	5.76dB, k=2
1GHz-18GHz	4.69dB, k=2
18GHz-40GHz	3.37dB, k=2

Note: The measurement results showed here are worst cases

A.3 Frequency Stability

A.3.1 Method of Measurement

Frequency stability is a measure of the frequency drift due to temperature and supply voltage variations, with reference to the frequency measured at +20 °C and rated supply voltage. Two reference points are established at the applicable unwanted emissions limit using a RBW equal to the RBW required by the unwanted emissions specification of the applicable regulatory standard. These reference points measured using the lowest and highest channel of operation shall be identified as F_L and F_H respectively.

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a "call mode". This is accomplished with the use of MT8000A.

1. Measure the carrier frequency at room temperature.
2. Subject the EUT to overnight soak at -30°C.
3. With the EUT, powered via nominal voltage, connected to the MT8000A, and in a simulated call on middle channel for each NR band, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
4. Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
5. Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1.5 hours unpowered, to allow any self-heating to stabilize, before continuing.
6. Subject the EUT to overnight soak at +50°C.
7. With the EUT, powered via nominal voltage, connected to the MT8000A and in a simulated call on the center channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
8. Repeat the above measurements at 10 °C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
9. At all temperature levels hold the temperature to +/- 0.5°C during the measurement procedure.

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment" Section 2.1055(d)(2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of the lower, higher and nominal voltage. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress.

A.3.2 Measurement results

n25

Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	1850.080	1914.880		
50				-6.90	0.0037
40				-6.00	0.0032
30				-3.30	0.0018
10				-6.80	0.0036
0				-3.80	0.0020
-10				-3.70	0.0020
-20				-7.20	0.0038
-30				-8.70	0.0046

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	1850.080	1914.880	-5.40	0.0029
4.4				-7.60	0.0040

n41

Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	2496.680	2688.160		
50				-4.00	0.0015
40				-14.60	0.0056
30				-11.50	0.0044
10				-15.60	0.0060
0				-18.40	0.0071
-10				-12.80	0.0049
-20				-3.00	0.0012
-30				0.20	0.0001

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	2496.680	2688.160	-14.90	0.0057
4.4				-0.20	0.0001

n66
Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	1710.040	1779.920		
50				0.20	0.0001
40				1.00	0.0006
30				-6.30	0.0036
10				-5.30	0.0030
0				-6.50	0.0037
-10				-1.90	0.0011
-20				-0.40	0.0002
-30				-6.50	0.0037

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	1710.040	1779.920	-5.10	0.0029
4.4				-4.00	0.0023

n71
Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	663.400	696.480		
50				-1.70	0.0025
40				-2.20	0.0032
30				-7.30	0.0107
10				-3.10	0.0046
0				-4.90	0.0072
-10				-3.30	0.0048
-20				-5.90	0.0087
-30				-5.00	0.0073

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	663.400	696.480	-5.20	0.0076
4.4				-7.00	0.0103

n77L
Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	3450.360	3548.880		
50				-52.80	0.0151
40				-32.30	0.0092
30				-5.80	0.0017
10				-13.50	0.0039
0				-14.60	0.0042
-10				-8.40	0.0024
-20				0.00	0.0000
-30				-7.10	0.0020

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	3450.360	3548.880	-2.70	0.0008
4.4				-0.10	0.0000

n77H
Frequency Error vs Temperature

Temperature(°C)	Voltage(V)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
20	3.87	3700.320	3978.560		
50				-71.10	0.0185
40				-29.90	0.0078
30				-18.30	0.0048
10				-14.10	0.0037
0				-15.80	0.0041
-10				-12.10	0.0032
-20				-12.70	0.0033
-30				-12.70	0.0033

Frequency Error vs Voltage

Voltage(V)	Temperature(°C)	FL(MHz)	FH(MHz)	Offset(Hz)	Frequency error(ppm)
3.6	20	3700.320	3978.560	-10.20	0.0027
4.4				-4.60	0.0012

A.4 Occupied Bandwidth

Occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the mid frequencies frequency. The table below lists the measured 99% BW. Spectrum analyzer plots are included on the following pages.

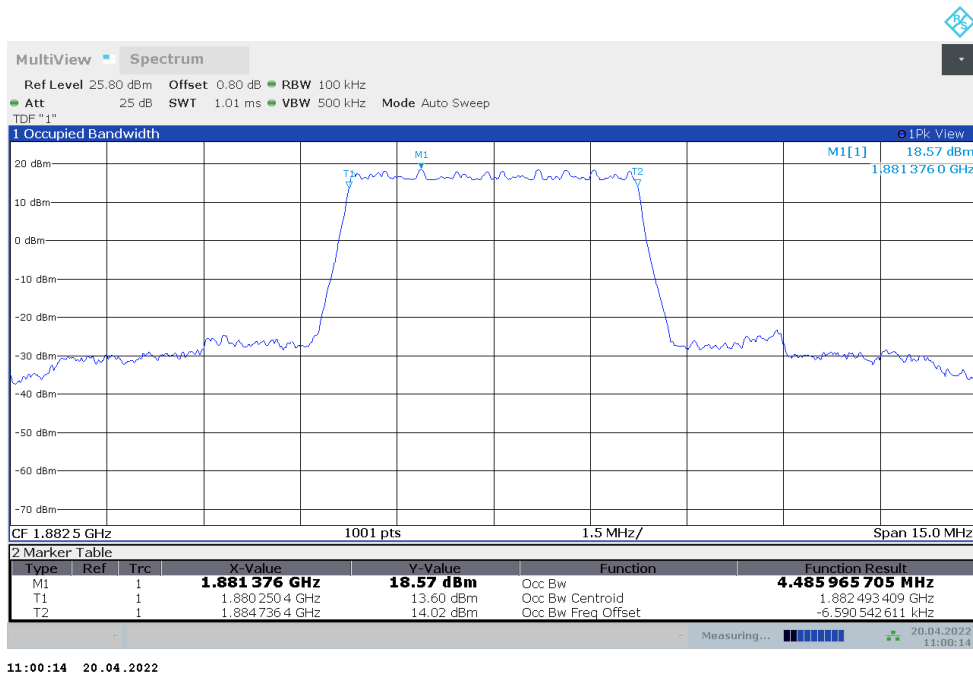
The measurement method is from ANSI C63.26:

- a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts.
- b) The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times$ RBW.
- c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation.
- d) Set the detection mode to peak, and the trace mode to max-hold.

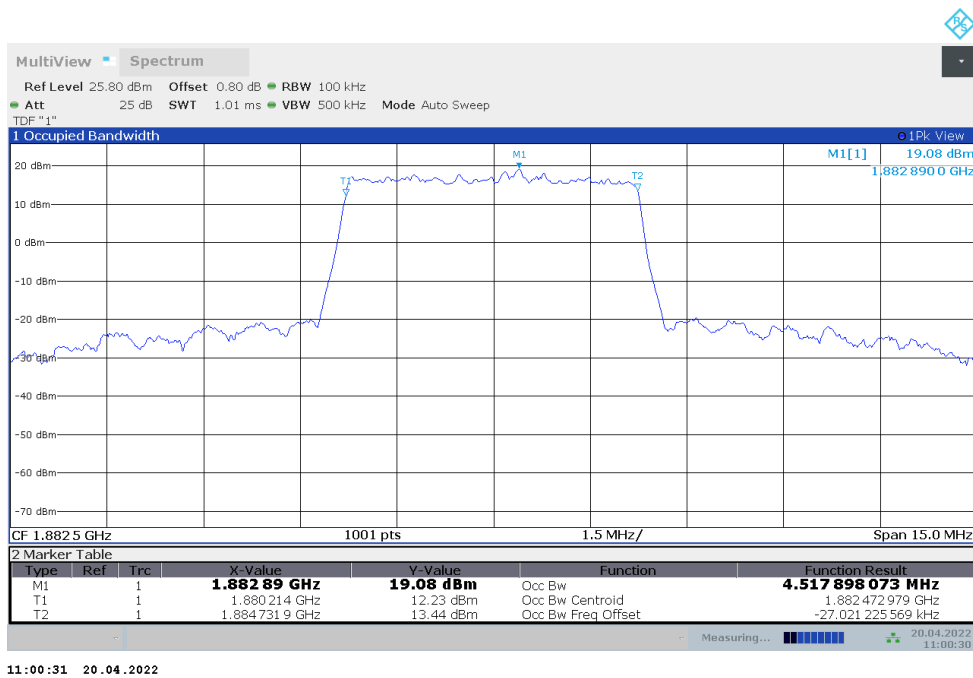
n25
n25,5MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1882.5	4.486	4.518

n25,5MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

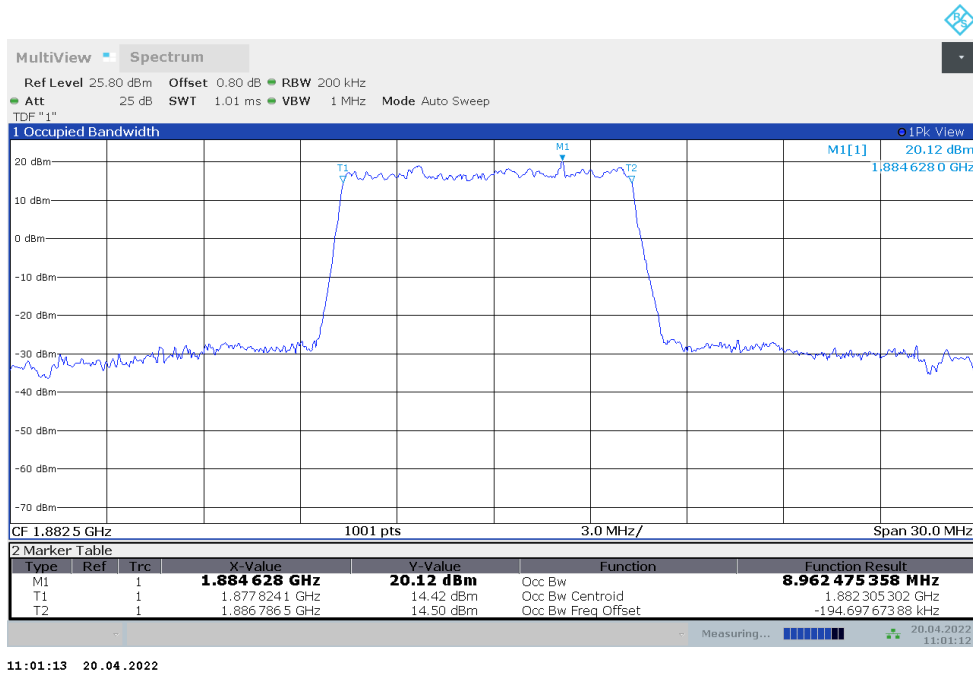
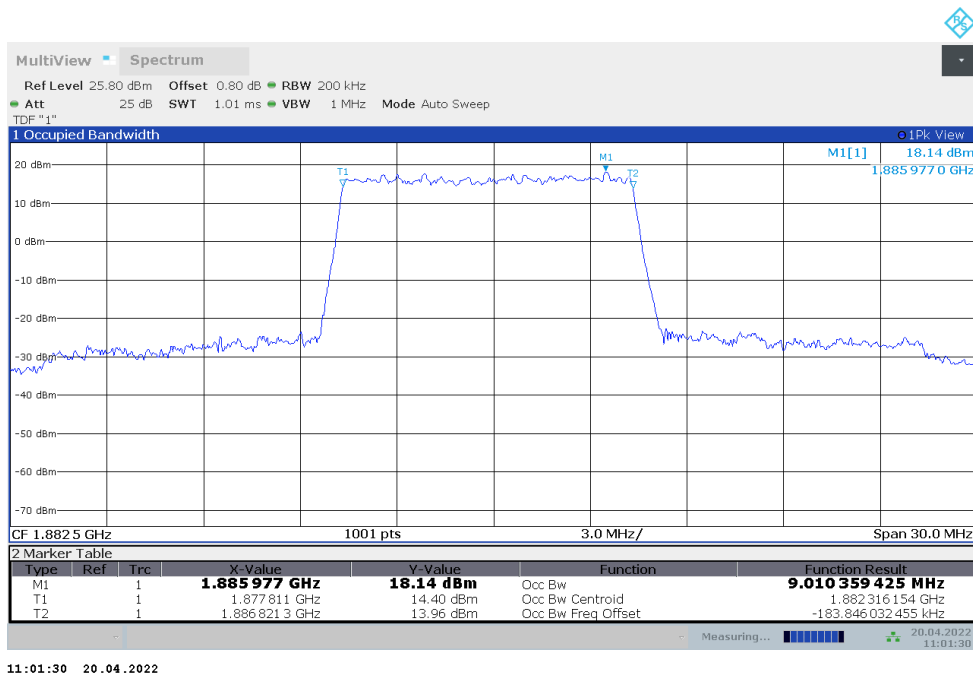


n25,5MHz Bandwidth,DFT-s-QPSK (99% BW)



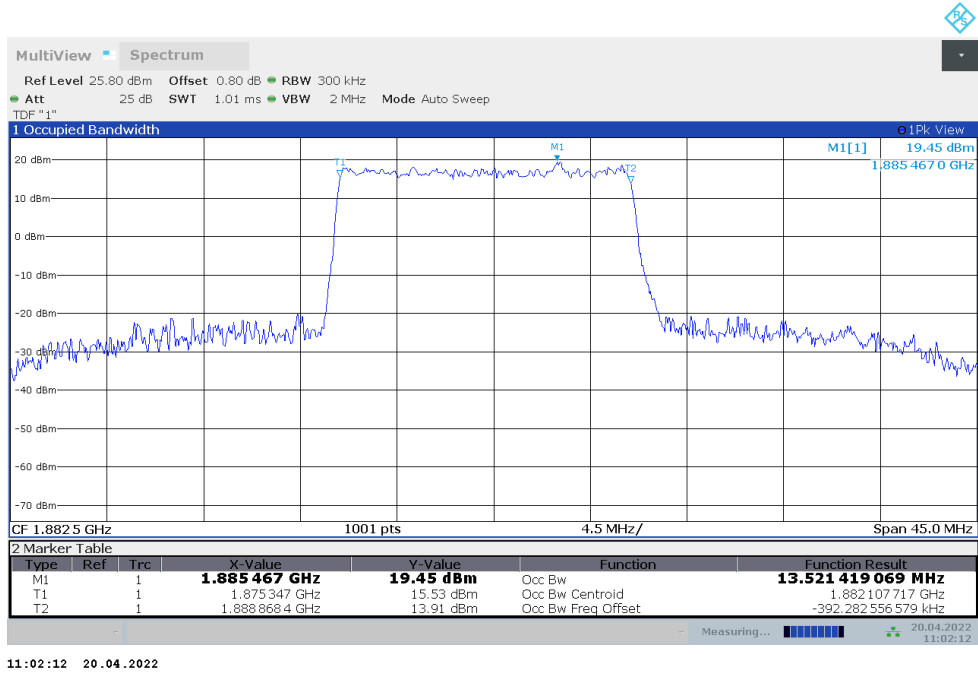
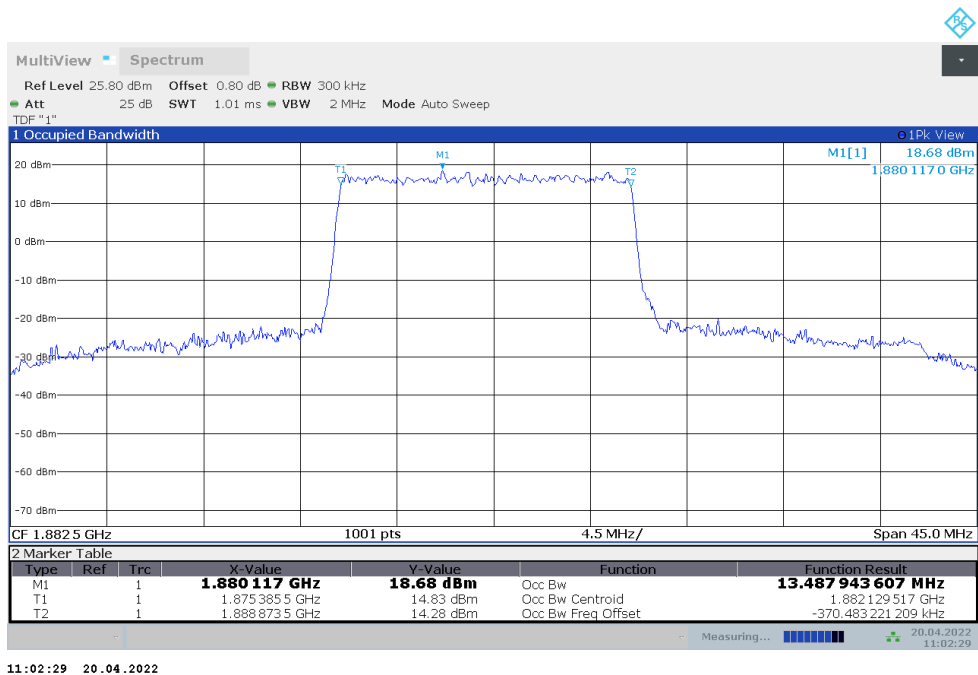
n25,10MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1882.5	8.962	9.010

n25,10MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n25,10MHz Bandwidth,DFT-s-QPSK (99% BW)


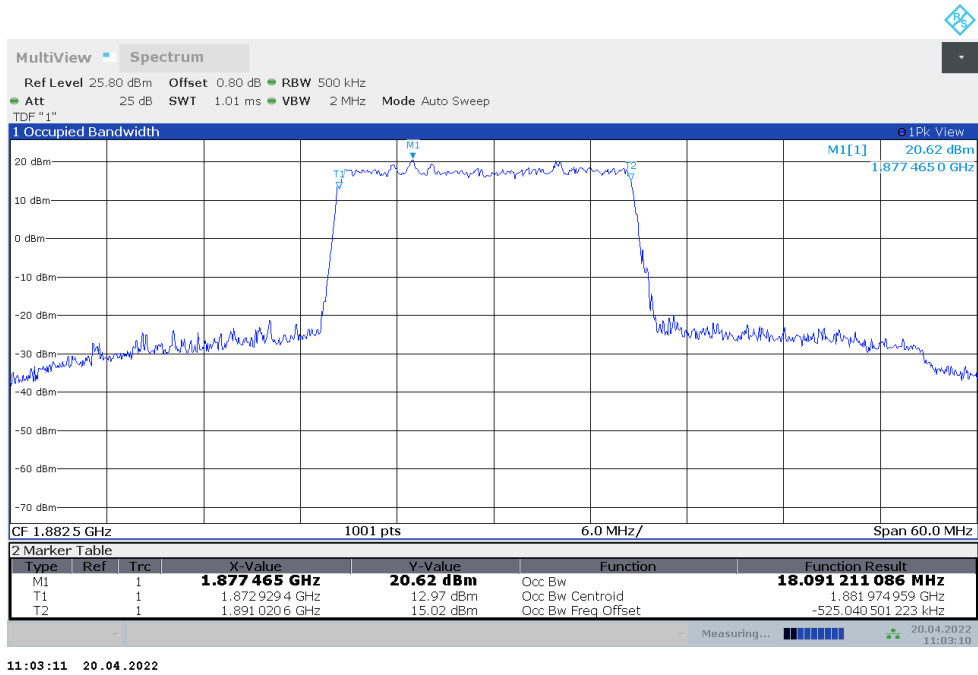
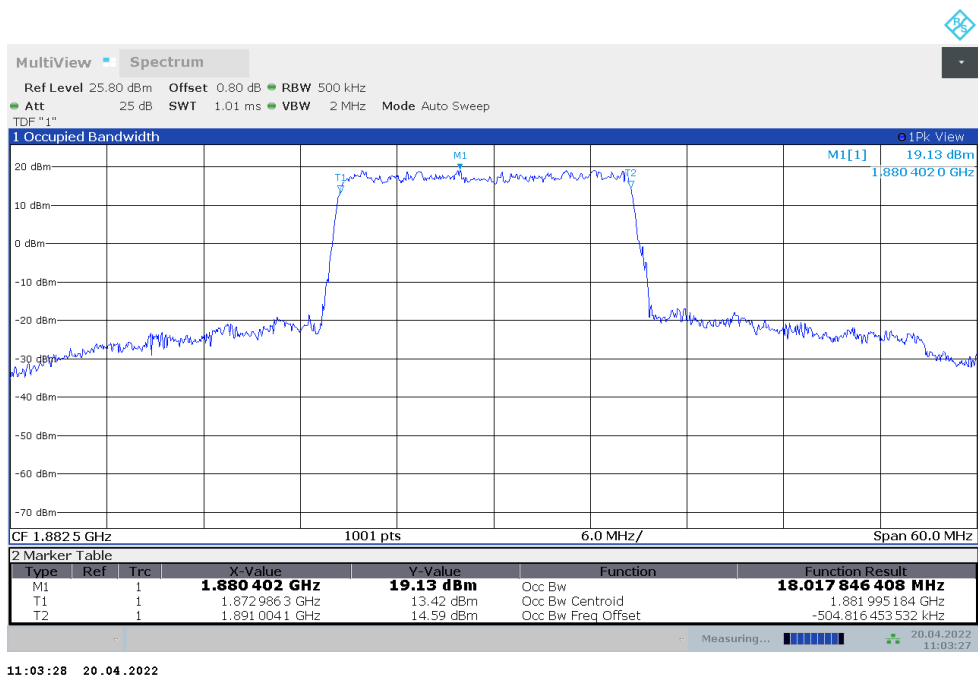
n25,15MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1882.5	13.521	13.488

n25,15MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n25,15MHz Bandwidth,DFT-s-QPSK (99% BW)


