Content

1 Transmitter tests according to 47CFR part 15 subpart C requirements and 99% power bandwidth 2
1.1 Minimum 6 dB bandwidth 2
1.2 Minimum 6 dB bandwidth 15
1.3 Minimum 6 dB bandwidth 37
1.4 Peak output power 51
1.5 Peak output power 65
1.6 Peak output power 86
1.7 Spurious emissions at RF antenna connector 100
1.8 Spurious emissions at RF antenna connector 137
1.9 Spurious emissions at RF antenna connector 149
1.10 Field strength of spurious emissions 184
1.11 Peak spectral power density 201
1.12 Peak spectral power density 219
1.13 Peak spectral power density 227
1.14 Conducted emissions 235
2 Emission tests according to 47CFR part 15 subpart B requirements 244
2.1 Radiated emission measurements 250

Transmitter tests according to 47CFR part 15 subpart C requirements and 99% power bandwidth

1.1 Minimum 6 dB bandwidth

Table 1.1.1 6 dB bandwidth test results

ASSIGNED FREQUENCY BAND:	2400 – 2483.5 MHz
ASSEMBLY	MA 850, MA 1000 (operated at Cell 850 mode)
MA 1000 SETTINGS:	Transmit at 869.0125 and 893.9875 MHz
PORT:	2
DETECTOR USED:	Peak
SWEEP MODE:	Single
SWEEP TIME:	Auto
RESOLUTION BANDWIDTH:	100 kHz
VIDEO BANDWIDTH:	300 kHz
MODULATION ENVELOPE REFERENCE POINTS:	6.0 dBc
MODULATION:	DSSS
MODULATING SIGNAL:	DBPSK
BIT RATE:	1, 11 Mbps

Carrier frequency, MHz	6 dB bandwidth, MHz	Limit, kHz	Margin, kHz	Verdict
Low frequency				
2412	12.83	>500	12.33	Pass
Mid frequency				
2437	13.33	>500	12.83	Pass
High frequency				
2462	12.58	>500	12.08	Pass

MODULATION:	OFDM
MODULATING SIGNAL:	BPSK
BIT RATE:	6, 54Mbps

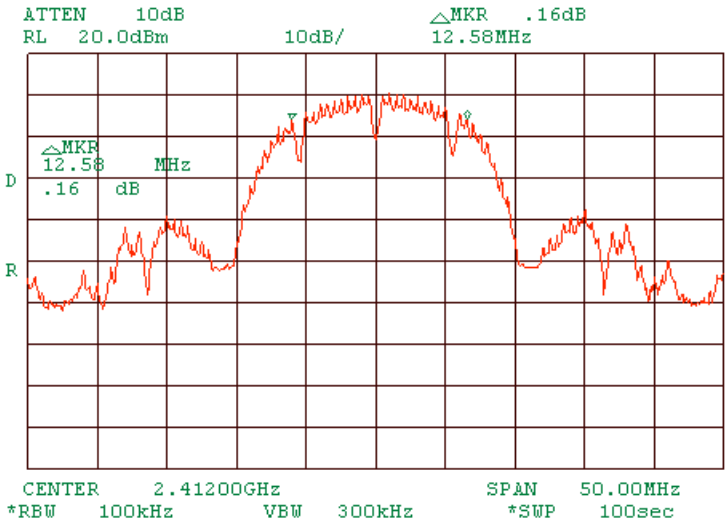
Carrier frequency, MHz	6 dB bandwidth, MHz	Limit, kHz	Margin, kHz	Verdict
Low frequency				
2412	16.00	>500	15.50	Pass
Mid frequency				
2437	16.42	>500	15.92	Pass
High frequency				
2462	15.92	>500	15.42	Pass

Reference numbers of test equipment used

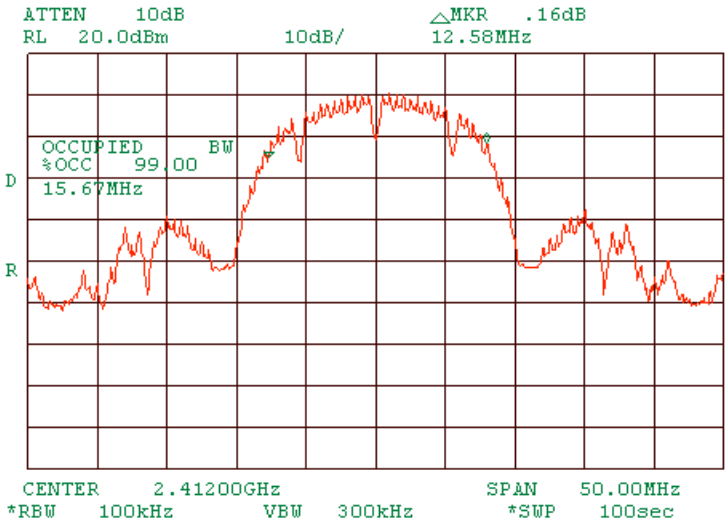
HL 1424	HL 1651	HL 2399						

Full description is given in Appendix A.

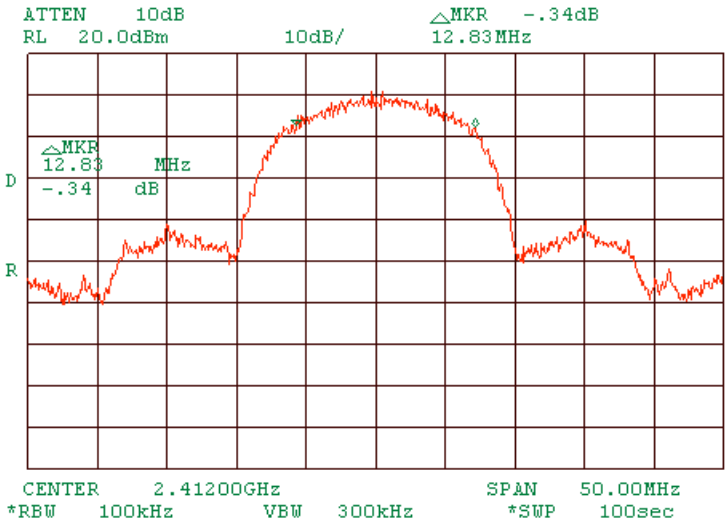
Plot 1.1.1 6 dB bandwidth test result at low frequency with MA 850 and MA 1000 interconnected. At 1 Mbps DSSS.