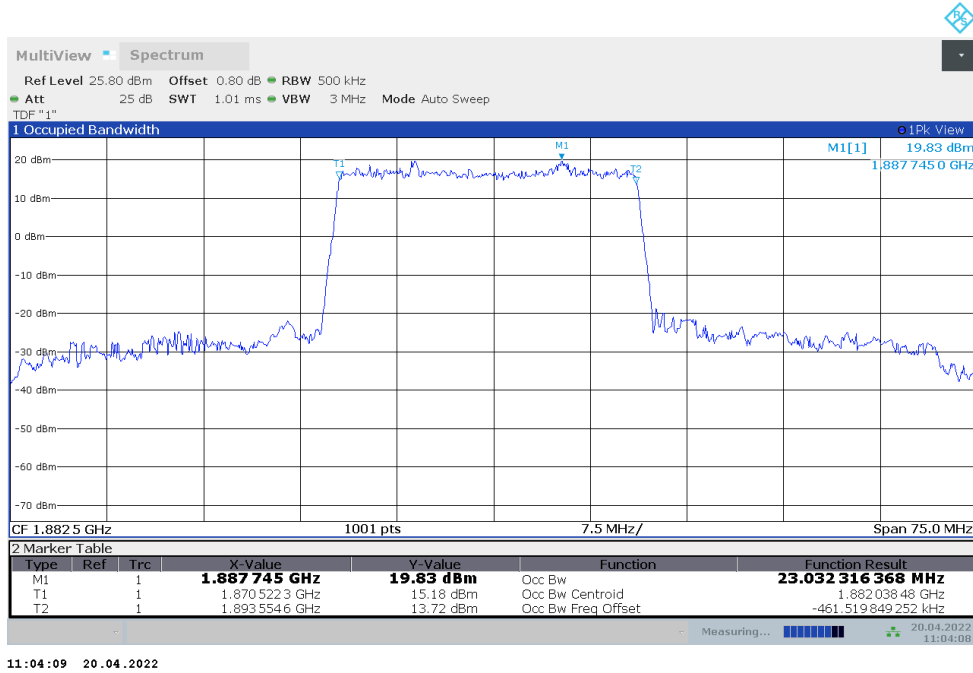
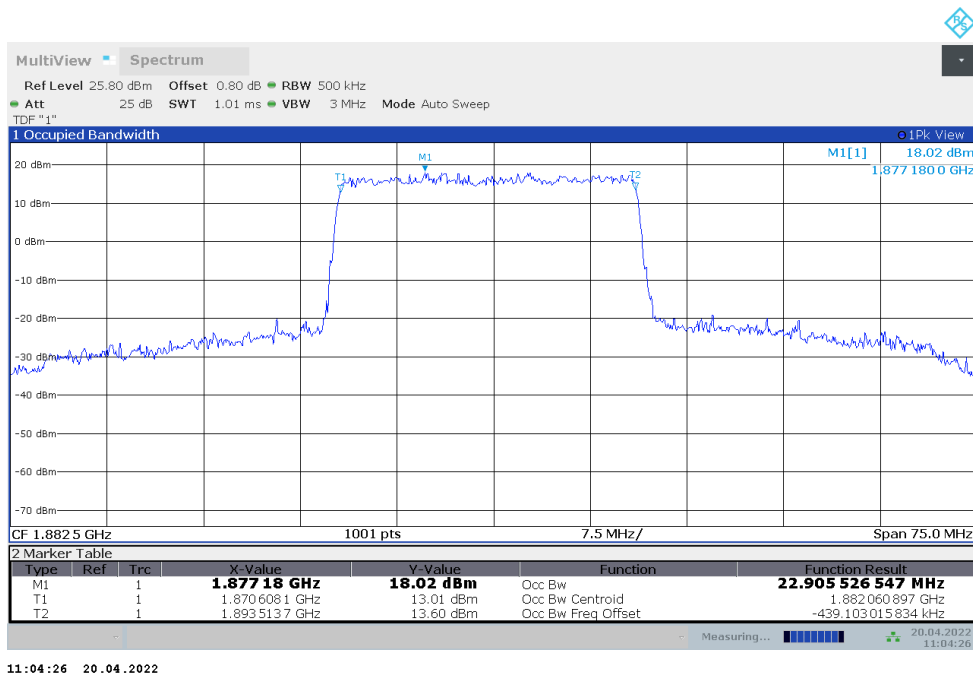
n25,20MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1882.5	18.091	18.018

n25,20MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n25,20MHz Bandwidth,DFT-s-QPSK (99% BW)


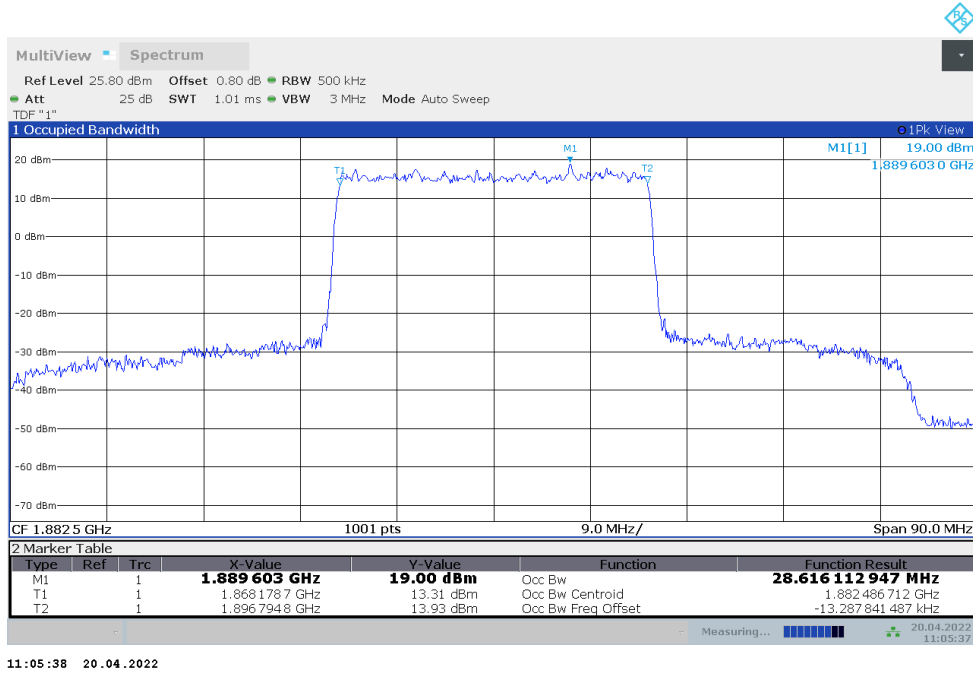
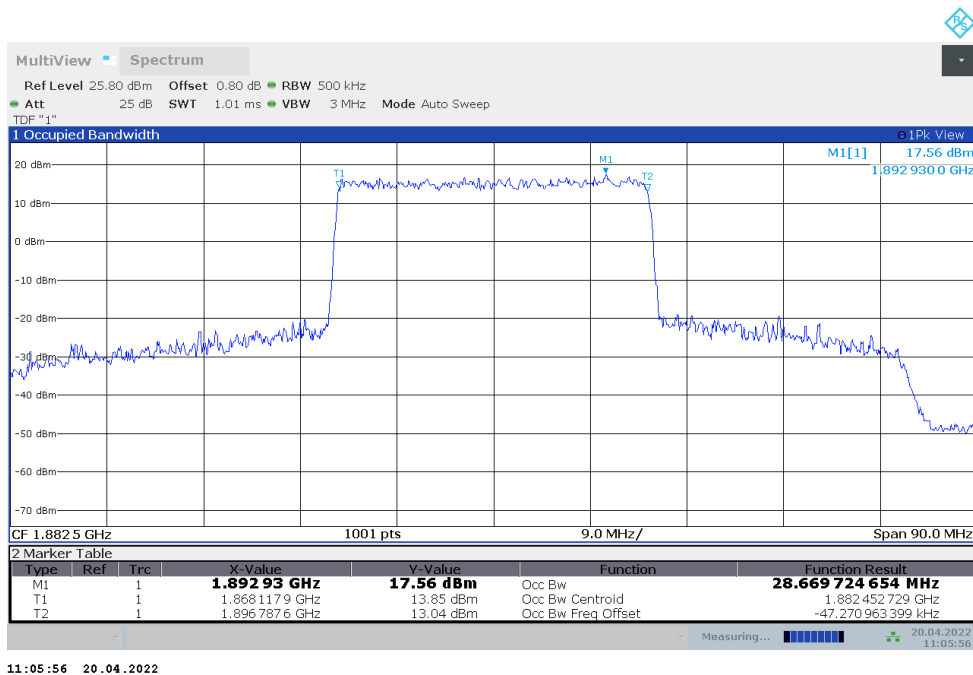
n25,25MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1882.5	23.032	22.906

n25,25MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n25,25MHz Bandwidth,DFT-s-QPSK (99% BW)


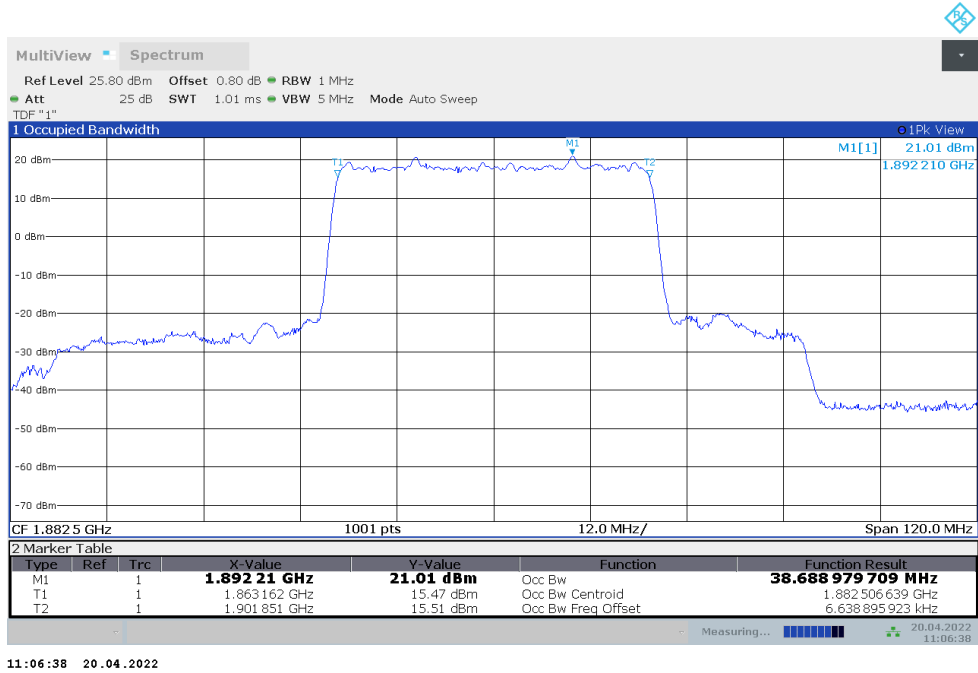
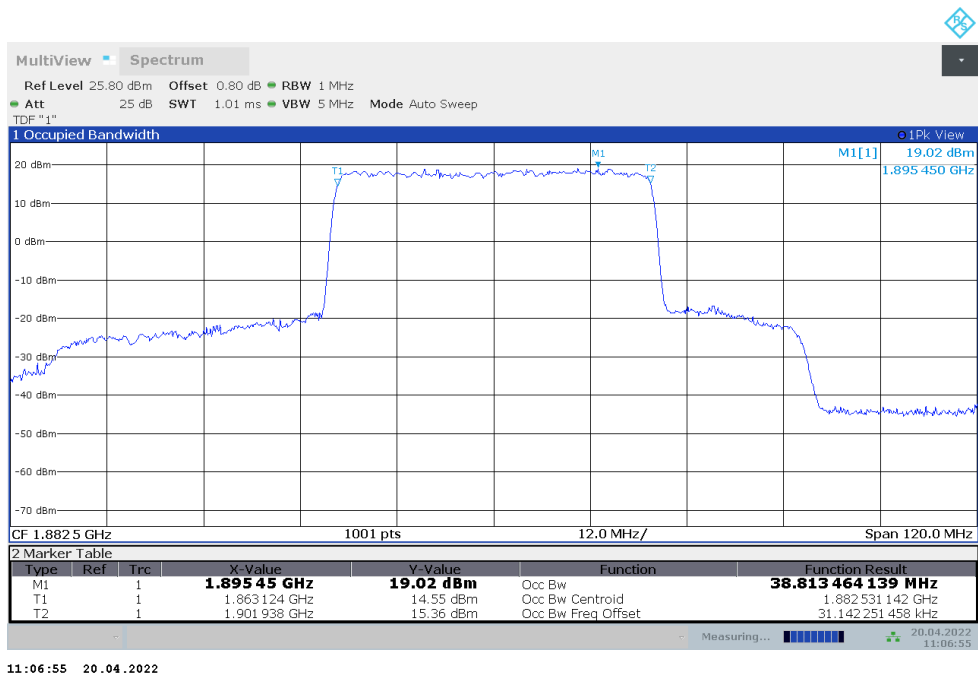
n25,30MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1882.5	28.616	28.670

n25,30MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n25,30MHz Bandwidth,DFT-s-QPSK (99% BW)


n25,40MHz(99%)

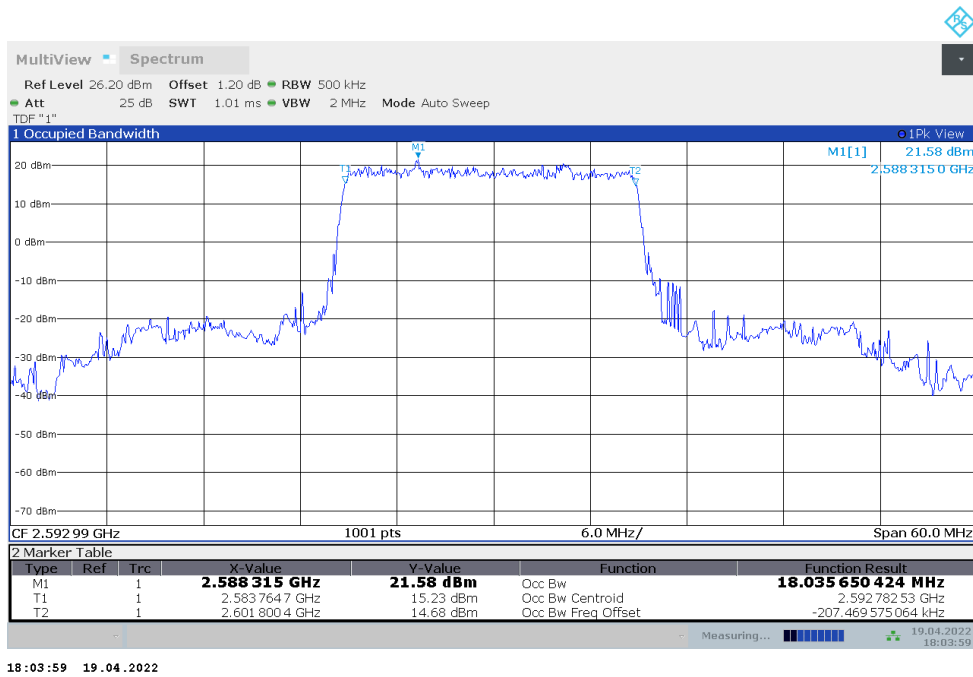
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1882.5	38.689	38.813

n25,40MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n25,40MHz Bandwidth,DFT-s-QPSK (99% BW)


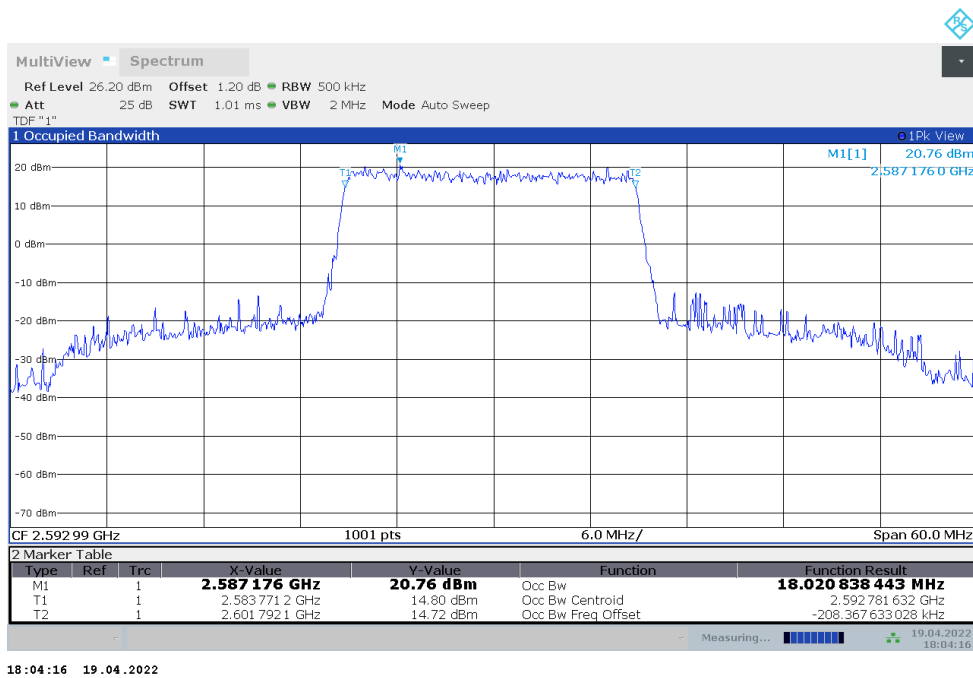
n41
n41,20MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	18.036	18.021

n41,20MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

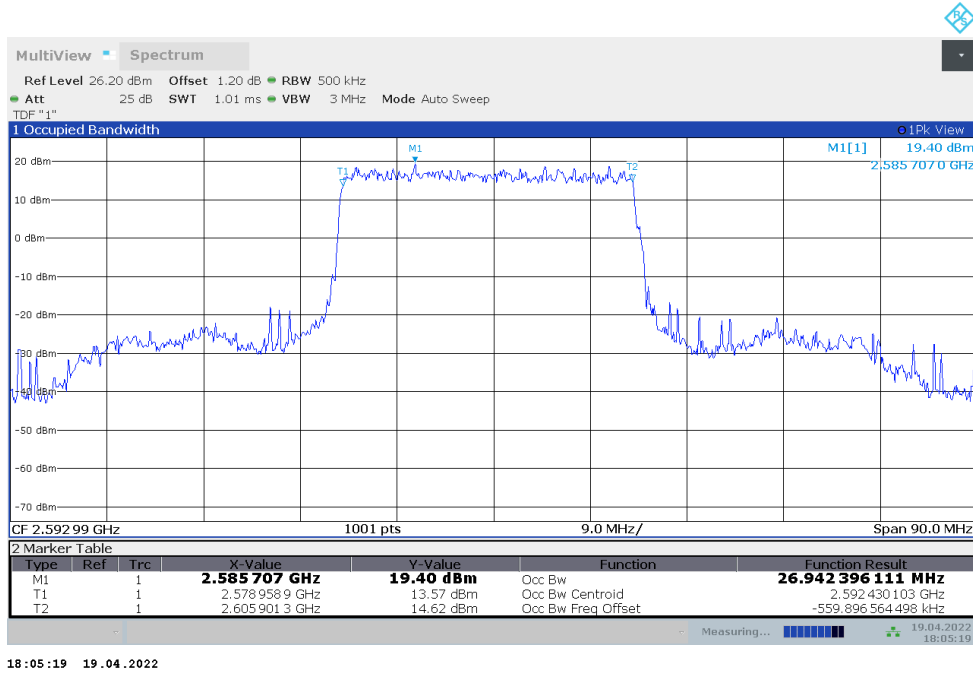
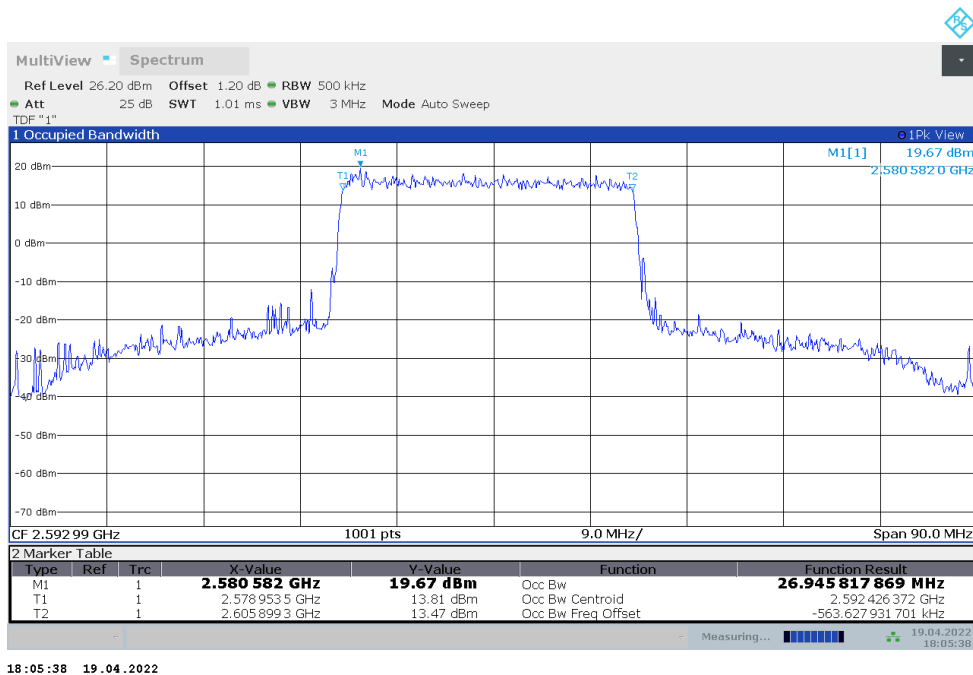


n41,20MHz Bandwidth,DFT-s-QPSK (99% BW)