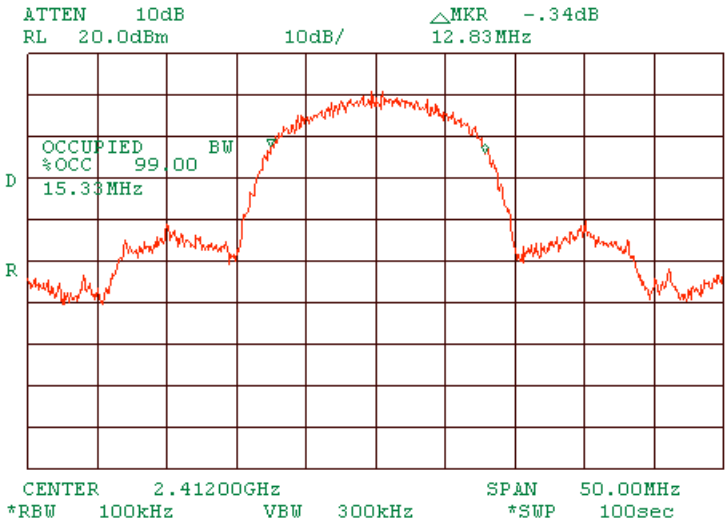
Plot 1.1.2 99% power bandwidth test result at low frequency with MA 850 and MA 1000 interconnected. At 1 Mbps DSSS.



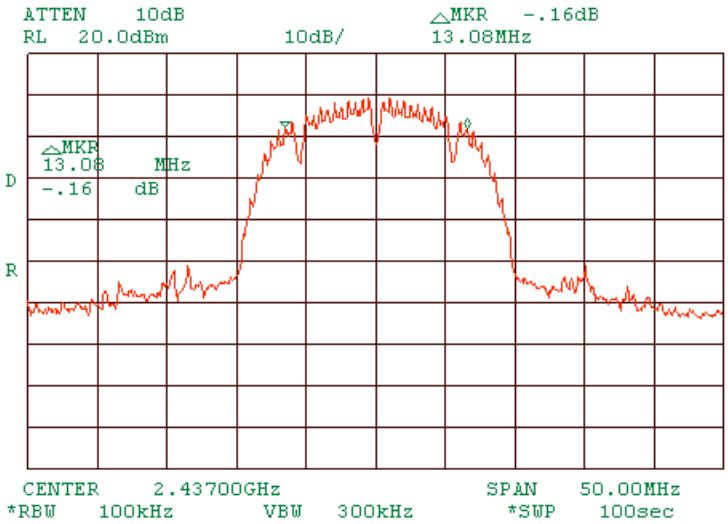
Plot 1.1.3 6 dB bandwidth test result at low frequency with MA 850 and MA 1000 interconnected. At 11 Mbps DSSS.



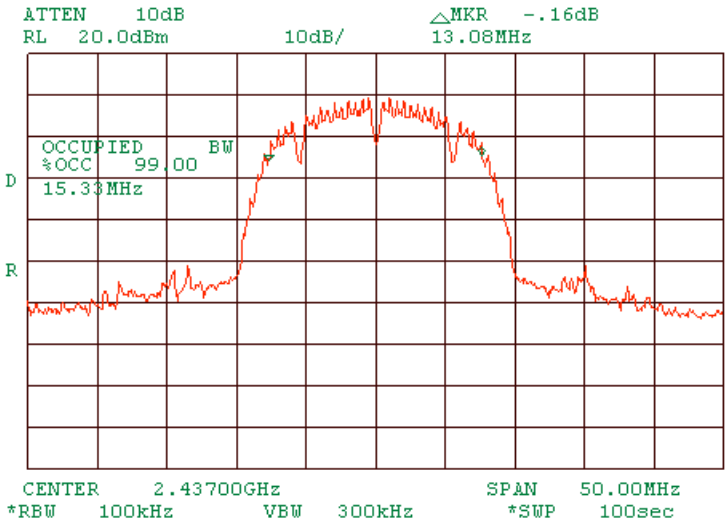
Plot 1.1.4 99% power bandwidth test result at low frequency with MA 850 and MA 1000 interconnected. At 11 Mbps DSSS.



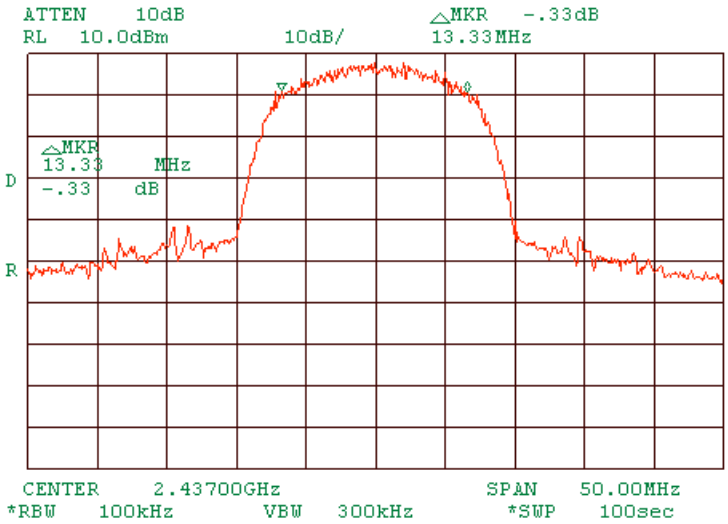
Plot 1.1.5 6 dB bandwidth test result at mid frequency with MA 850 and MA 1000 interconnected. At 1 Mbps DSSS.



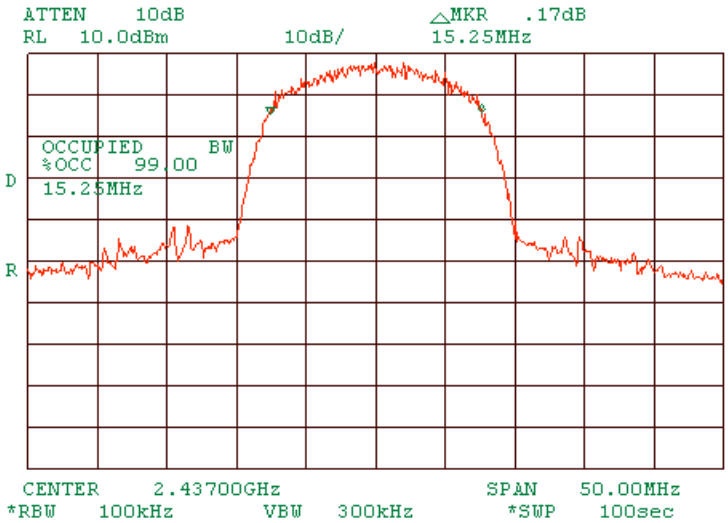
Plot 1.1.6 99% power bandwidth test result at mid frequency with MA 850 and MA 1000 interconnected. At 1 Mbps DSSS.



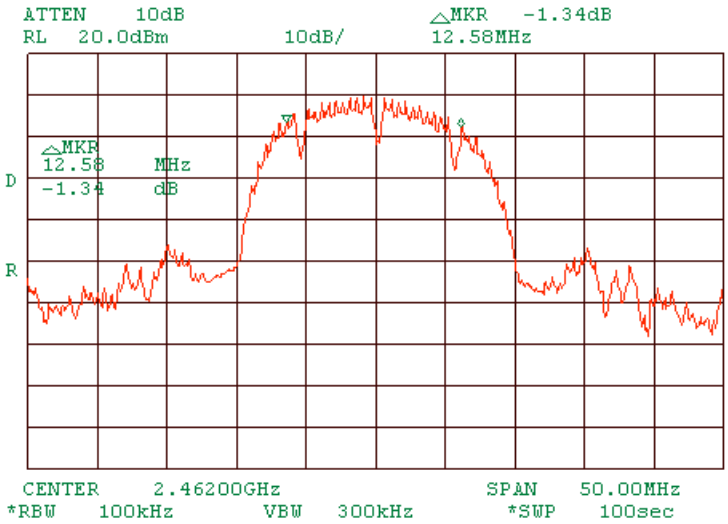
Plot 1.1.7 6 dB bandwidth test result at mid frequency with MA 850 and MA 1000 interconnected. At 11 Mbps DSSS.



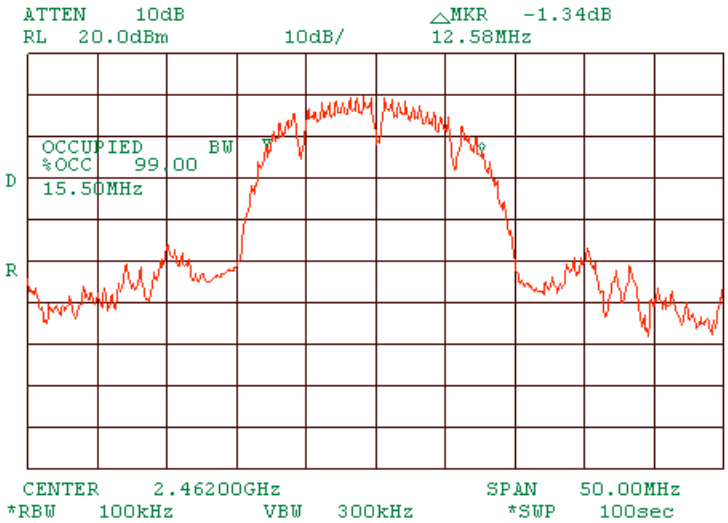
Plot 1.1.8 99% power bandwidth test result at mid frequency with MA 850 and MA 1000 interconnected. At 11 Mbps DSSS.



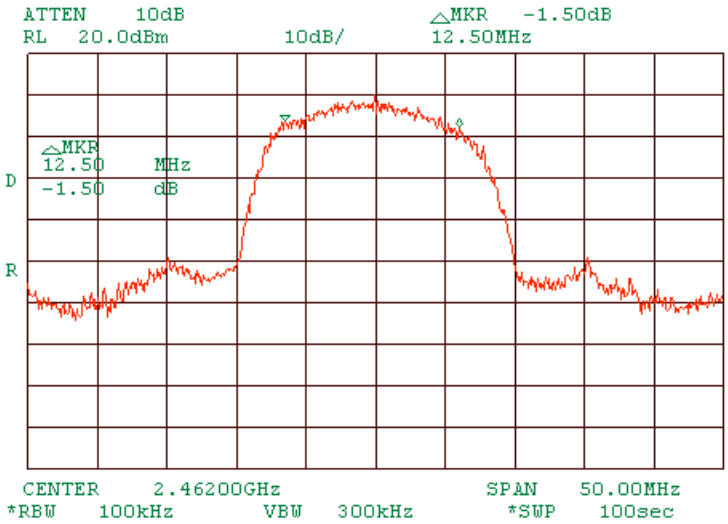
Plot 1.1.9 6 dB bandwidth test result at high frequency with MA 850 and MA 1000 interconnected. At 1 Mbps DSSS.