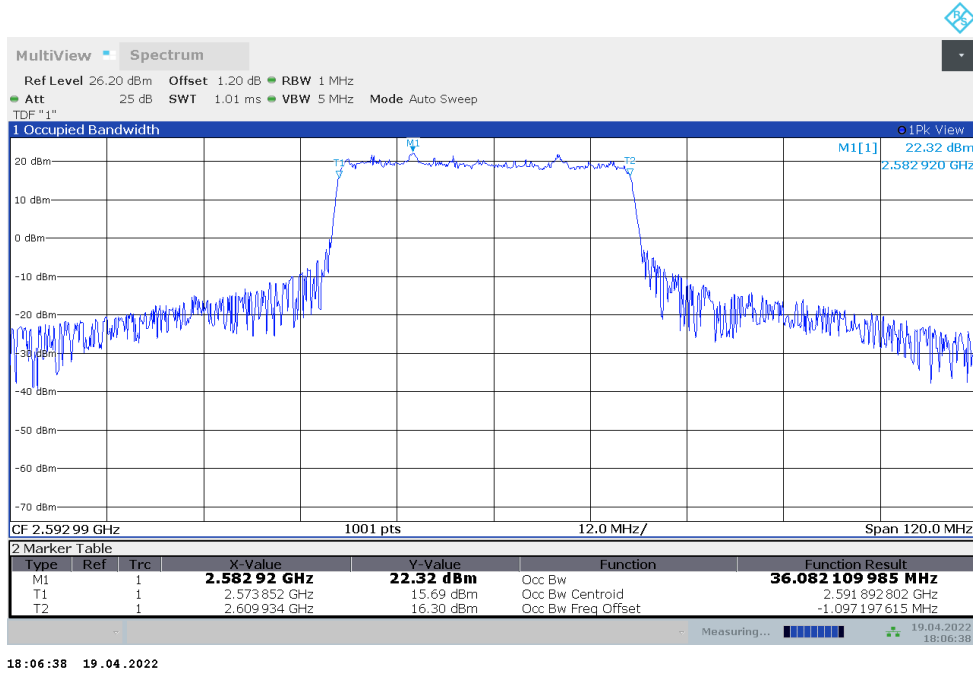
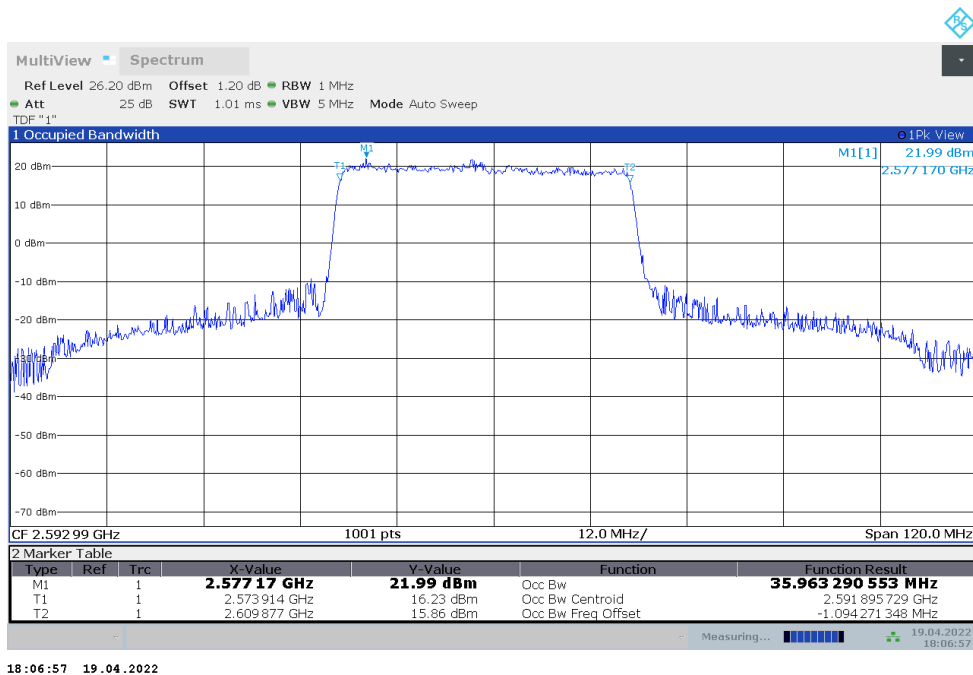
n41,30MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	26.942	26.946

n41,30MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n41,30MHz Bandwidth,DFT-s-QPSK (99% BW)


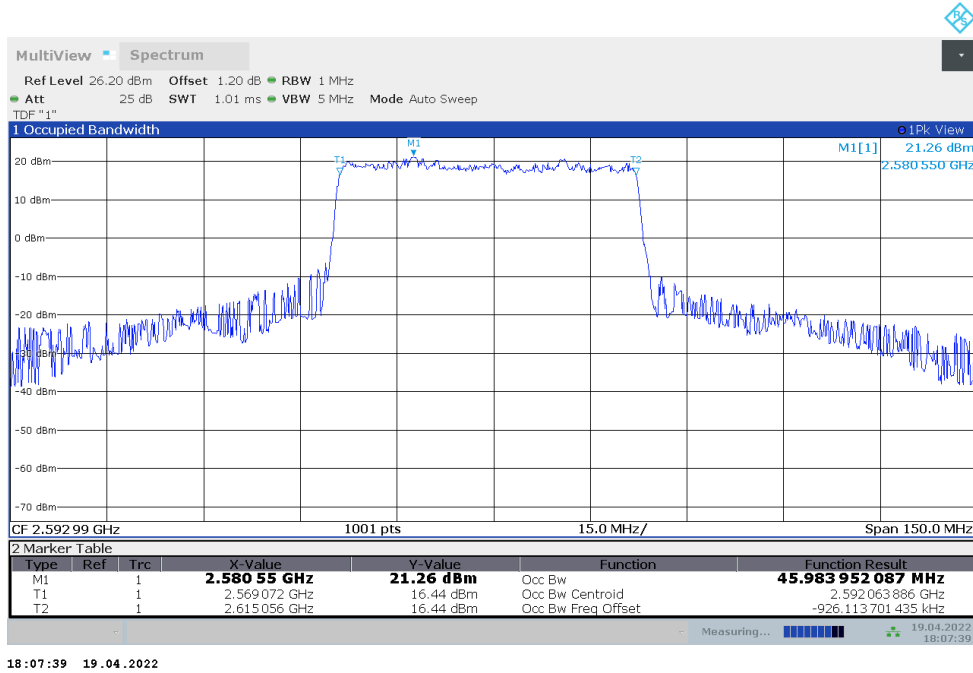
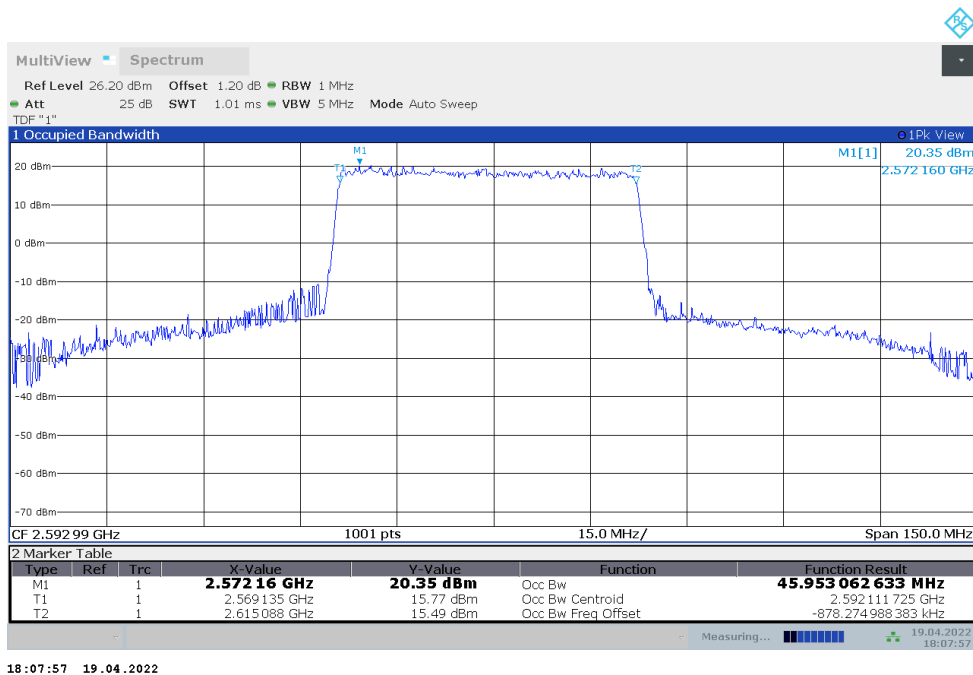
n41,40MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	36.082	35.963

n41,40MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n41,40MHz Bandwidth,DFT-s-QPSK (99% BW)


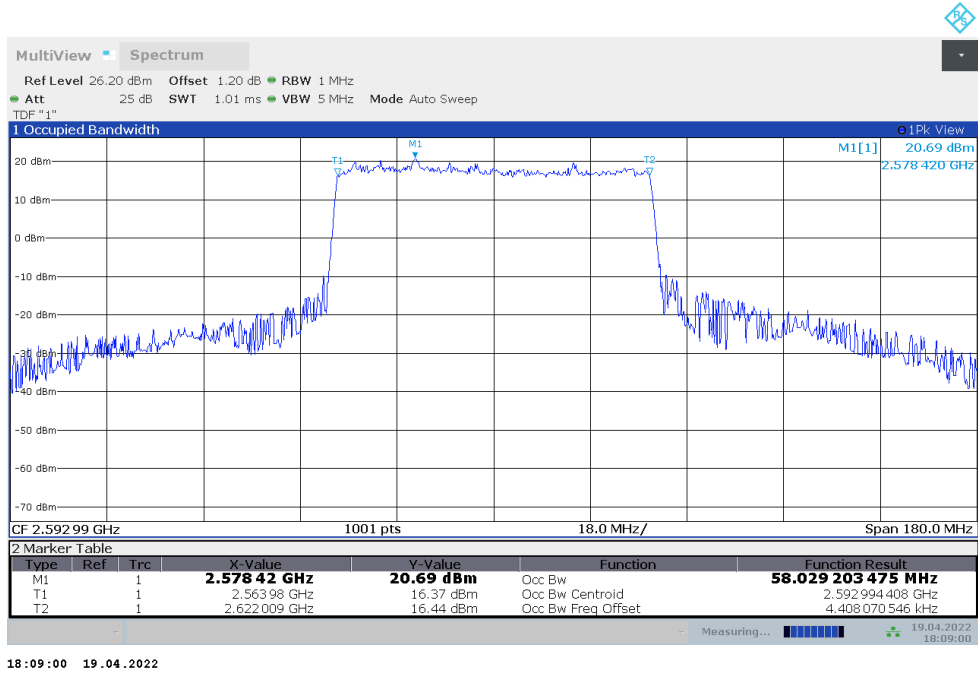
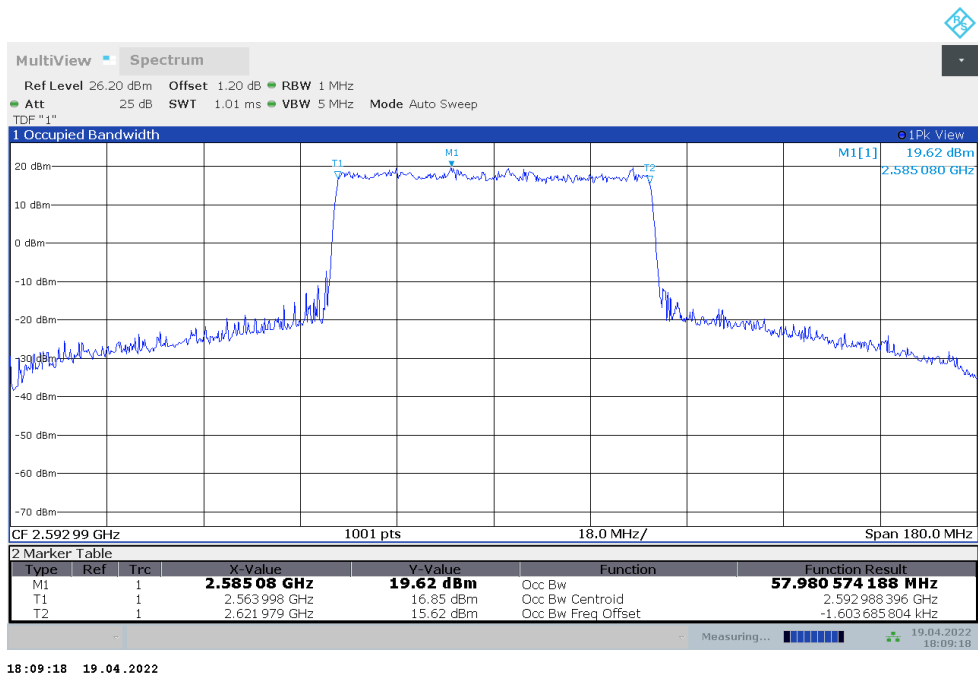
n41,50MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	45.984	45.953

n41,50MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n41,50MHz Bandwidth,DFT-s-QPSK (99% BW)


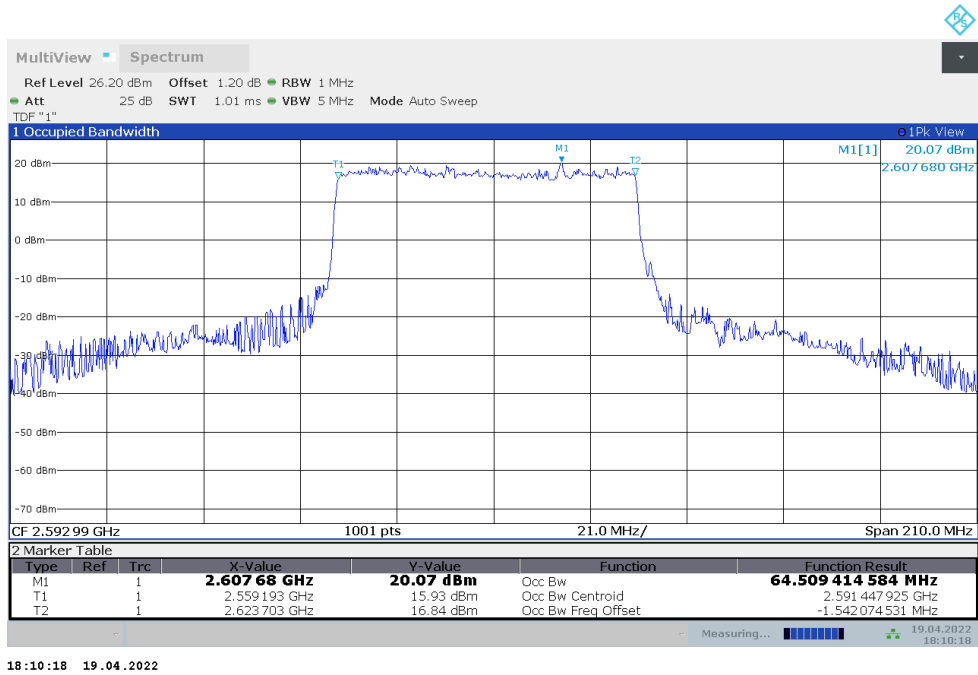
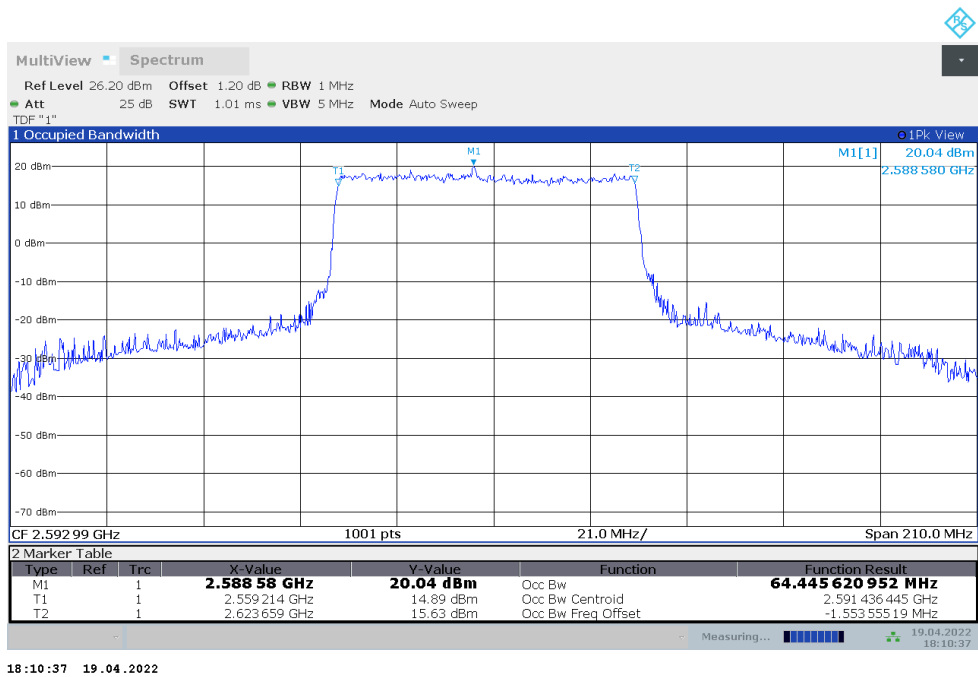
n41,60MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	58.029	57.981

n41,60MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n41,60MHz Bandwidth,DFT-s-QPSK (99% BW)


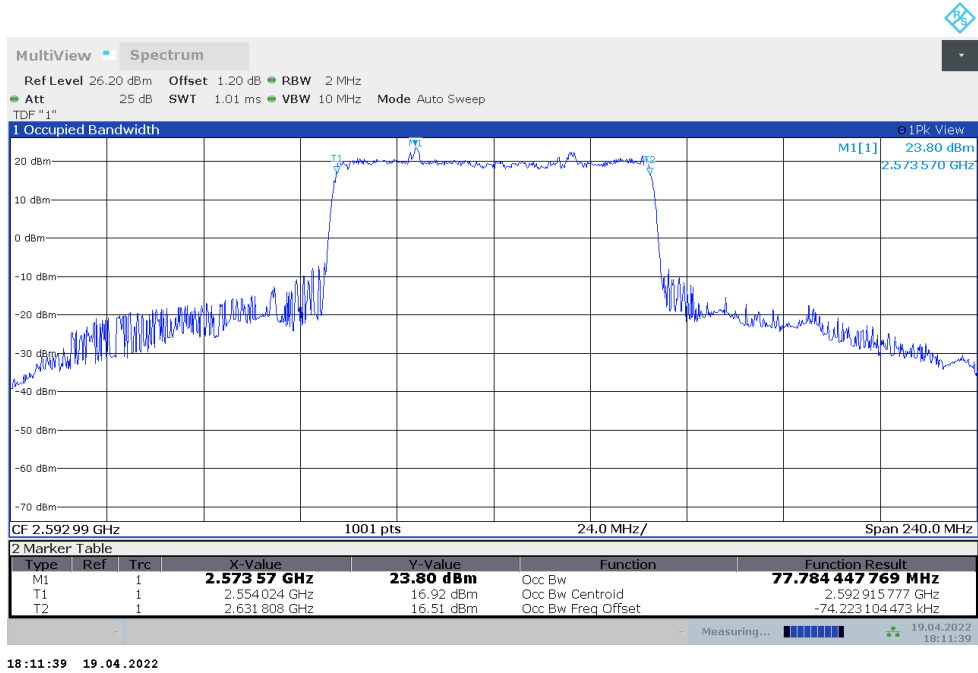
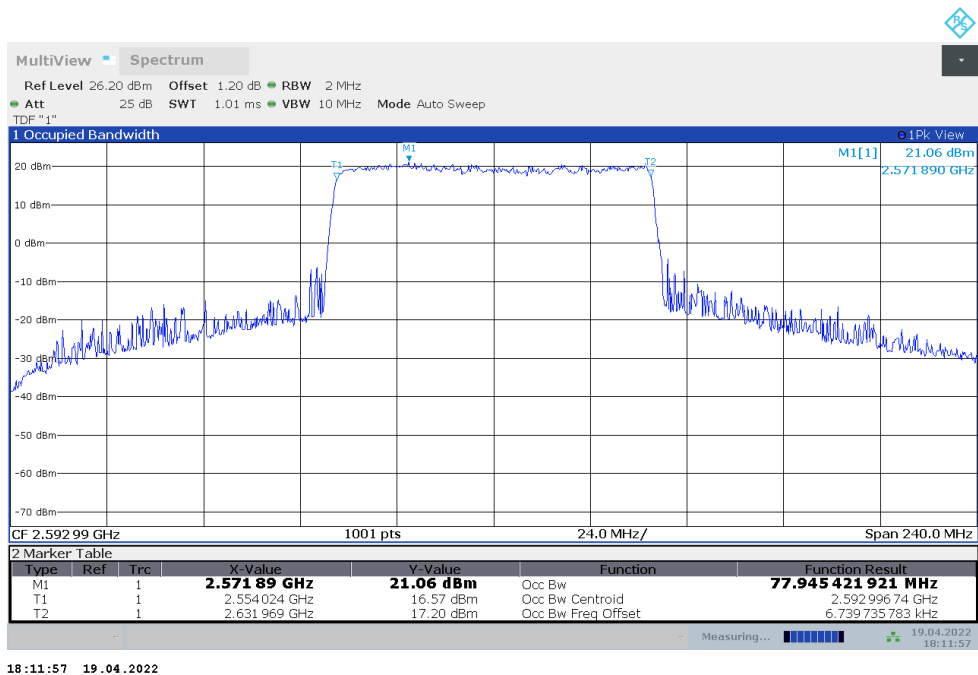
n41,70MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	64.509	64.446

n41,70MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n41,70MHz Bandwidth,DFT-s-QPSK (99% BW)


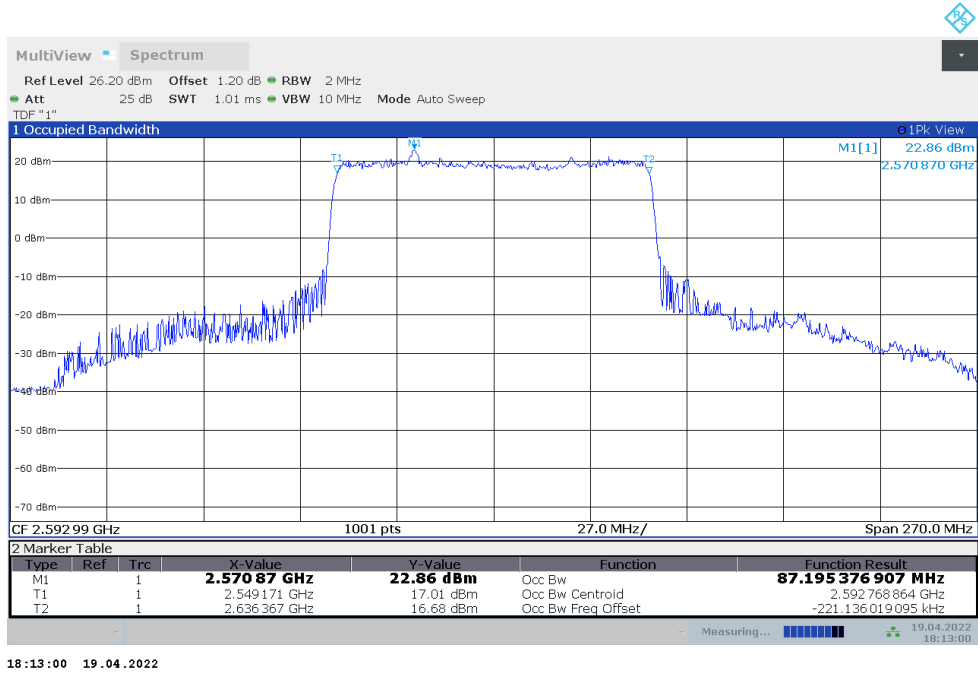
n41,80MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	77.784	77.945