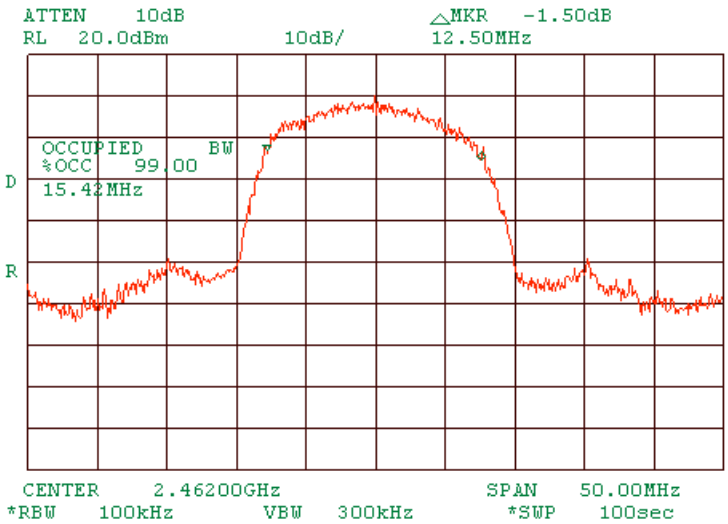
Plot 1.1.10 99% power bandwidth test result at high frequency with MA 850 and MA 1000 interconnected. At 1 Mbps DSSS.



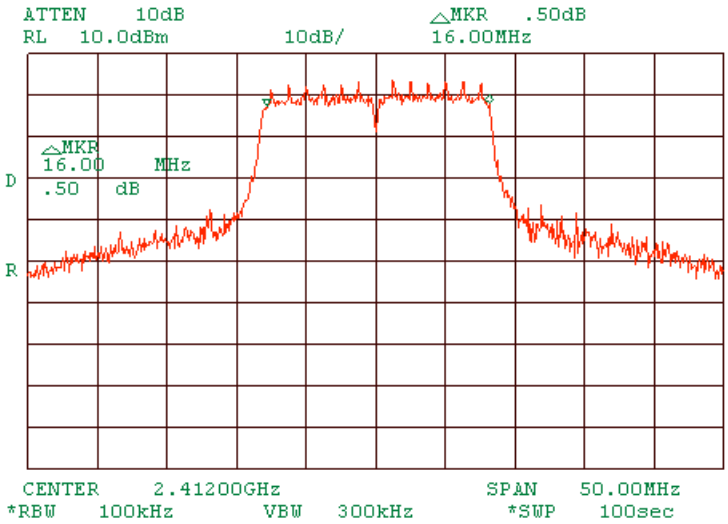
Plot 1.1.11 6 dB bandwidth test result at high frequency with MA 850 and MA 1000 interconnected. At 11 Mbps DSSS.



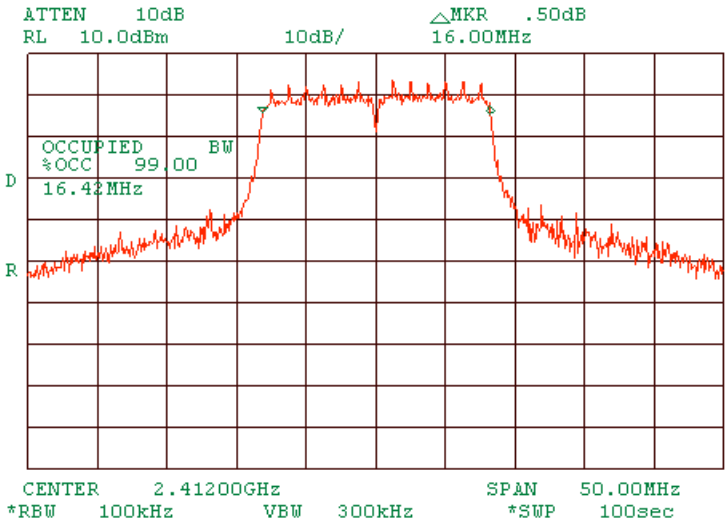
Plot 1.1.12 99% power bandwidth test result at high frequency with MA 850 and MA 1000 interconnected. At 11 Mbps DSSS.



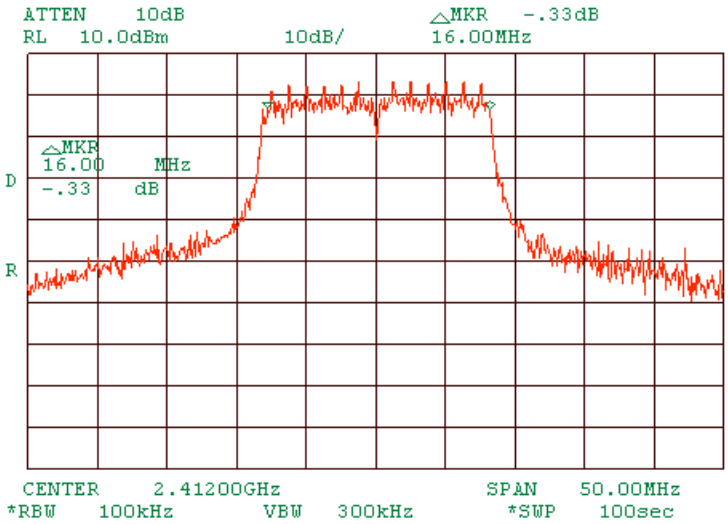
Plot 1.1.13 6 dB bandwidth test result at low frequency with MA 850 and MA 1000 interconnected. At 6 Mbps OFDM.



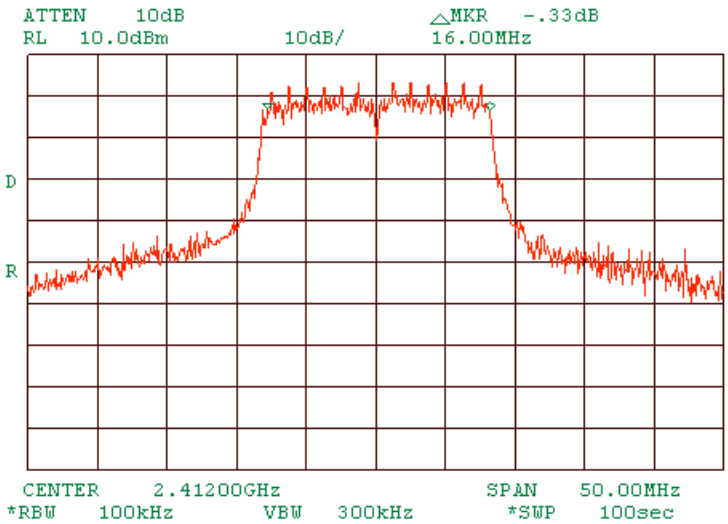
Plot 1.1.14 99% power bandwidth test result at low frequency with MA 850 and MA 1000 interconnected. At 6 Mbps OFDM



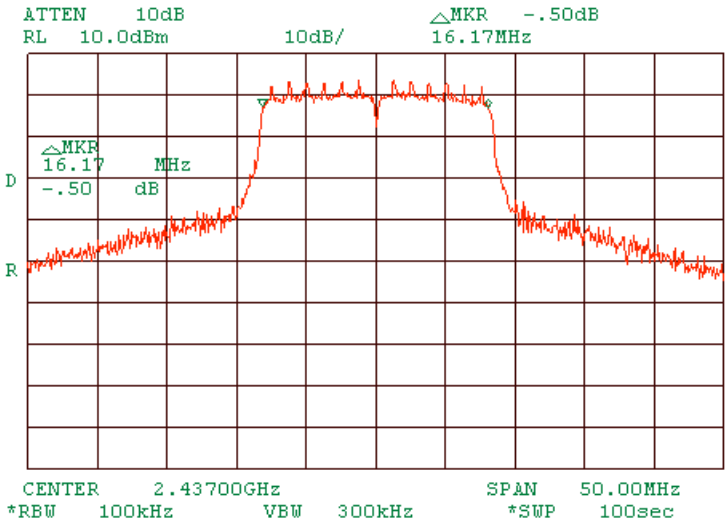
Plot 1.1.15 6 dB bandwidth test result at low frequency with MA 850 and MA 1000 interconnected. At 54 Mbps OFDM.



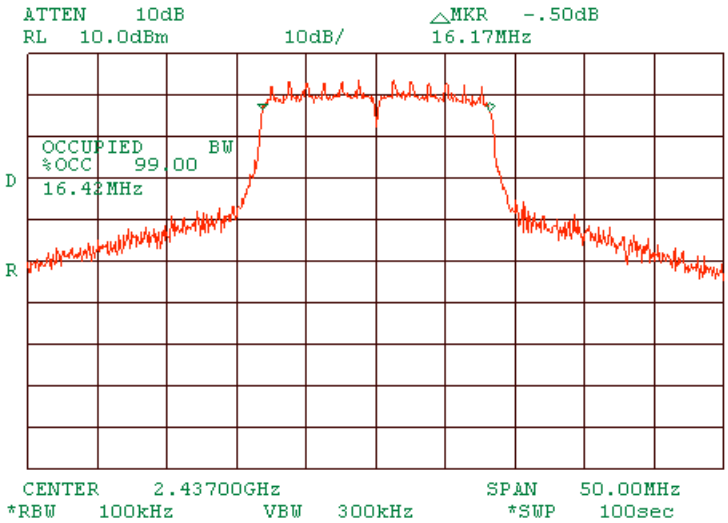
Plot 1.1.16 99% power bandwidth test result at low frequency with MA 850 and MA 1000 interconnected. At 54 Mbps OFDM.



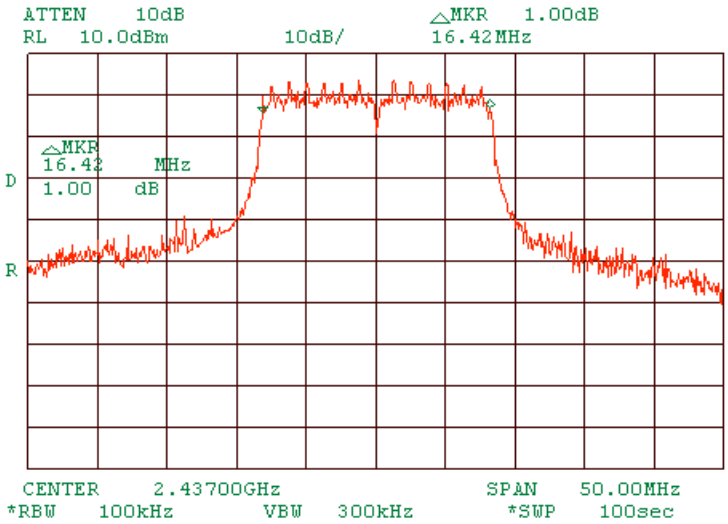
Plot 1.1.17 6 dB bandwidth test result at mid frequency with MA 850 and MA 1000 interconnected. At 6 Mbps OFDM.



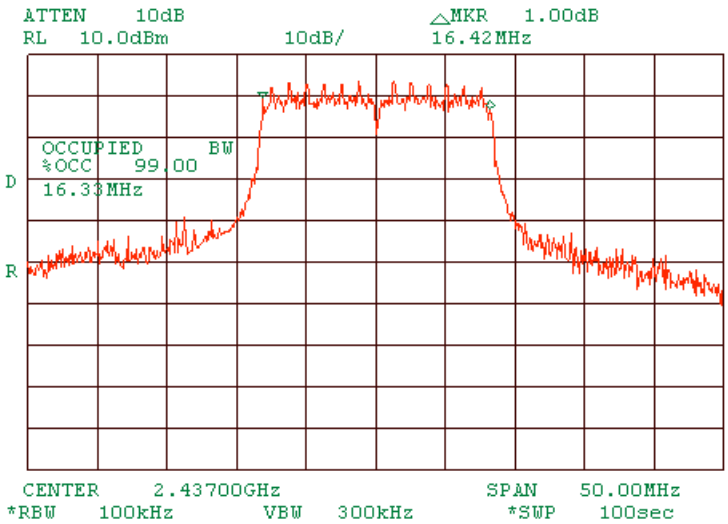
Plot 1.1.18 99% power bandwidth test result at mid frequency with MA 850 and MA 1000 interconnected. At 6 Mbps OFDM.