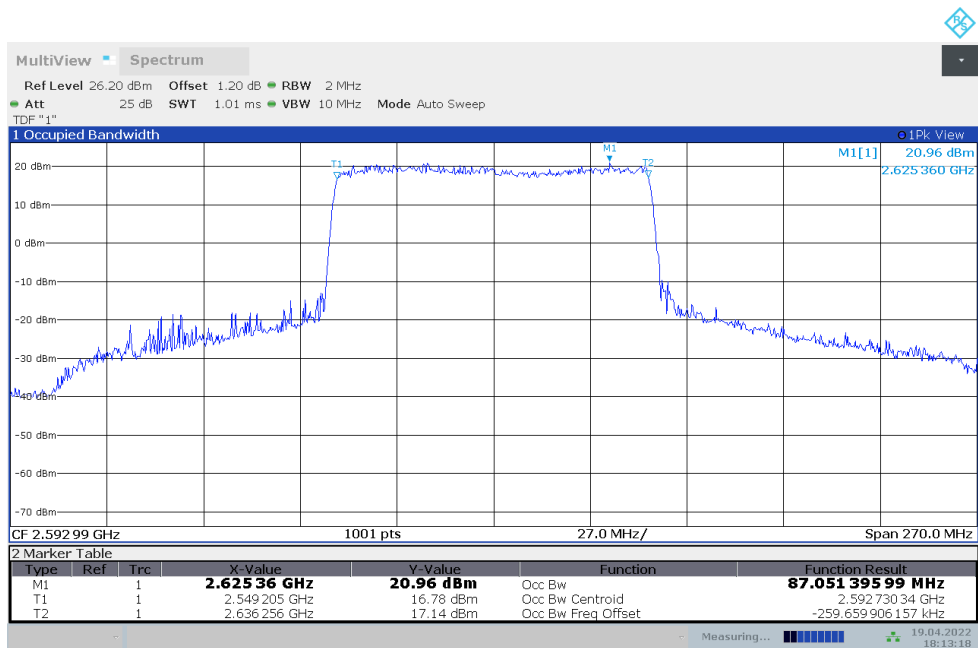
n41,80MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n41,80MHz Bandwidth,DFT-s-QPSK (99% BW)


n41,90MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	87.195	87.051

n41,90MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)


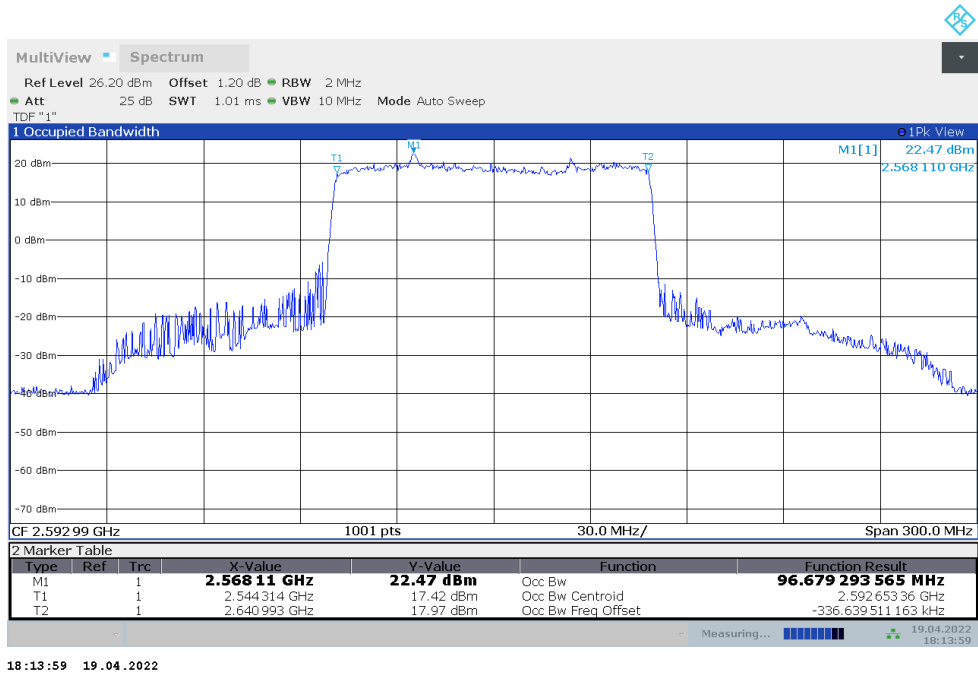
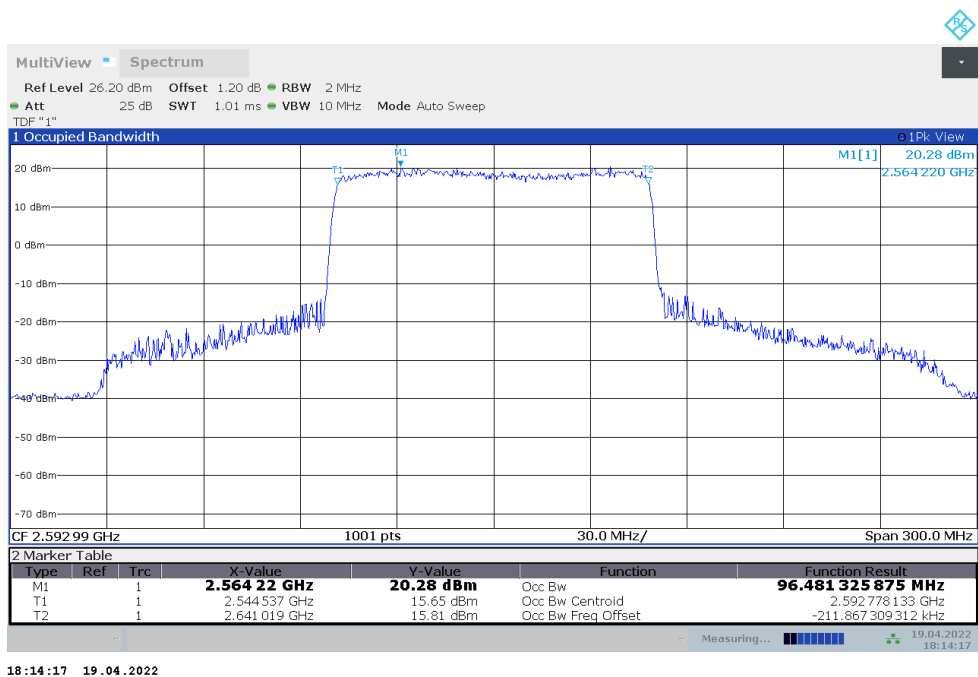
18:13:00 19.04.2022

n41,90MHz Bandwidth,DFT-s-QPSK (99% BW)


18:13:18 19.04.2022

n41,100MHz(99%)

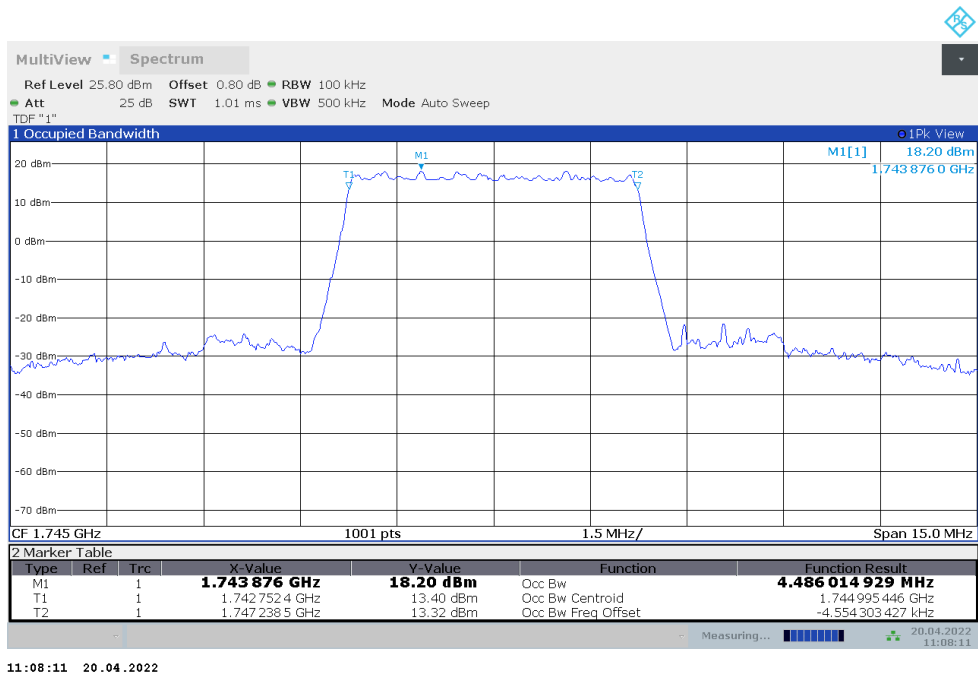
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
2592.99	96.679	96.481

n41,100MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n41,100MHz Bandwidth,DFT-s-QPSK (99% BW)


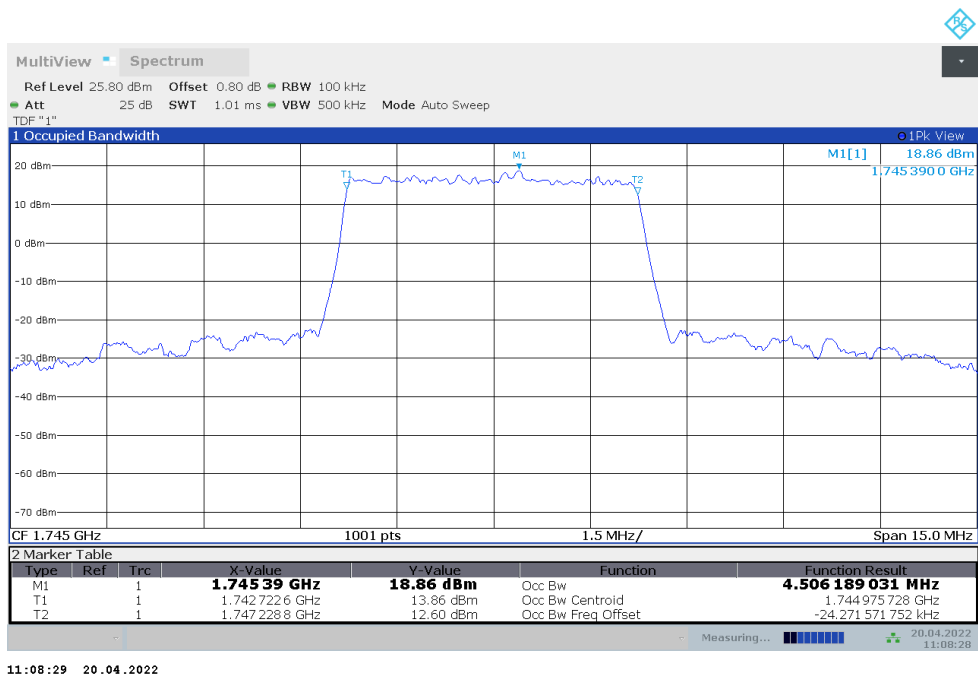
n66
n66,5MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1745	4.486	4.506

n66,5MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



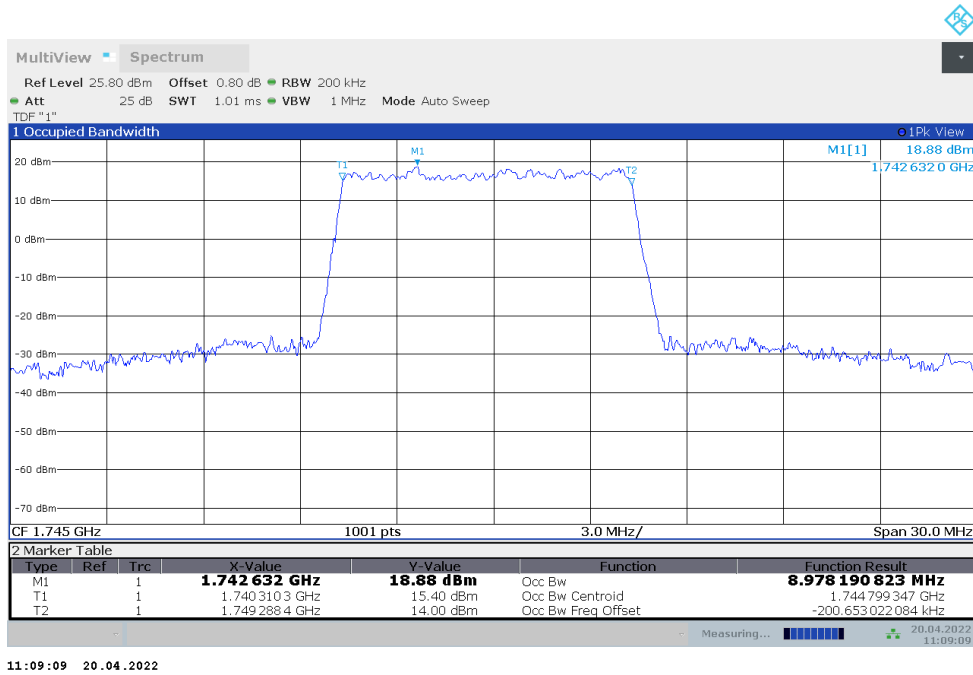
n66,5MHz Bandwidth,DFT-s-QPSK (99% BW)



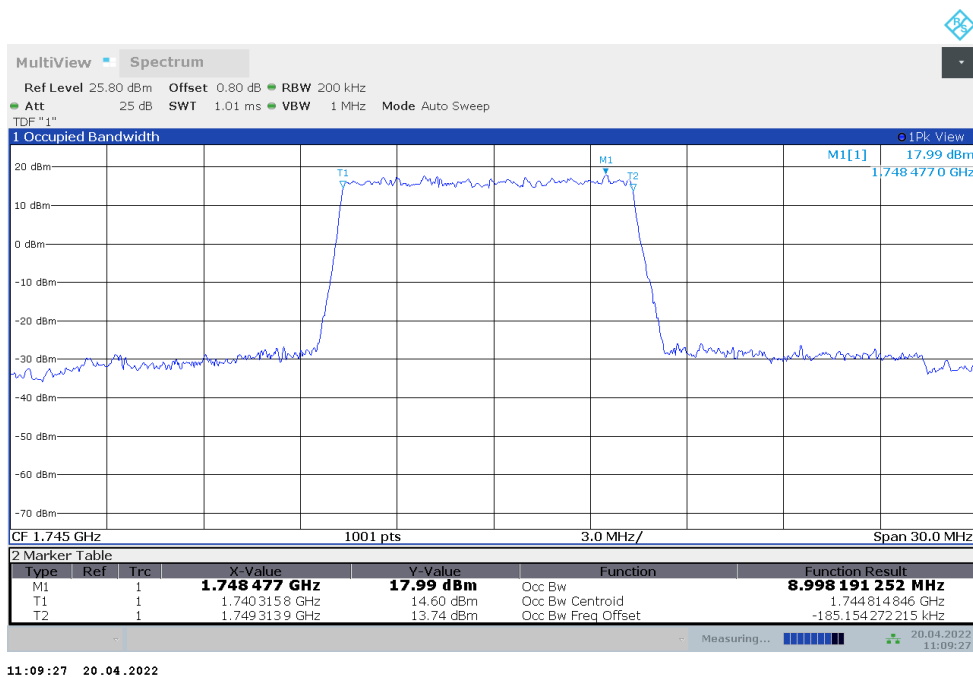
n66,10MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1745	8.978	8.998

n66,10MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

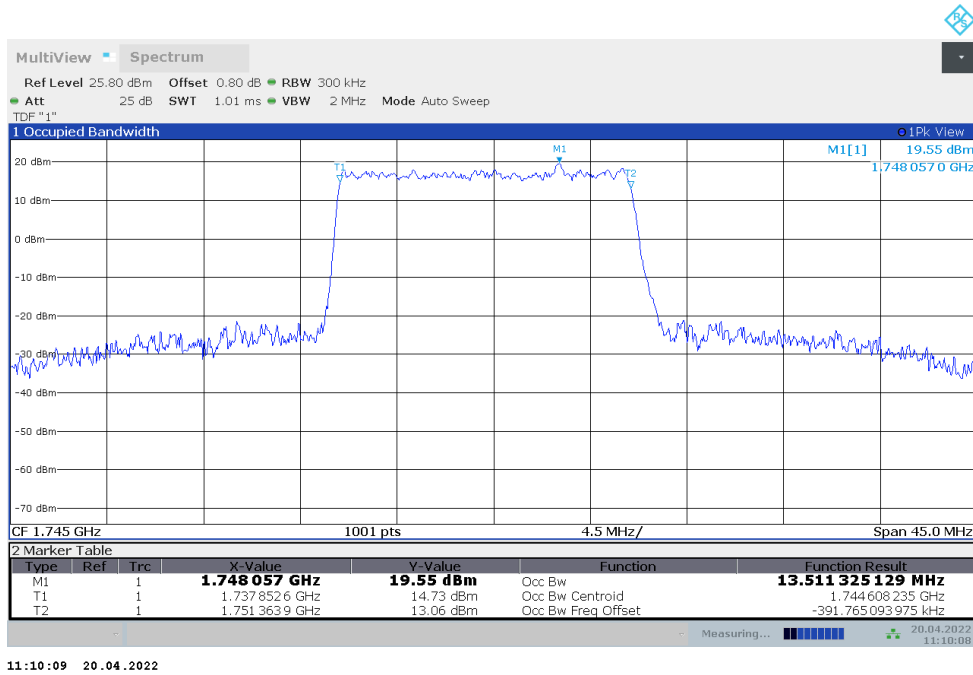
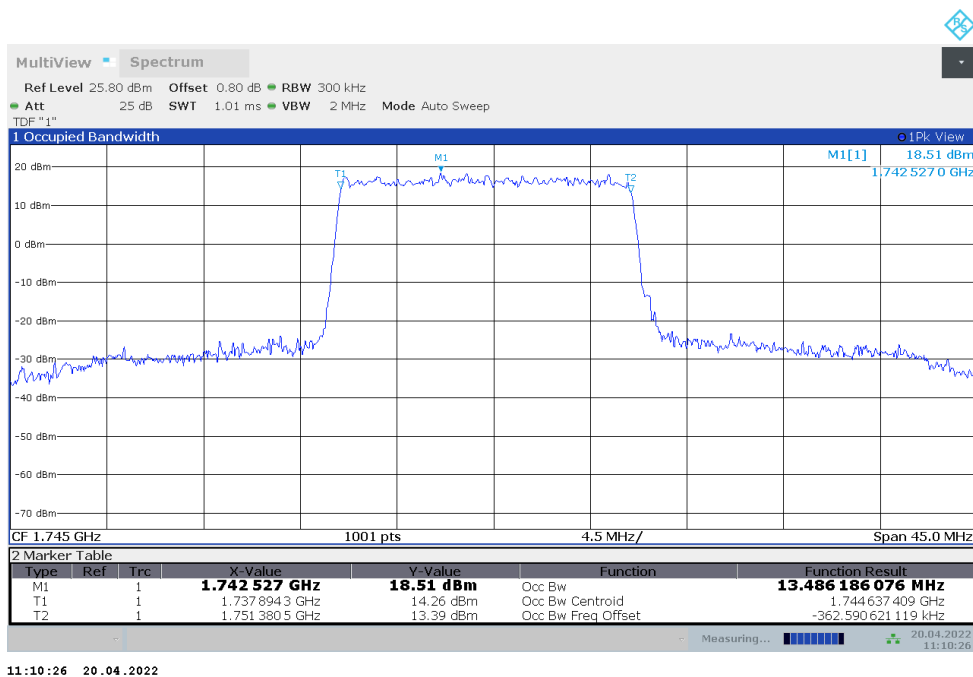


n66,10MHz Bandwidth,DFT-s-QPSK (99% BW)



n66,15MHz(99%)

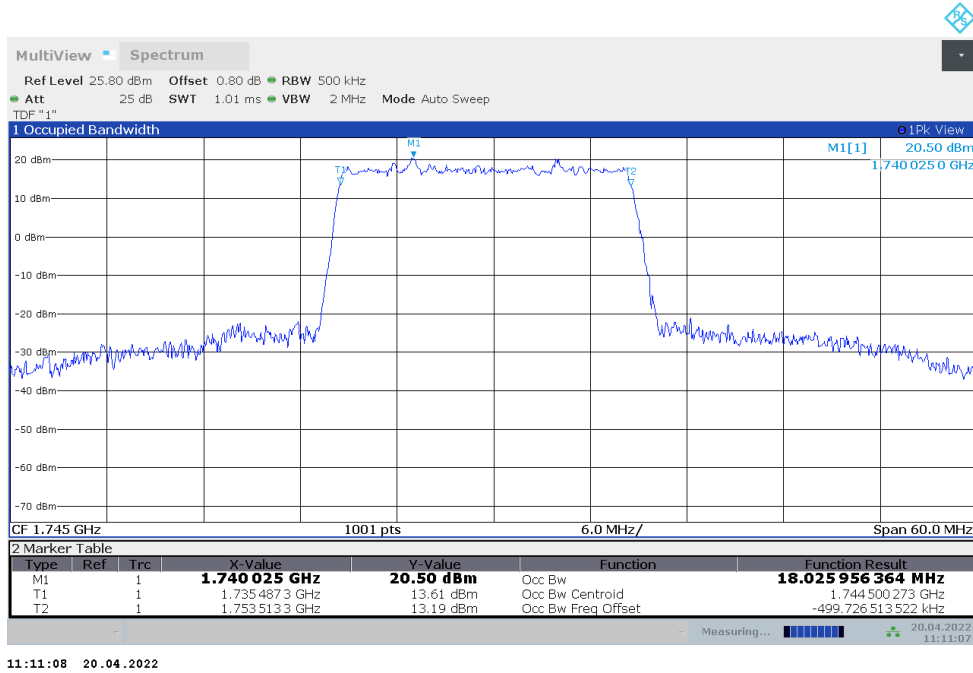
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1745	13.511	13.486

n66,15MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n66,15MHz Bandwidth,DFT-s-QPSK (99% BW)