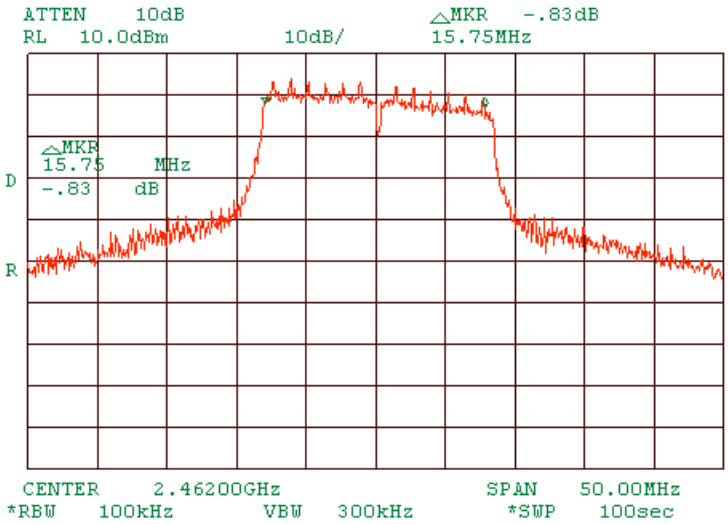
Plot 1.1.19 6 dB bandwidth test result at mid frequency with MA 850 and MA 1000 interconnected. At 54 Mbps OFDM.



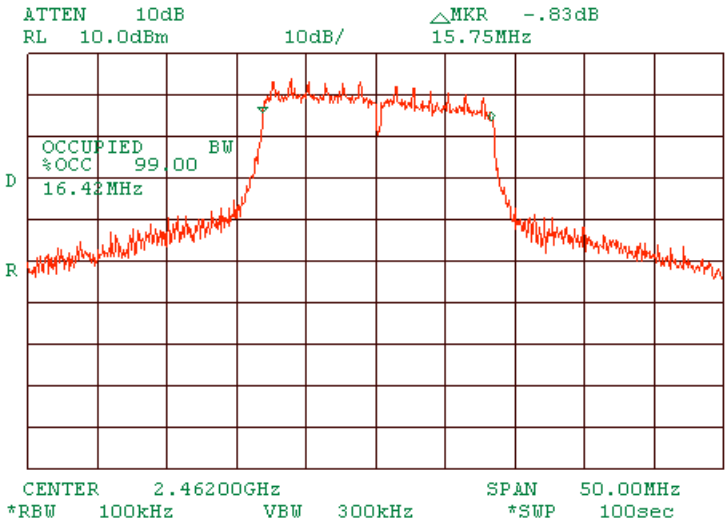
Plot 1.1.20 99% power bandwidth test result at mid frequency with MA 850 and MA 1000 interconnected. At 54 Mbps OFDM.



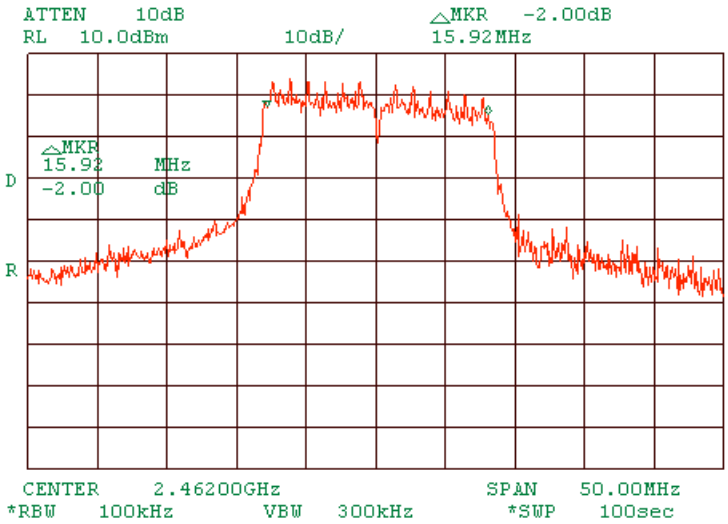
Plot 1.1.21 6 dB bandwidth test result at high frequency with MA 850 and MA 1000 interconnected. At 6 Mbps OFDM.



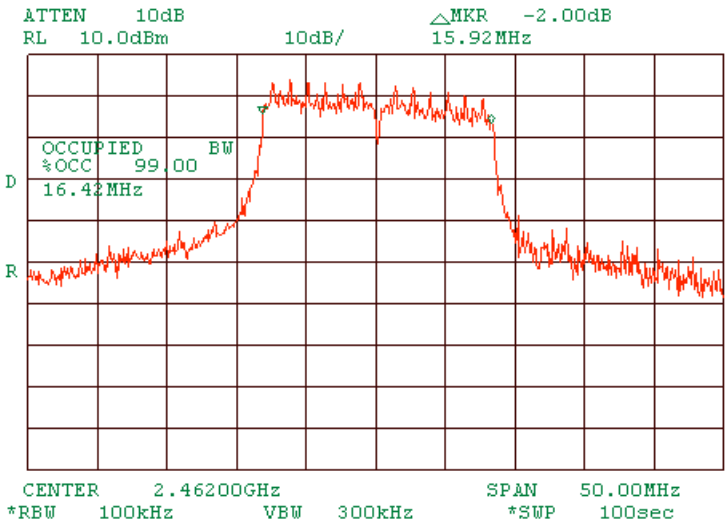
Plot 1.1.22 99% power bandwidth test result at high frequency with MA 850 and MA 1000 interconnected. At 6 Mbps OFDM.



Plot 1.1.23 6 dB bandwidth test result at high frequency with MA 850 and MA 1000 interconnected. At 54 Mbps OFDM.



Plot 1.1.24 99% power bandwidth test result at high frequency with MA 850 and MA 1000 interconnected. At 54 Mbps OFDM.