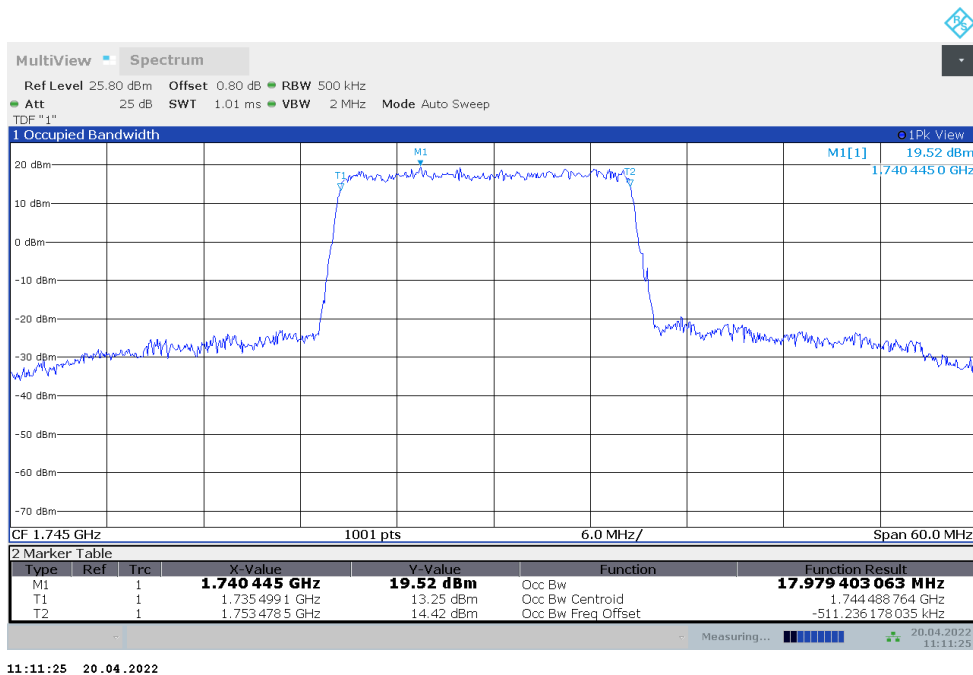
n66,20MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1745	18.026	17.979

n66,20MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

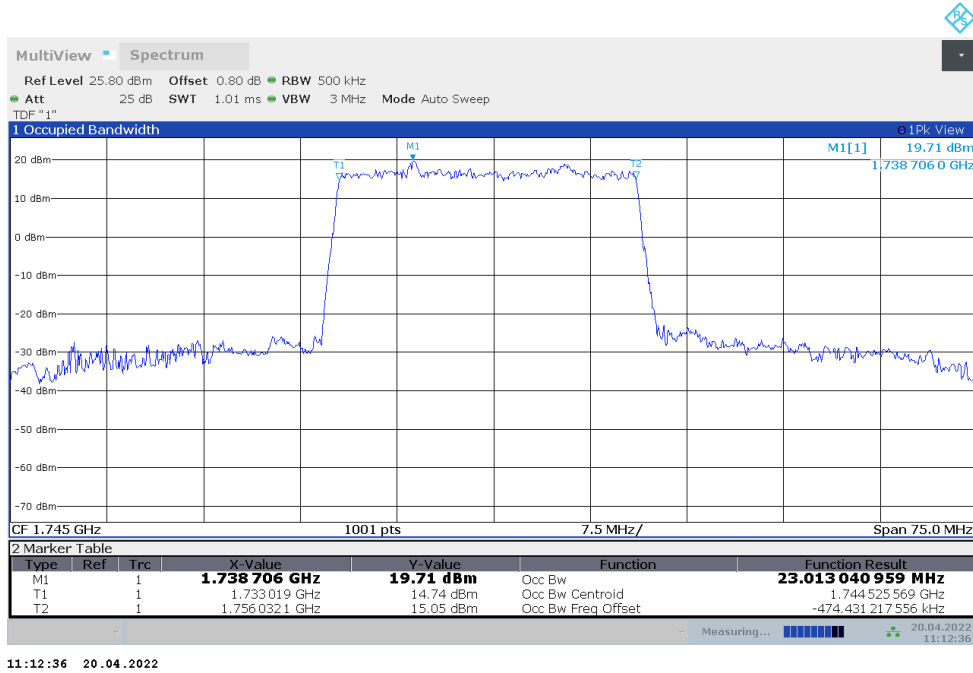
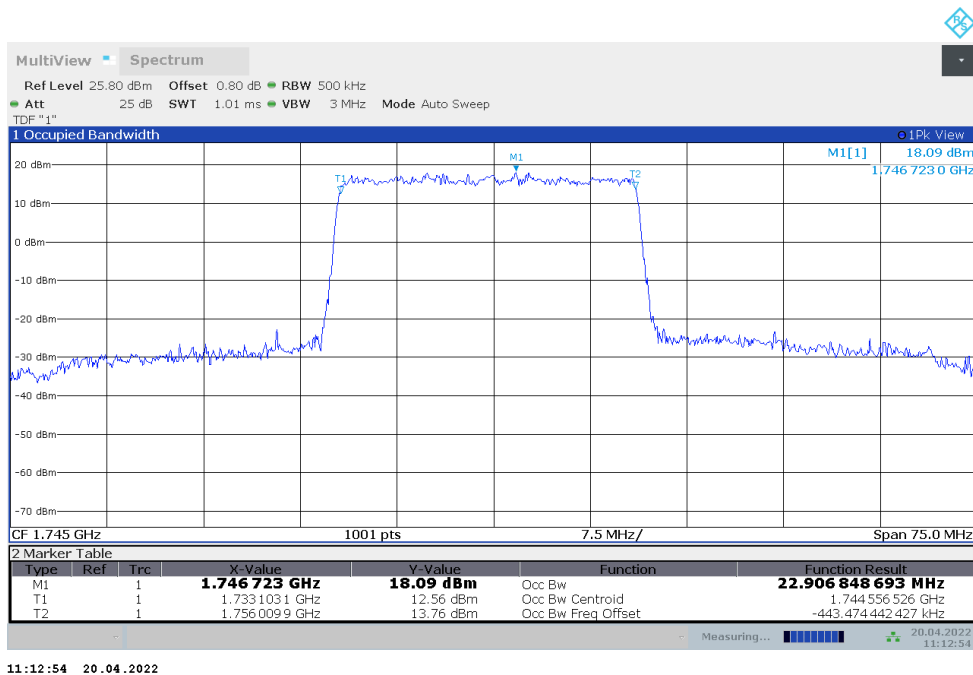


n66,20MHz Bandwidth,DFT-s-QPSK (99% BW)



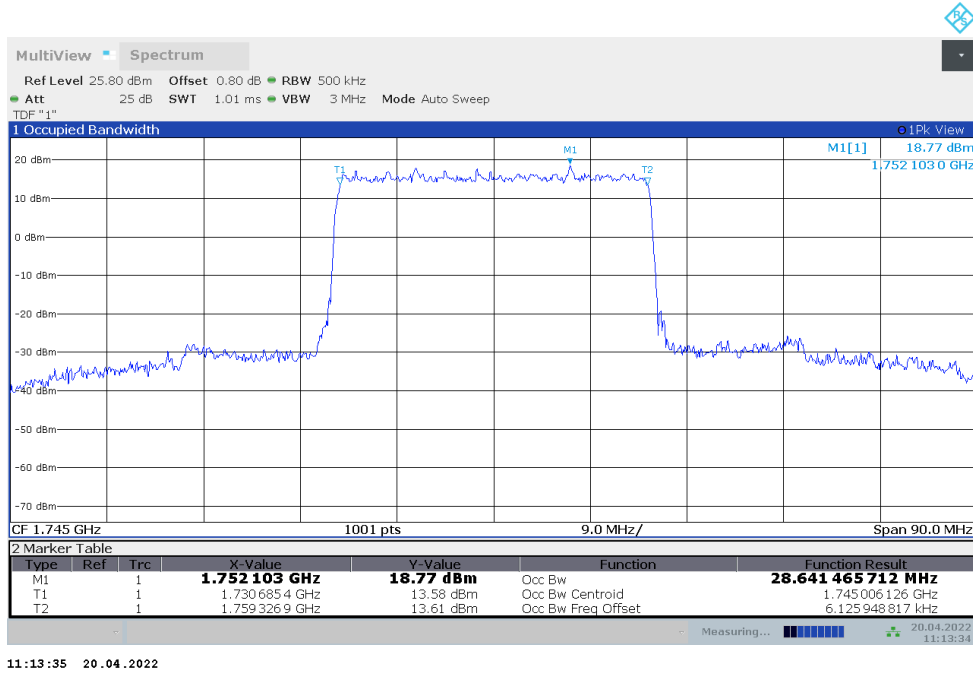
n66,25MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1745	23.013	22.907

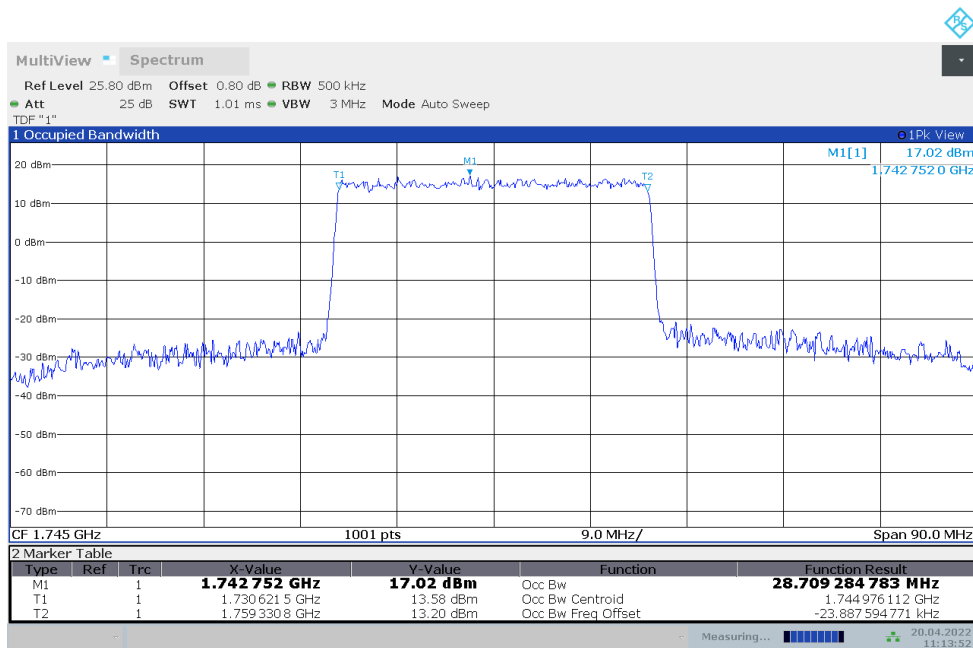
n66,25MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n66,25MHz Bandwidth,DFT-s-QPSK (99% BW)


n66,30MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1745	28.641	28.709

n66,30MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)


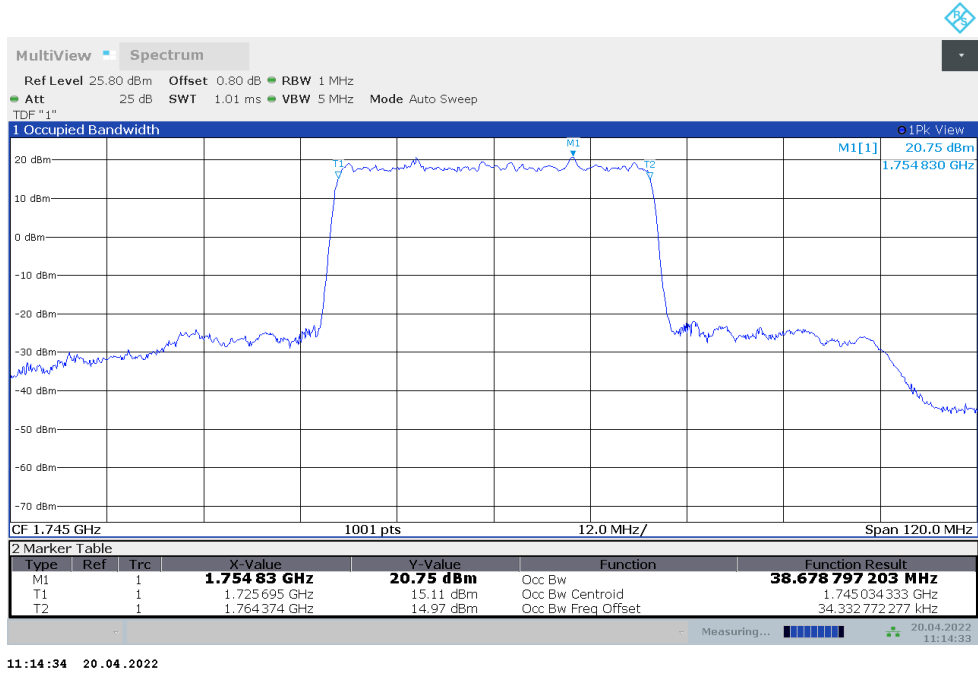
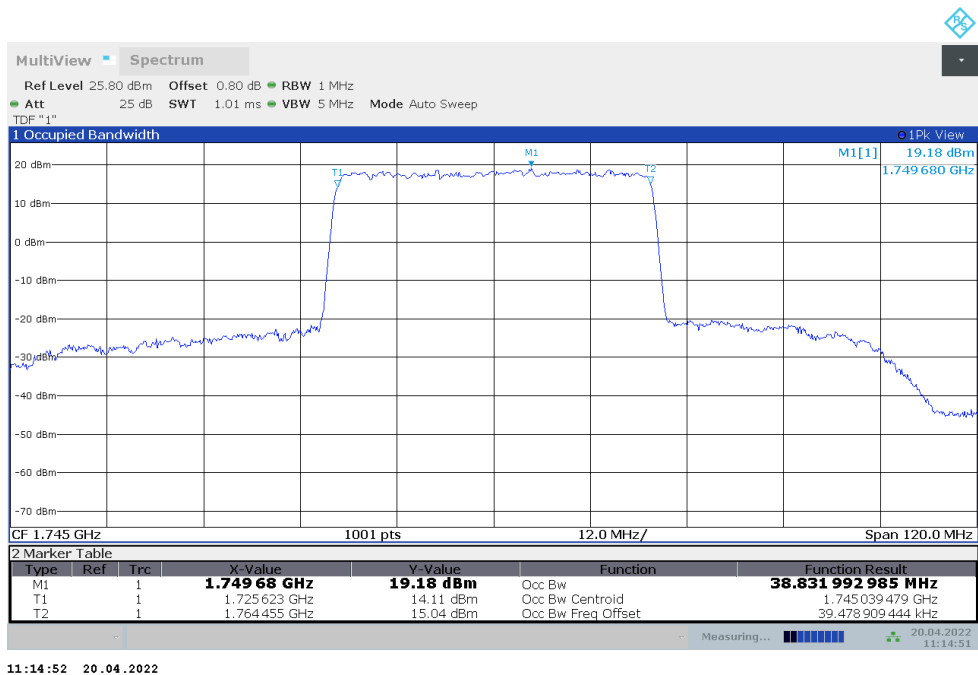
11:13:35 20.04.2022

n66,30MHz Bandwidth,DFT-s-QPSK (99% BW)


11:13:52 20.04.2022

n66,40MHz(99%)

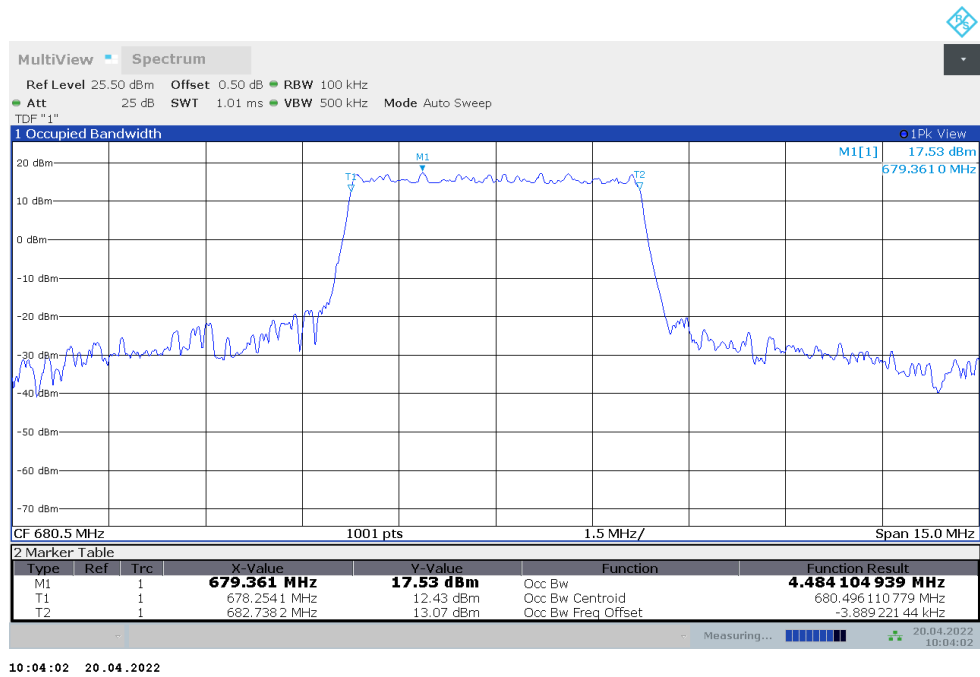
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
1745	38.679	38.832

n66,40MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n66,40MHz Bandwidth,DFT-s-QPSK (99% BW)


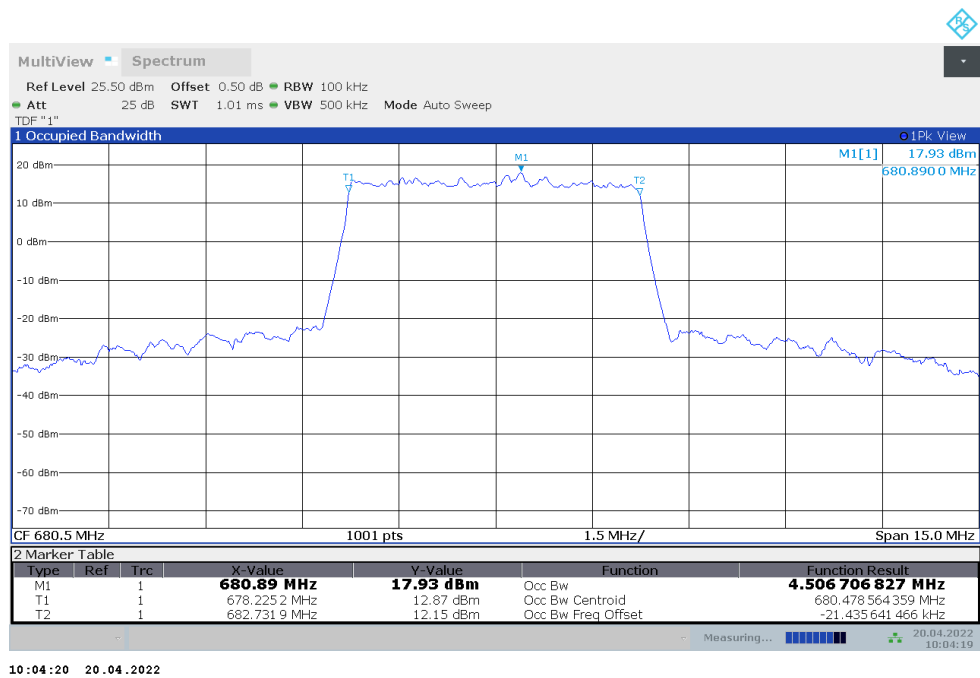
n71
n71,5MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
680.5	4.484	4.507

n71,5MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

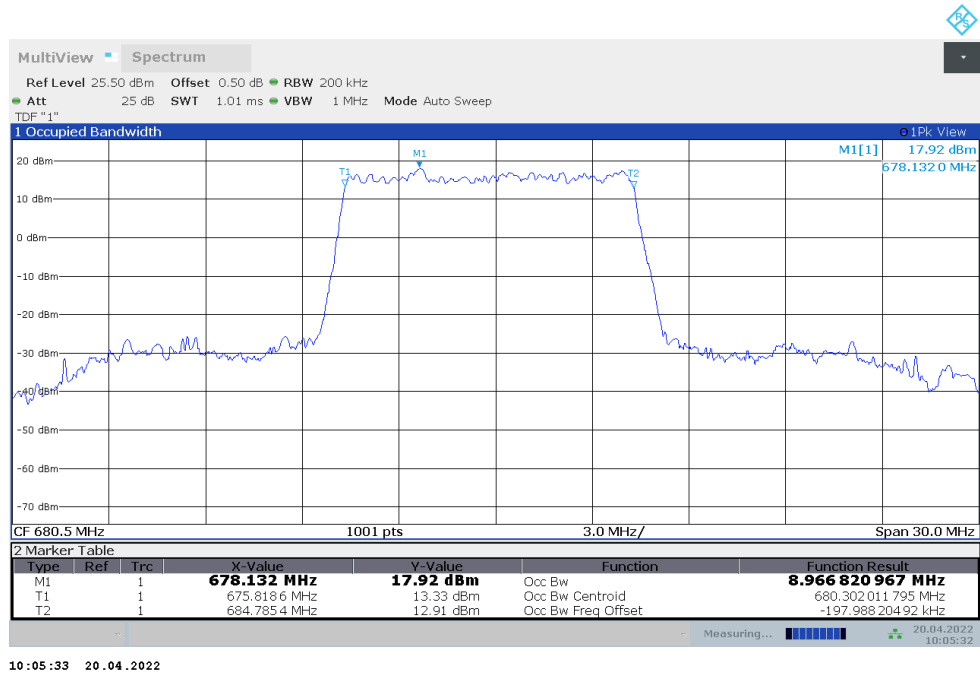
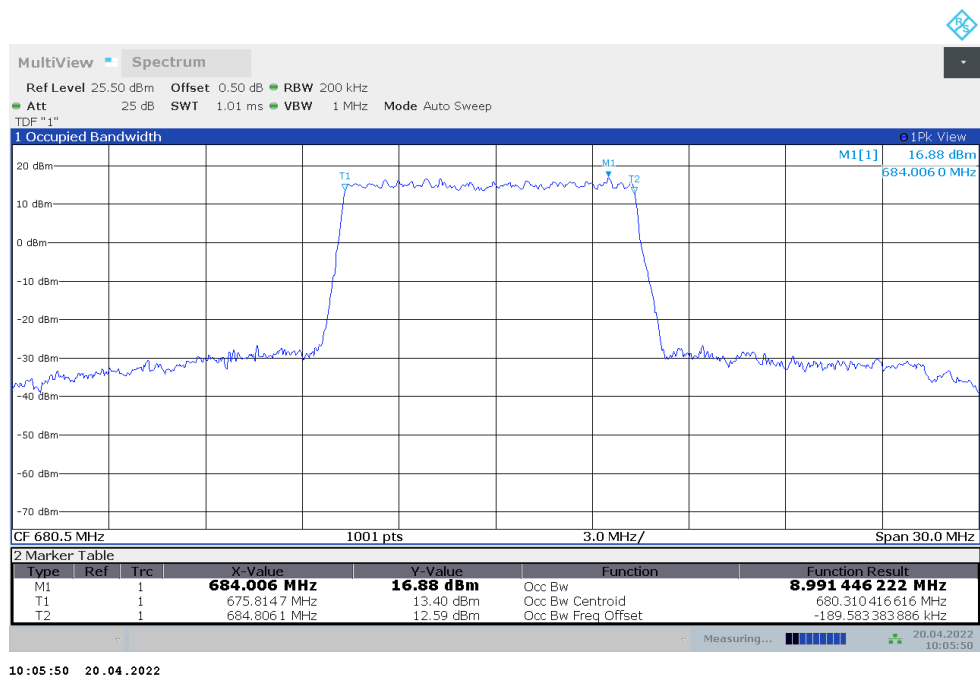


n71,5MHz Bandwidth,DFT-s-QPSK (99% BW)



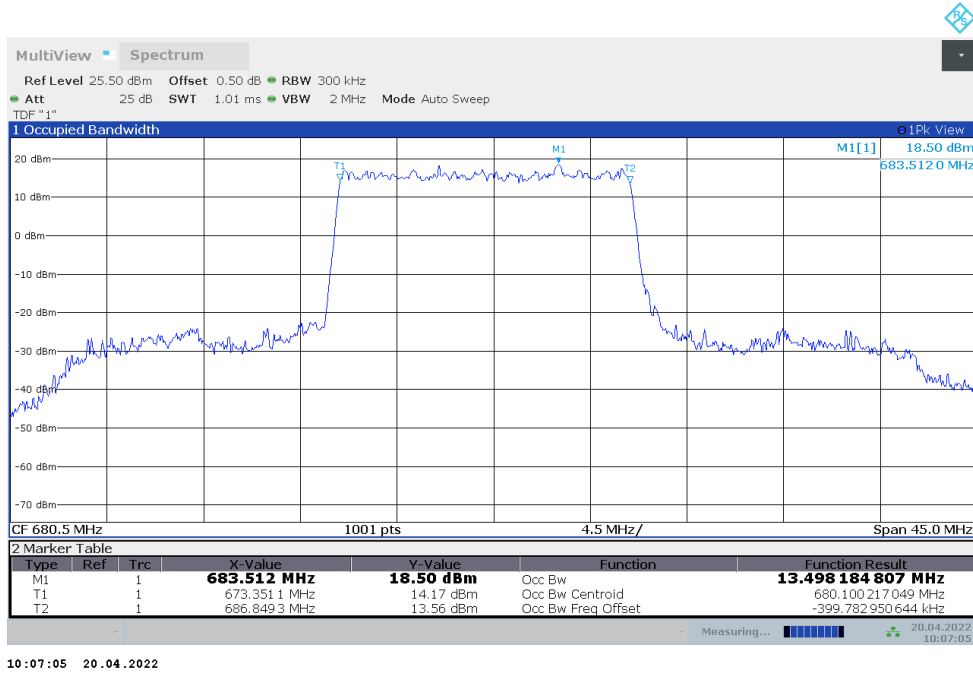
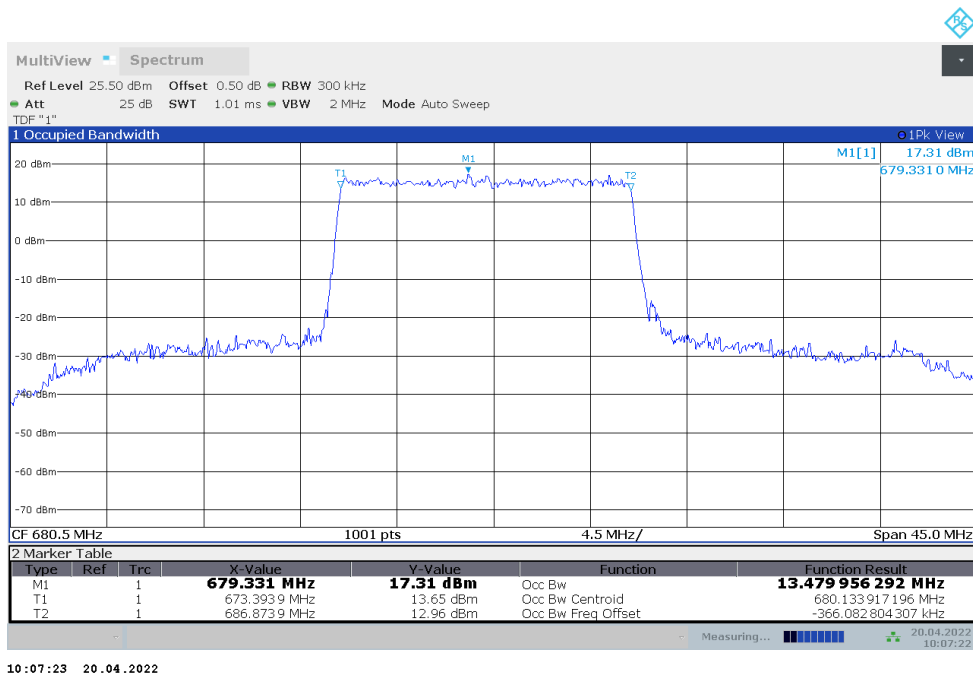
n71,10MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
680.5	8.967	8.991

n71,10MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n71,10MHz Bandwidth,DFT-s-QPSK (99% BW)


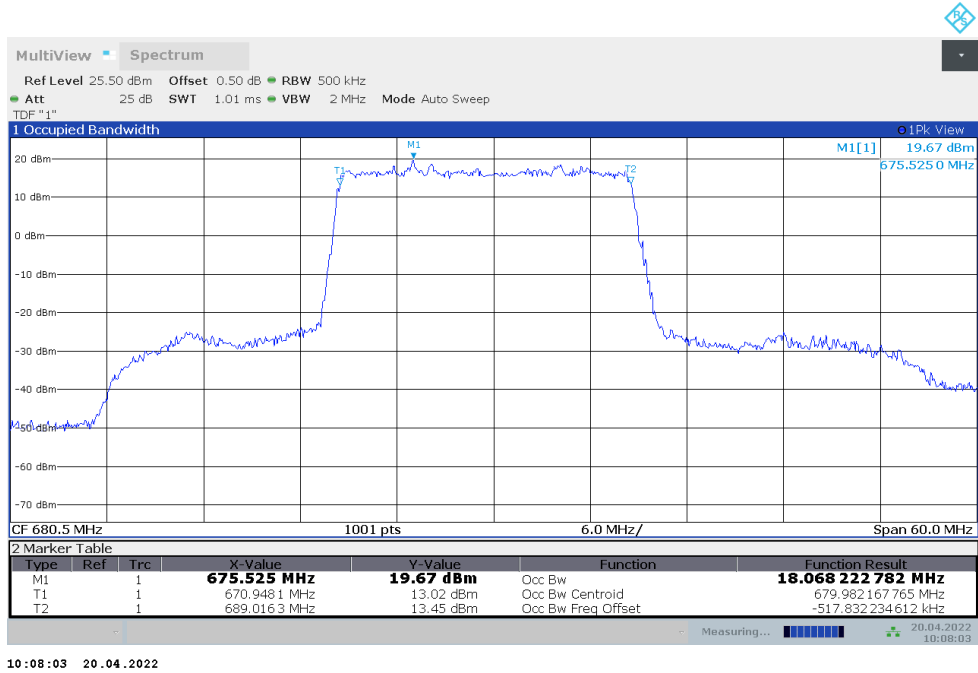
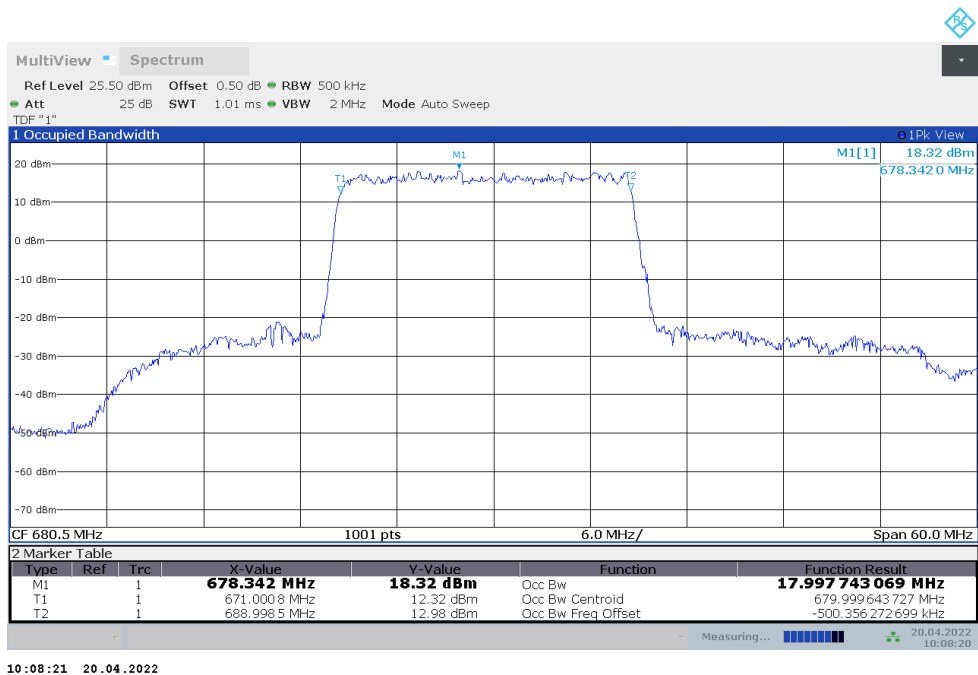
n71,15MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
680.5	13.498	13.480

n71,15MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n71,15MHz Bandwidth,DFT-s-QPSK (99% BW)


n71,20MHz(99%)

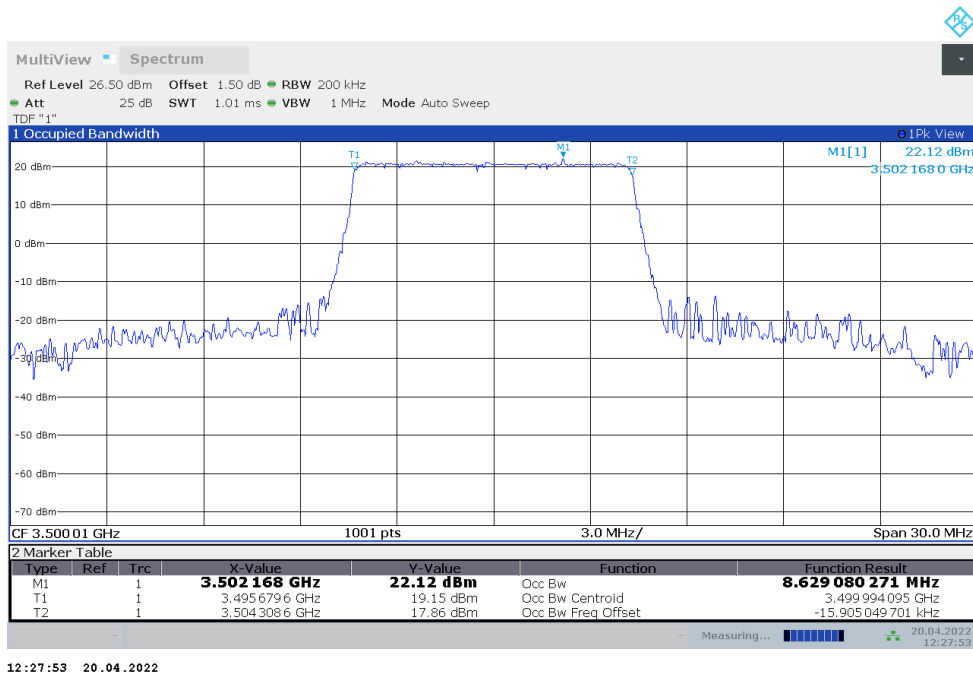
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
680.5	18.068	17.998

n71,20MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n71,20MHz Bandwidth,DFT-s-QPSK (99% BW)


n77L
n77L,10MHz(99%)

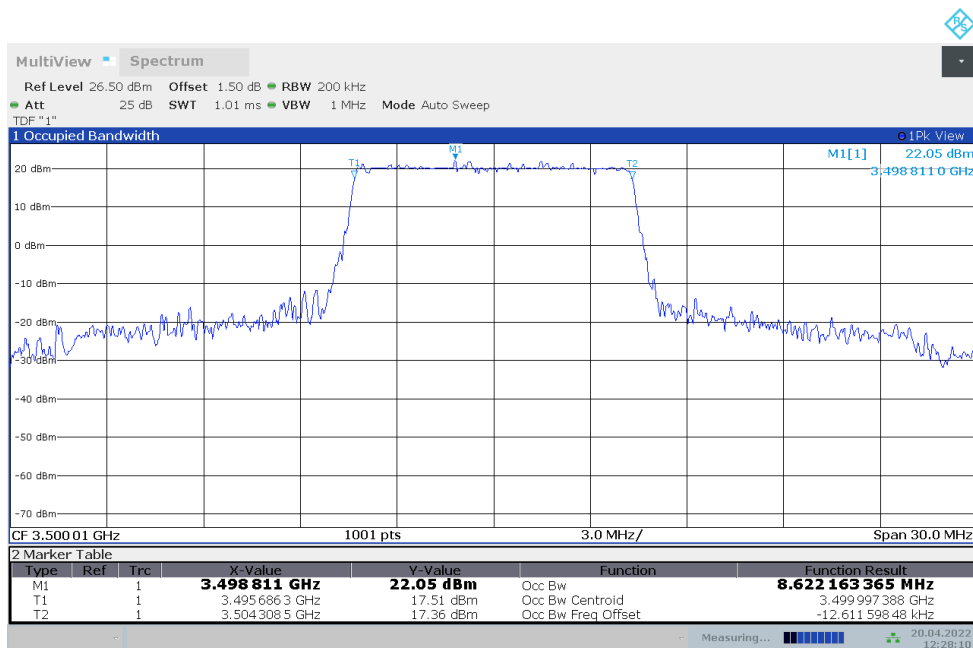
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	8.629	8.622

n77L,10MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



12:27:53 20.04.2022

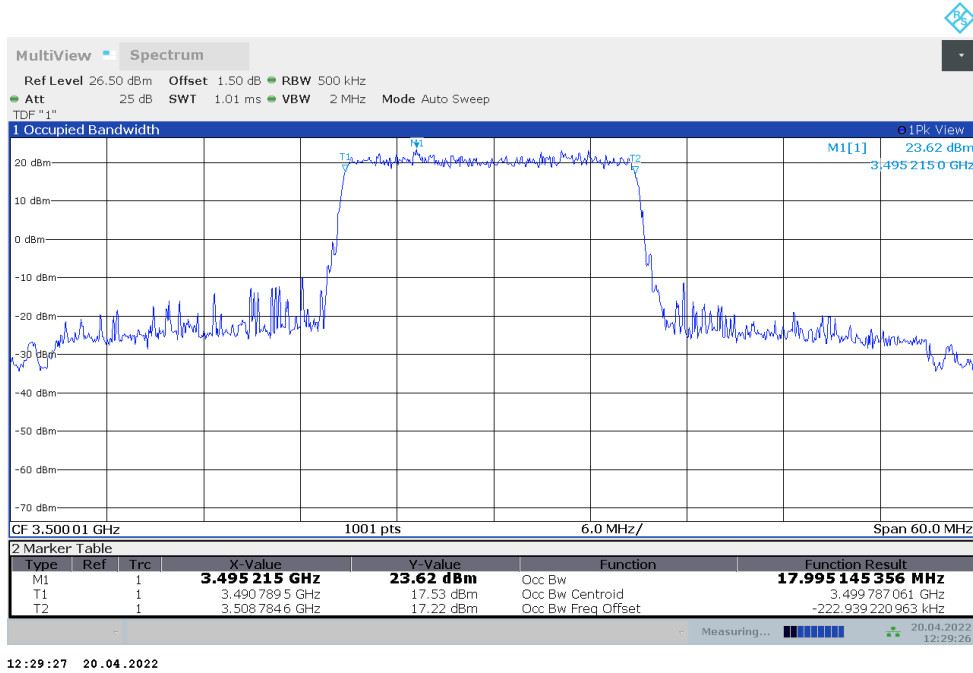
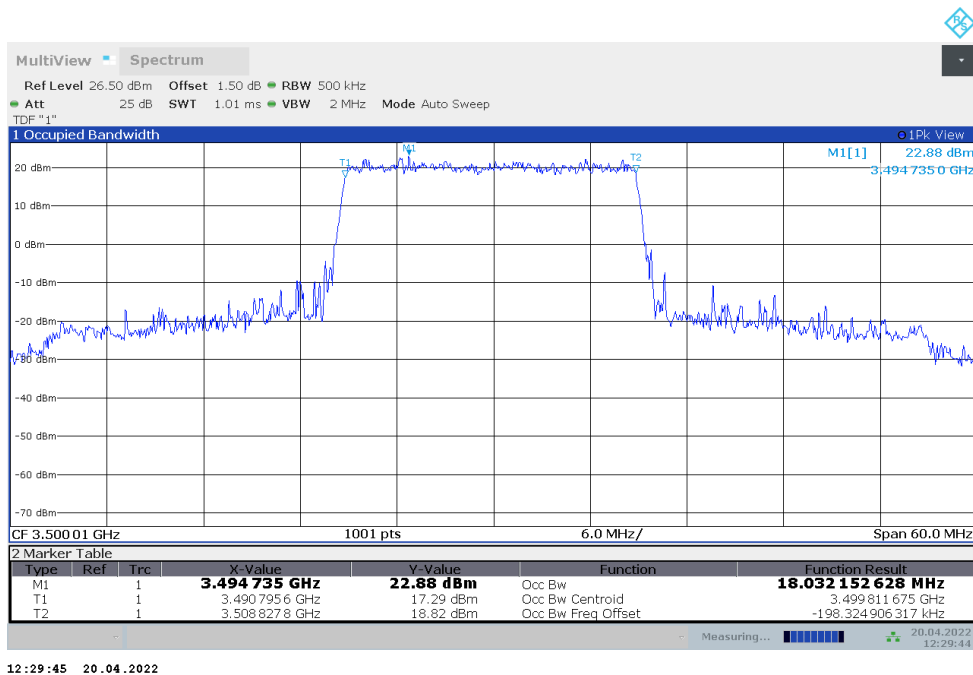
n77L,10MHz Bandwidth,DFT-s-QPSK (99% BW)



12:28:11 20.04.2022

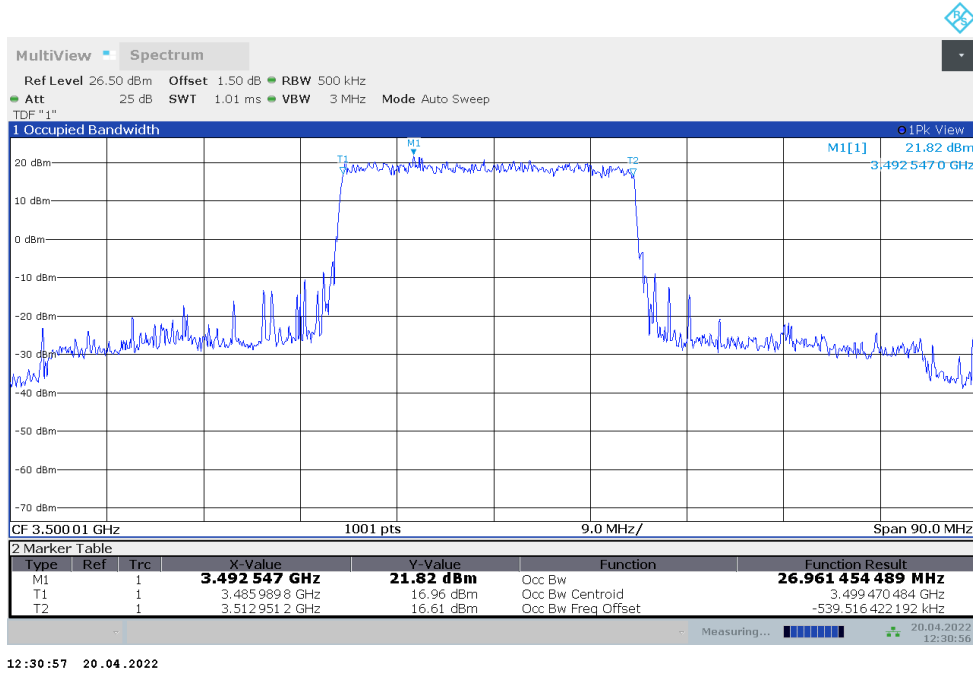
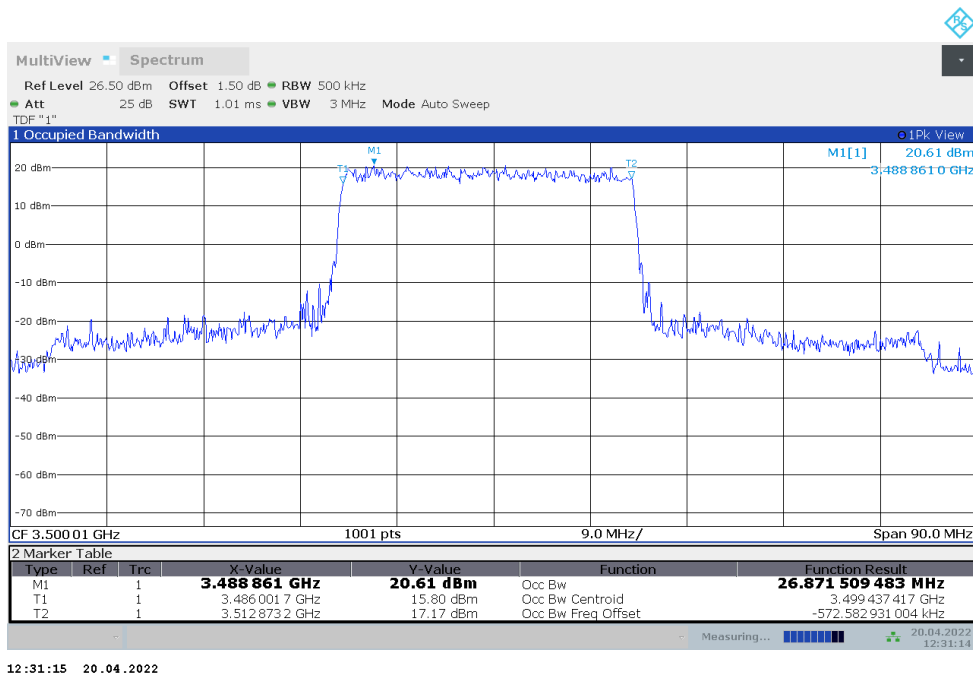
n77L,20MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	17.995	18.032

n77L,20MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n77L,20MHz Bandwidth,DFT-s-QPSK (99% BW)