1.2 Minimum 6 dB bandwidth

Photograph 1.2.1 6 dB bandwidth test setup

Table 1.2.1 6 dB bandwidth test results

ASSIGNED FREQUENCY BAND:	2400 – 2483.5 MHz
ASSEMBLY	MA 850
PORT:	2
DETECTOR USED:	Peak
SWEEP MODE:	Single
SWEEP TIME:	Auto
RESOLUTION BANDWIDTH:	100 kHz
VIDEO BANDWIDTH:	300 kHz
MODULATION ENVELOPE REFERENCE POINTS:	6.0 dBc
MODULATION:	DSSS
MODULATING SIGNAL:	BPSK
BIT RATE:	1, 11 Mbps

Carrier frequency, MHz	6 dB bandwidth, MHz	Limit, kHz	Margin, kHz	Verdict
Low frequency				
2412.0	10.25	>500	9.75	Pass
Mid frequency				
2437.0	10.25	>500	9.75	Pass
High frequency				
2462.0	10.25	>500	9.75	Pass

MODULATION:	OFDM
MODULATING SIGNAL:	BPSK
BIT RATE:	6, 54 Mbps

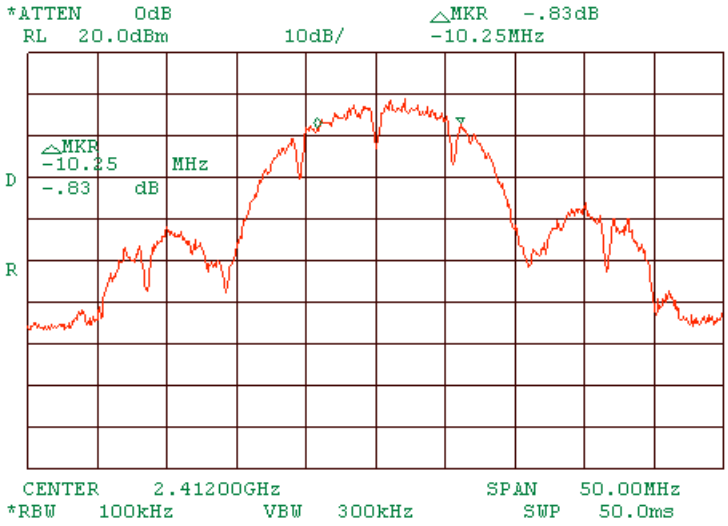
Carrier frequency, MHz	6 dB bandwidth, MHz	Limit, kHz	Margin, kHz	Verdict
Low frequency				
2412.0	16.08	>500	15.58	Pass
Mid frequency				
2437.0	16.42	>500	15.92	Pass
High frequency				
2462.0	15.92	>500	15.42	Pass

Reference numbers of test equipment used

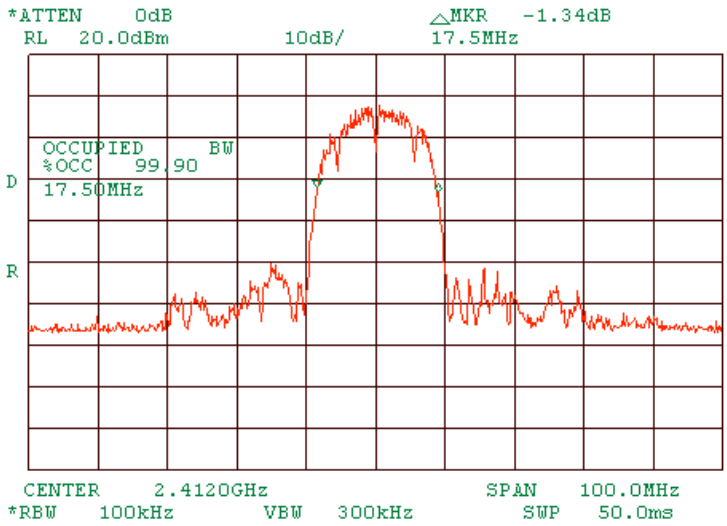
HL 1424	HL 1651	HL 2399						

Full description is given in Appendix A.

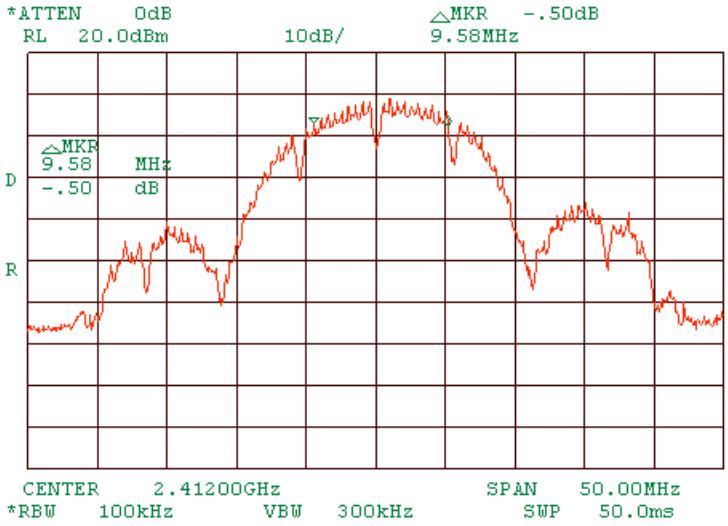
Plot 1.2.1 6 dB bandwidth test result at low frequency of MA 850 stands alone. At 1 Mbps DSSS.



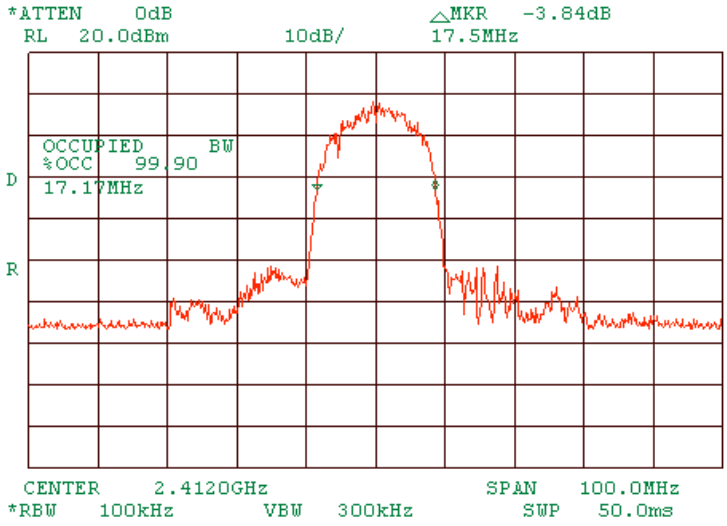
Plot 1.2.2 99% power bandwidth test result at low frequency of MA 850 stands alone. At 1 Mbps DSSS.