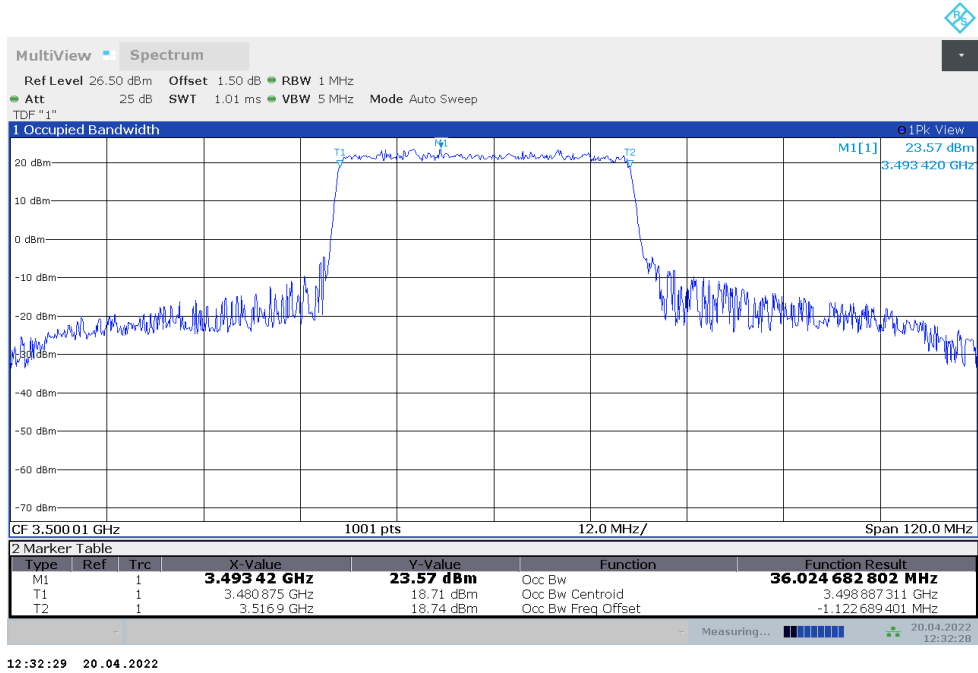
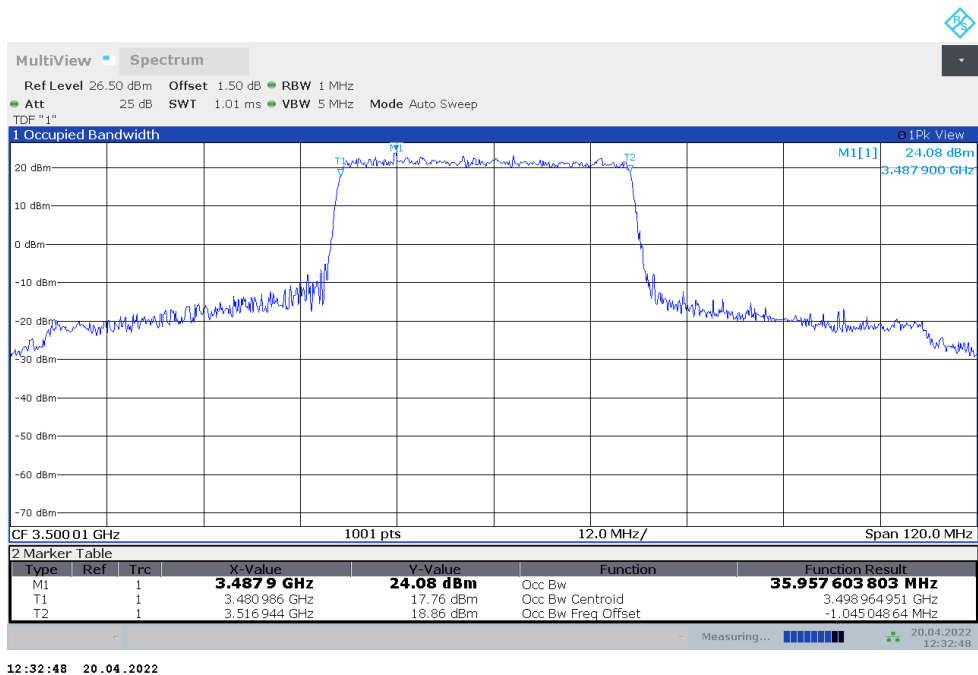
n77L,30MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	26.961	26.872

n77L,30MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n77L,30MHz Bandwidth,DFT-s-QPSK (99% BW)


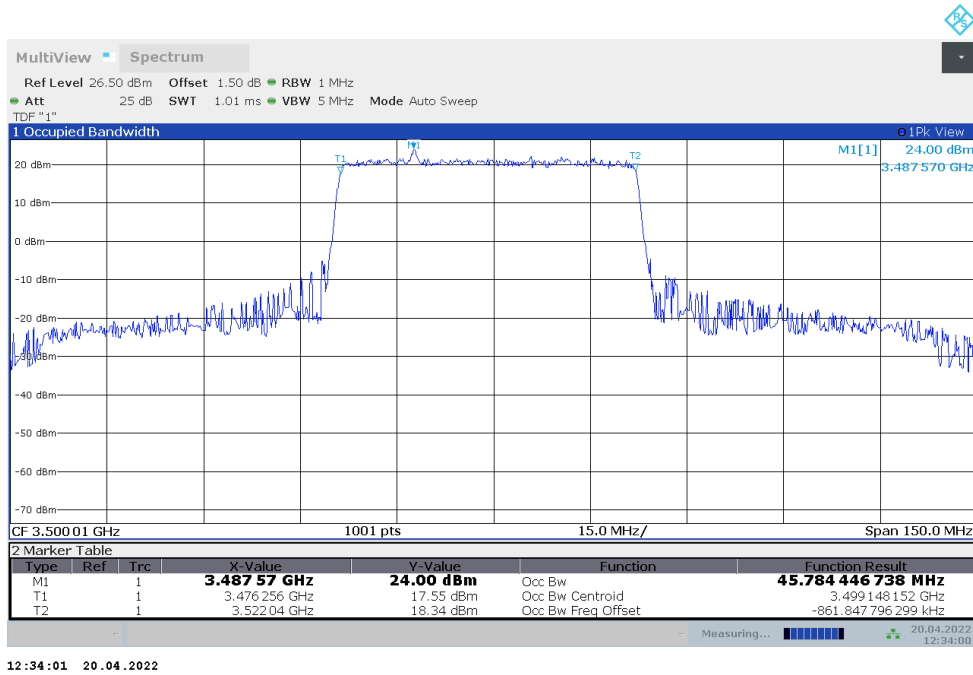
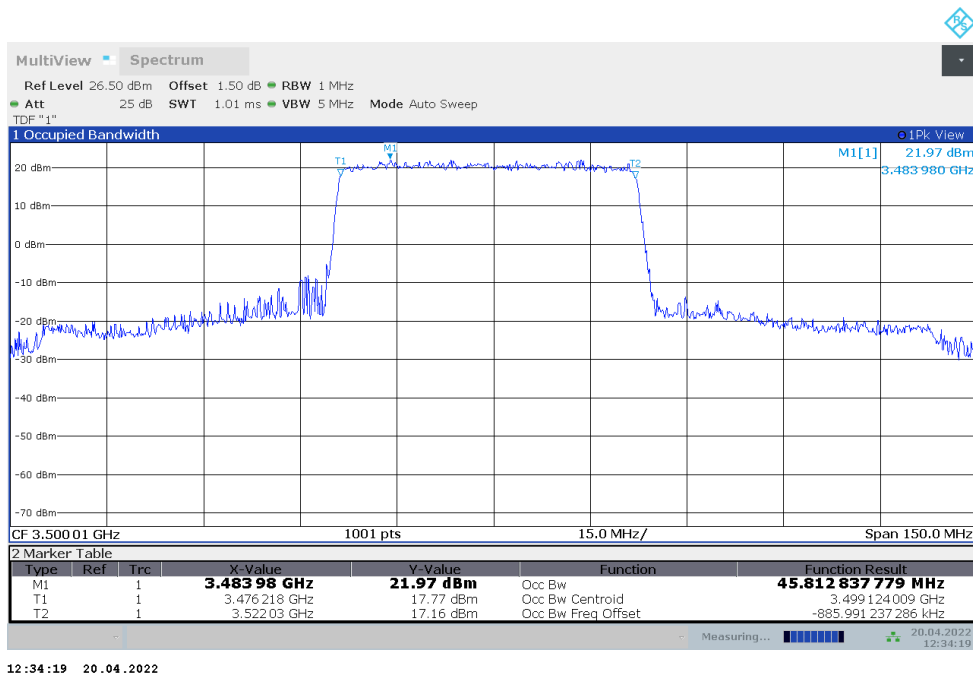
n77L,40MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	36.025	35.958

n77L,40MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n77L,40MHz Bandwidth,DFT-s-QPSK (99% BW)


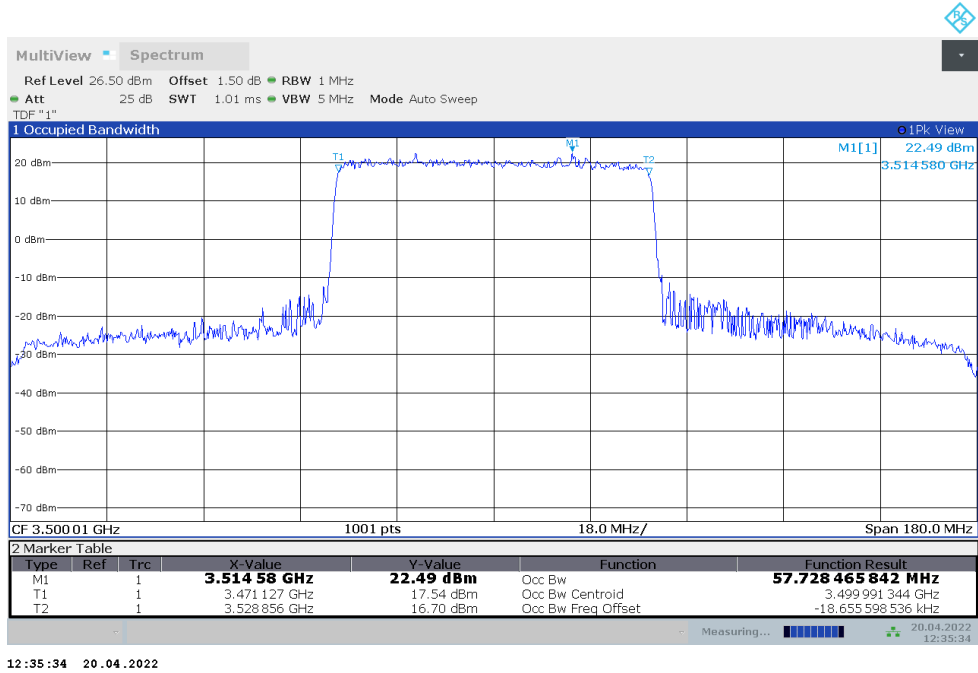
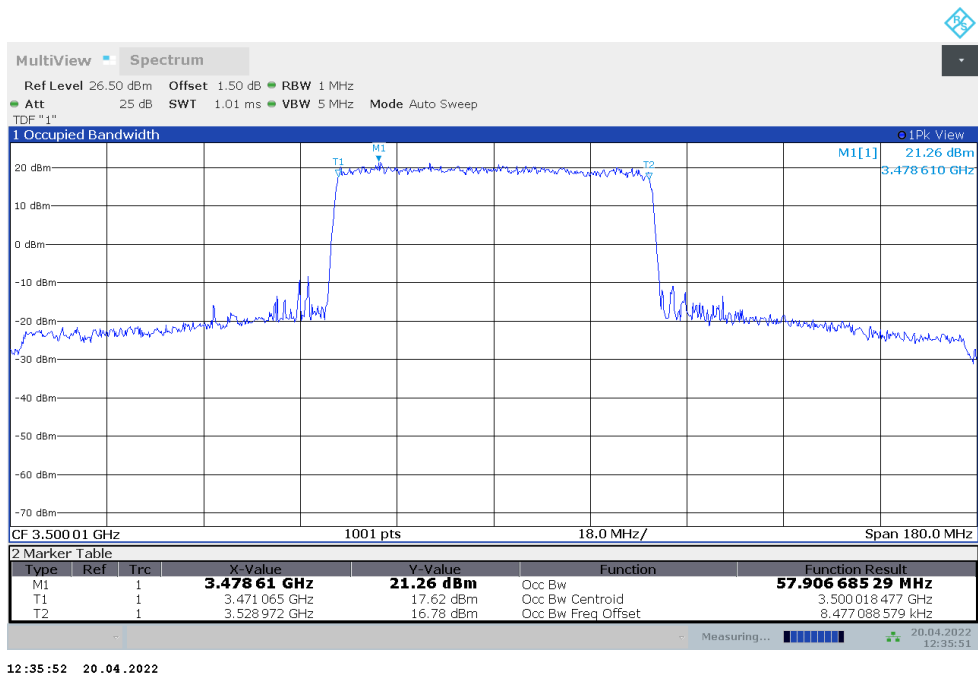
n77L,50MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	45.784	45.813

n77L,50MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n77L,50MHz Bandwidth,DFT-s-QPSK (99% BW)


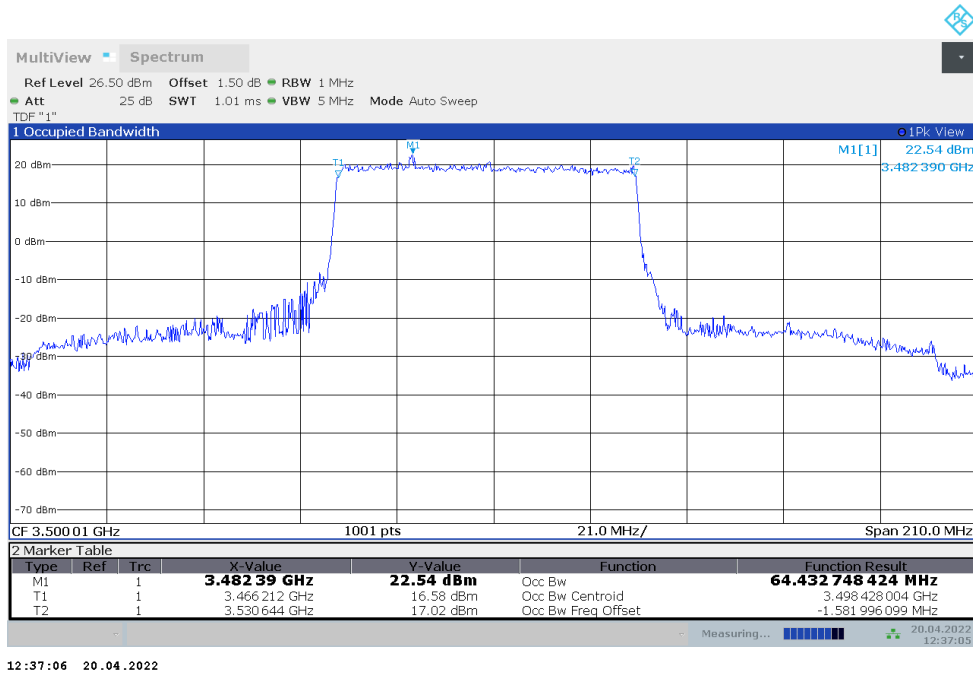
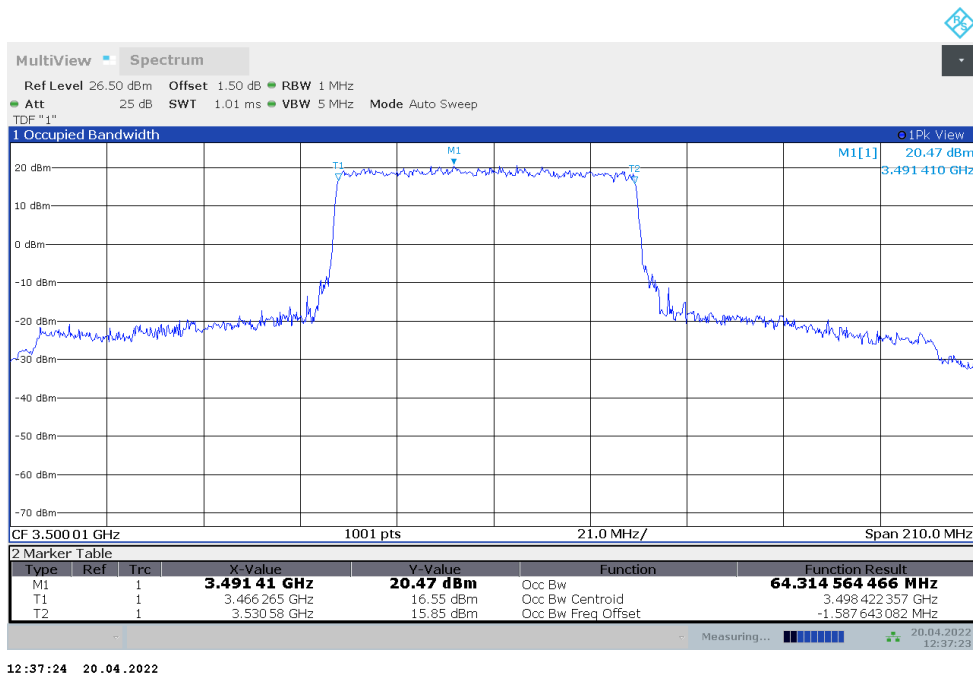
n77L,60MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	57.728	57.907

n77L,60MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n77L,60MHz Bandwidth,DFT-s-QPSK (99% BW)


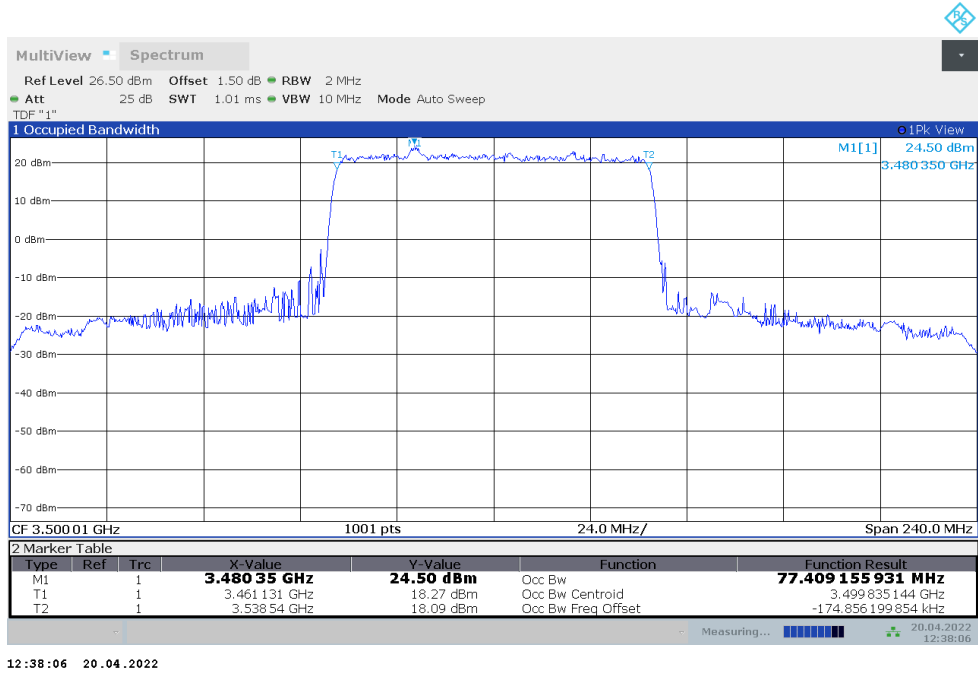
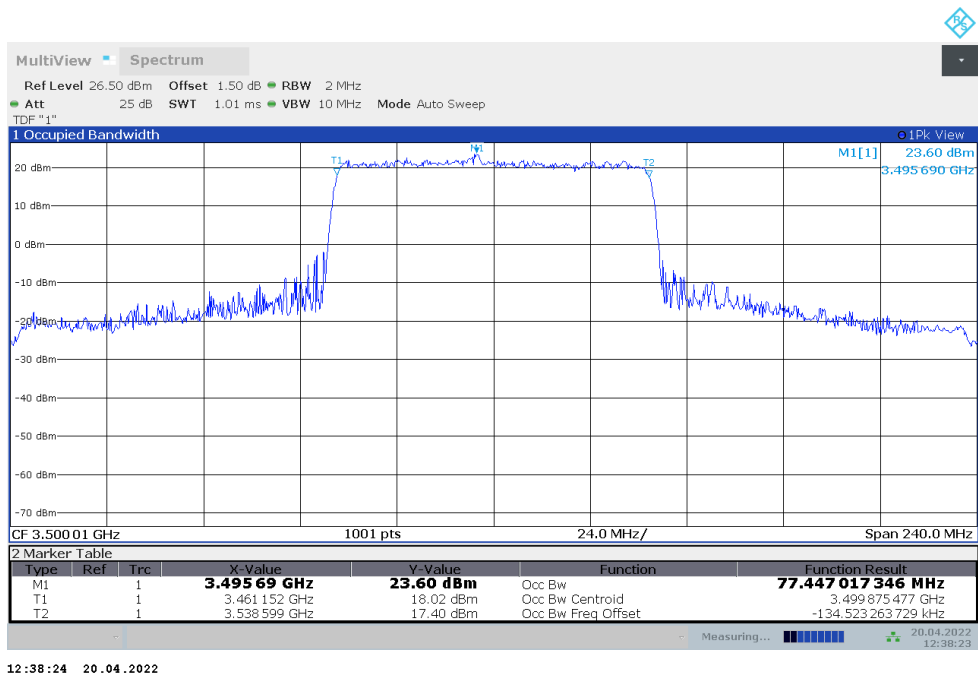
n77L,70MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	64.433	64.315

n77L,70MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n77L,70MHz Bandwidth,DFT-s-QPSK (99% BW)


n77L,80MHz(99%)

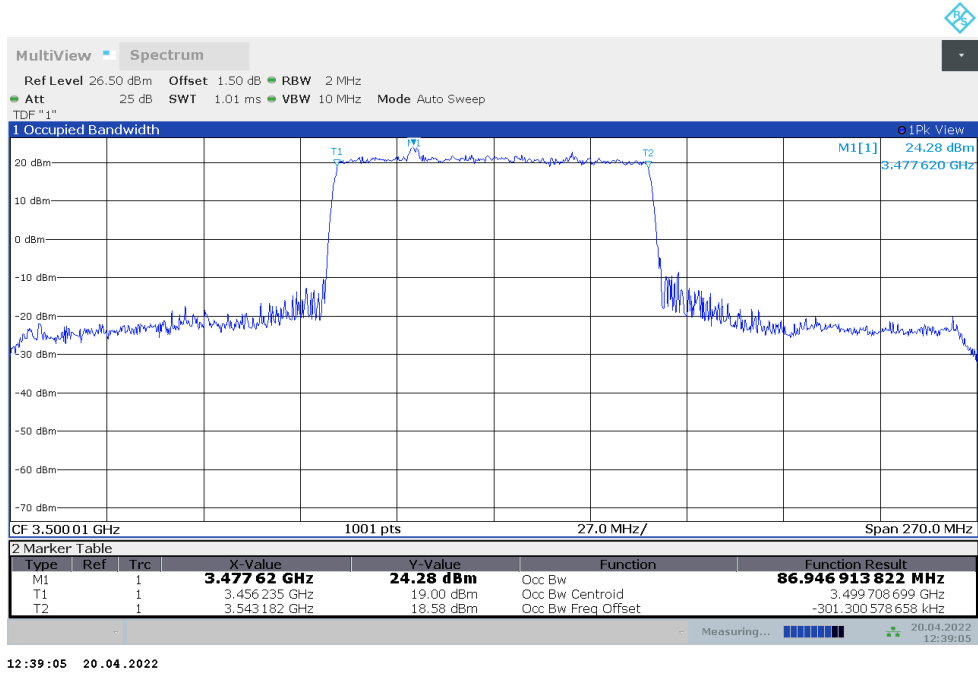
Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	77.409	77.447

n77L,80MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n77L,80MHz Bandwidth,DFT-s-QPSK (99% BW)


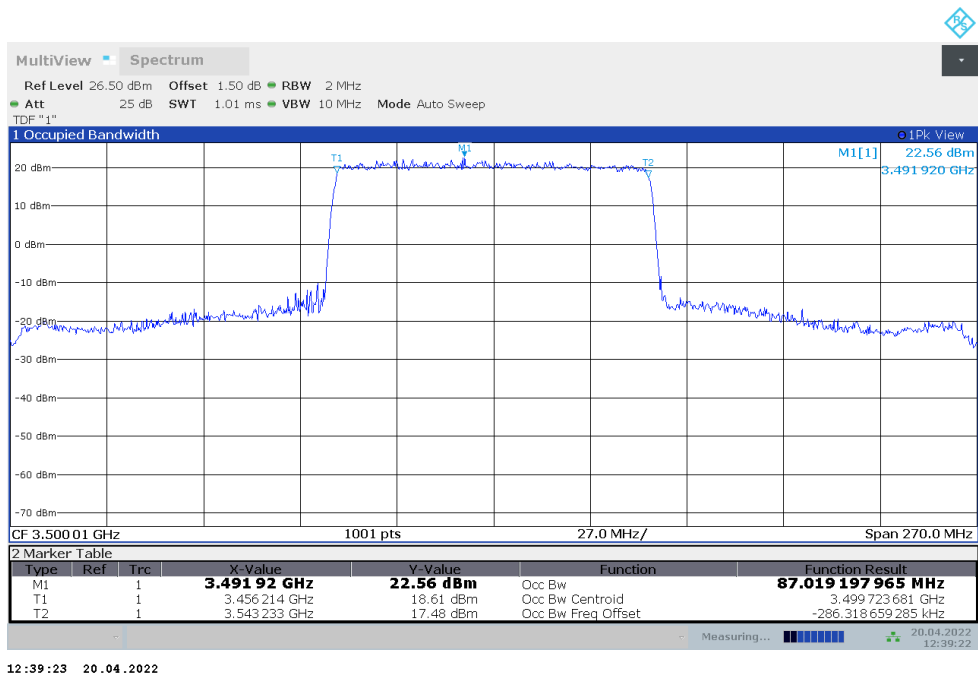
n77L,90MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3500.01	86.947	87.019

n77L,90MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)



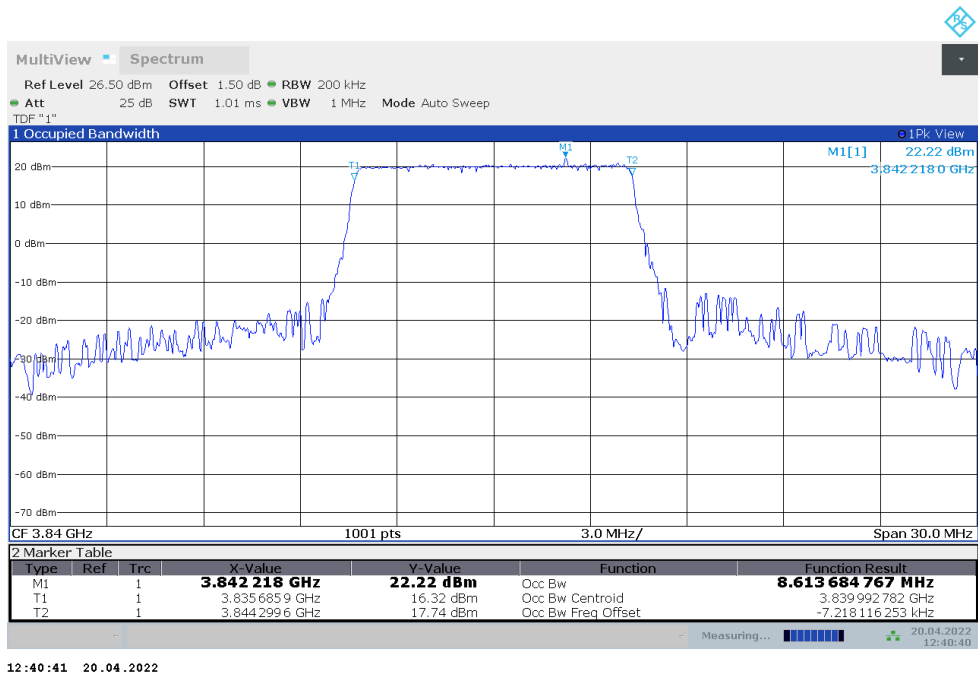
n77L,90MHz Bandwidth,DFT-s-QPSK (99% BW)



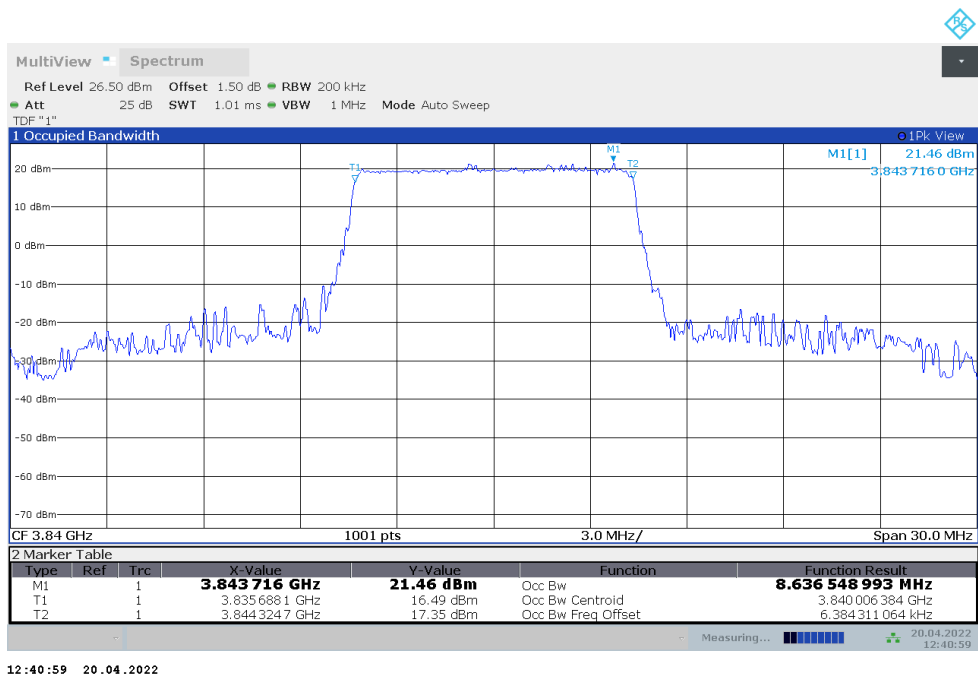
n77H
n77H,10MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	8.614	8.637

n77H,10MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

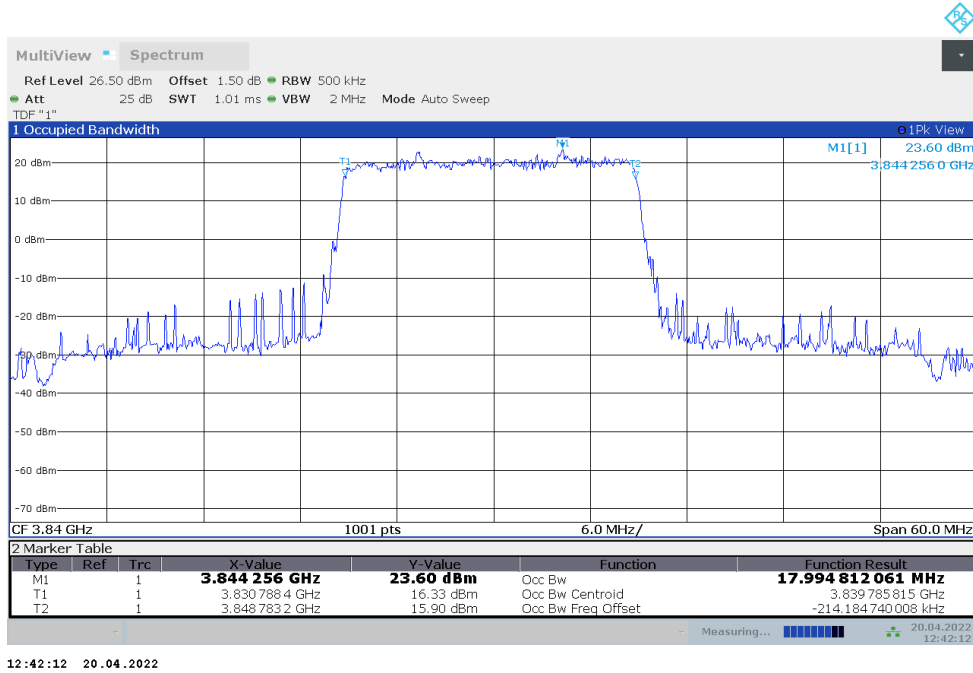
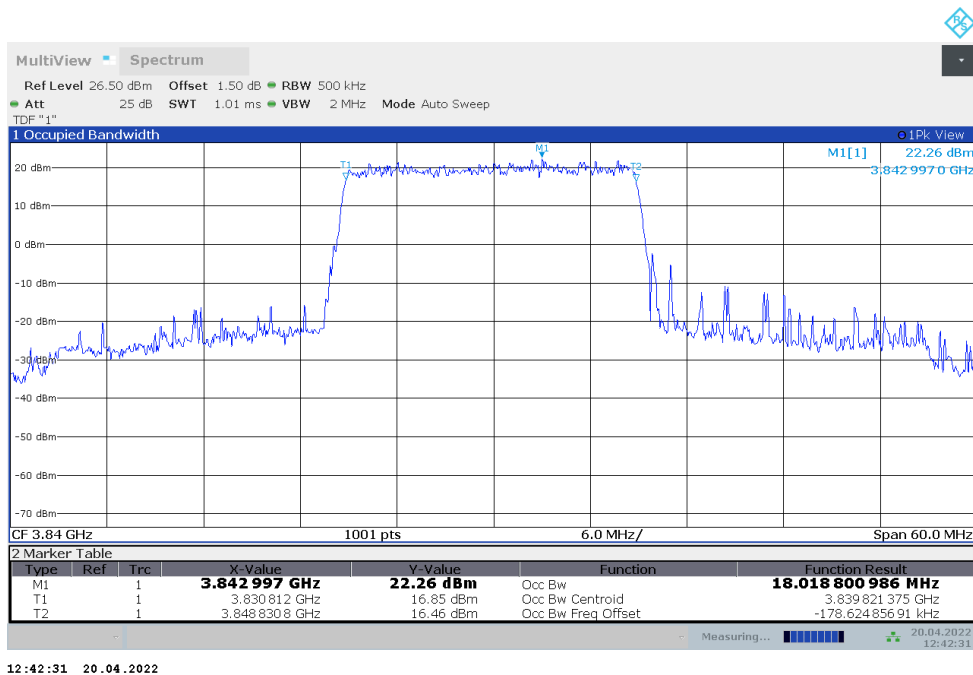


n77H,10MHz Bandwidth,DFT-s-QPSK (99% BW)



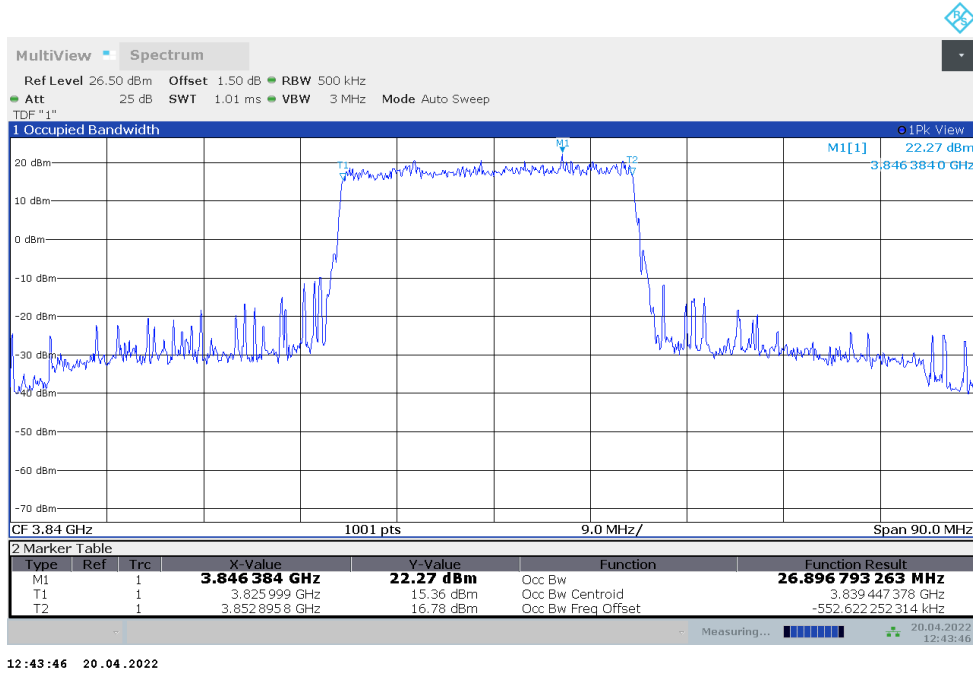
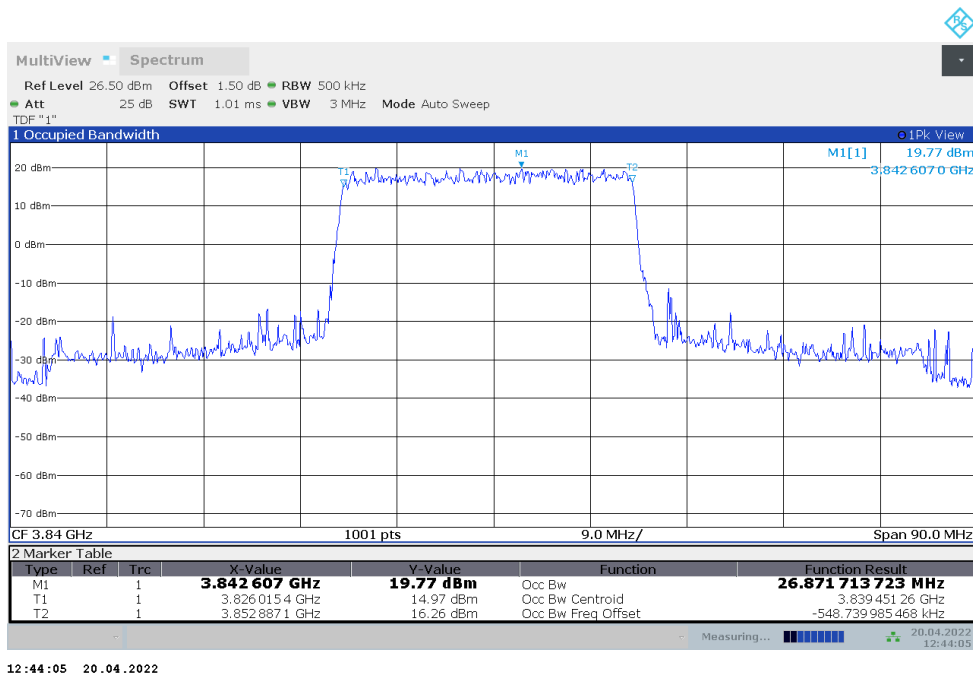
n77H,20MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	17.995	18.019

n77H,20MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n77H,20MHz Bandwidth,DFT-s-QPSK (99% BW)


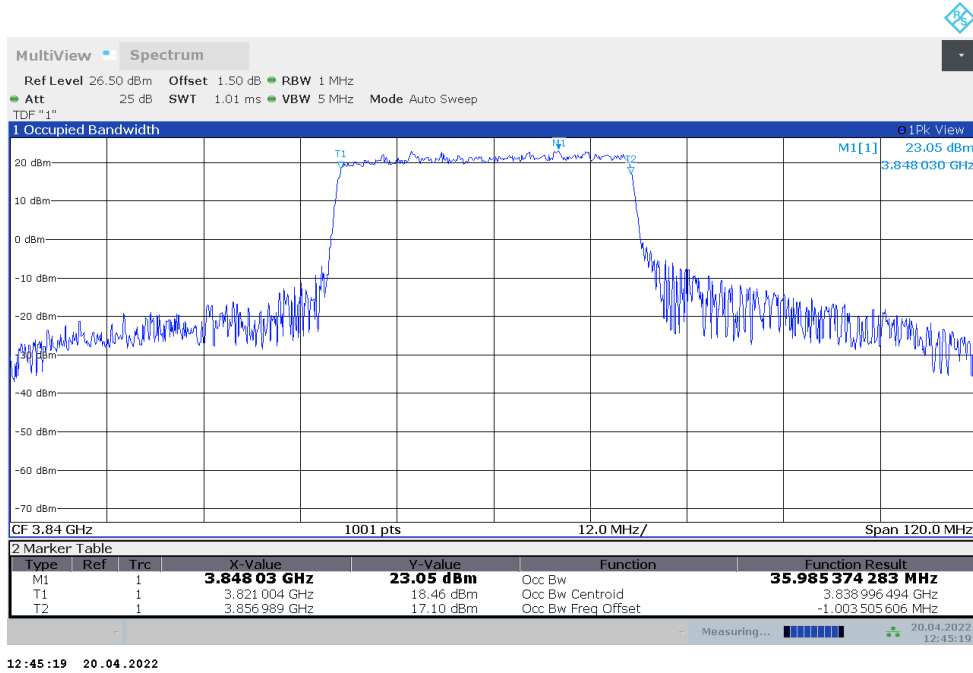
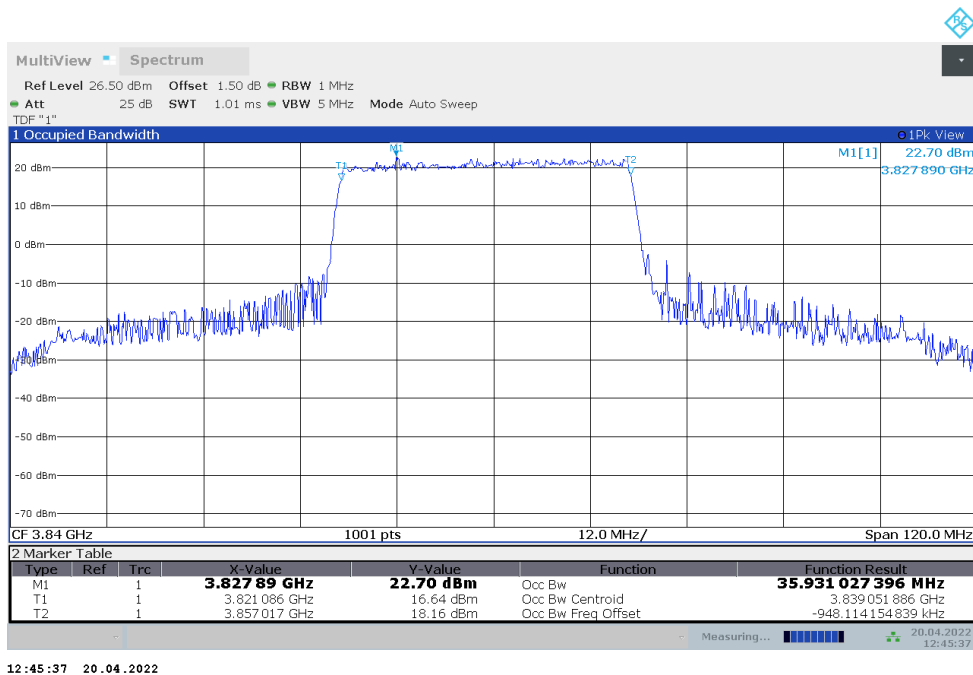
n77H,30MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	26.897	26.872

n77H,30MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n77H,30MHz Bandwidth,DFT-s-QPSK (99% BW)


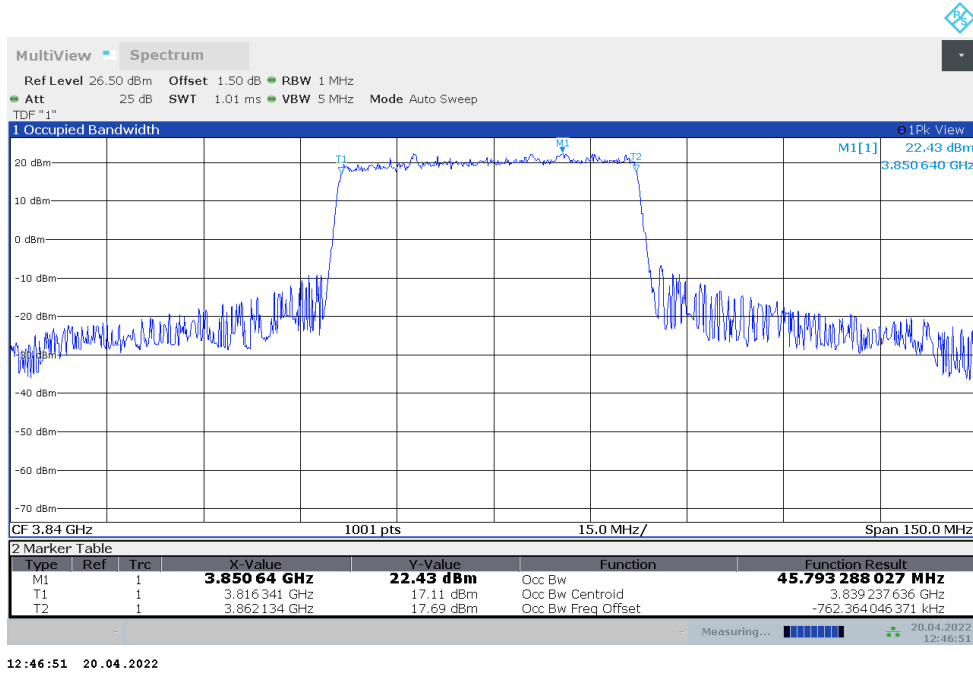
n77H,40MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	35.985	35.931

n77H,40MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n77H,40MHz Bandwidth,DFT-s-QPSK (99% BW)


n77H,50MHz(99%)

Frequency (MHz)	Occupied Bandwidth (99%) (MHz)	
	DFT-s-pi/2 BPSK	DFT-s-QPSK
3840	45.793	45.820

n77H,50MHz Bandwidth,DFT-s-pi/2 BPSK (99% BW)

n77H,50MHz Bandwidth,DFT-s-QPSK (99% BW)