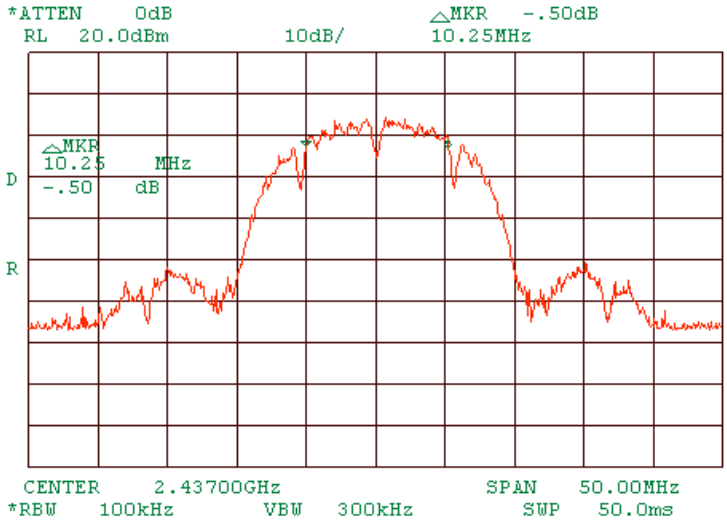
Plot 1.2.3 6 dB bandwidth test result at low frequency of MA 850 stands alone. At 11 Mbps DSSS.



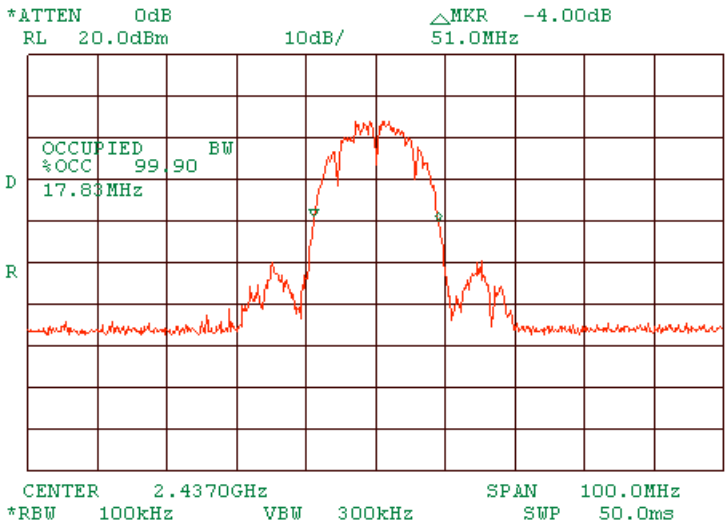
Plot 1.2.4 99% power bandwidth test result at low frequency of MA 850 stands alone. At 11 Mbps DSSS



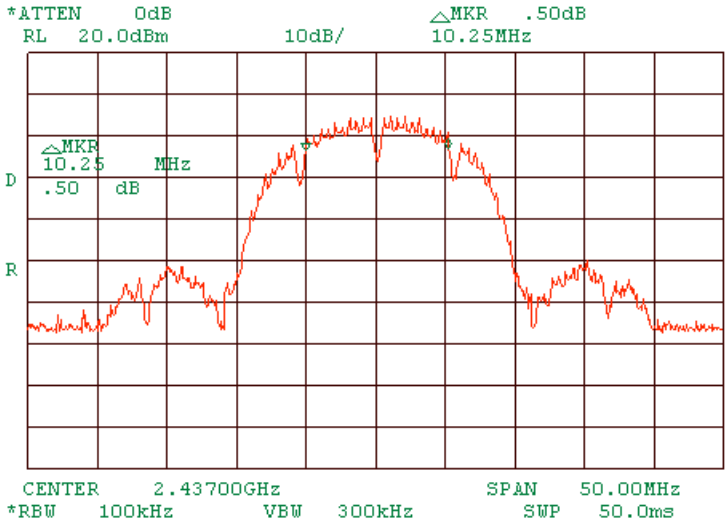
Plot 1.2.5 6 dB bandwidth test result at mid frequency of MA 850 stands alone. At 1 Mbps DSSS.



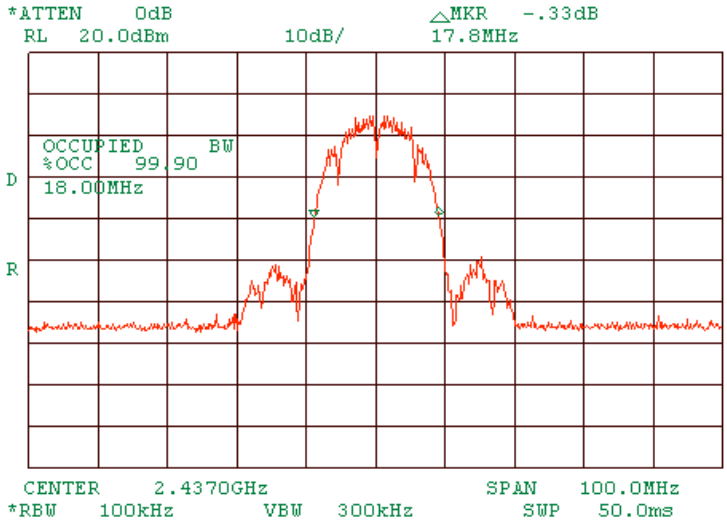
Plot 1.2.6 99% power bandwidth test result at mid frequency of MA 850 stands alone. At 1 Mbps DSSS



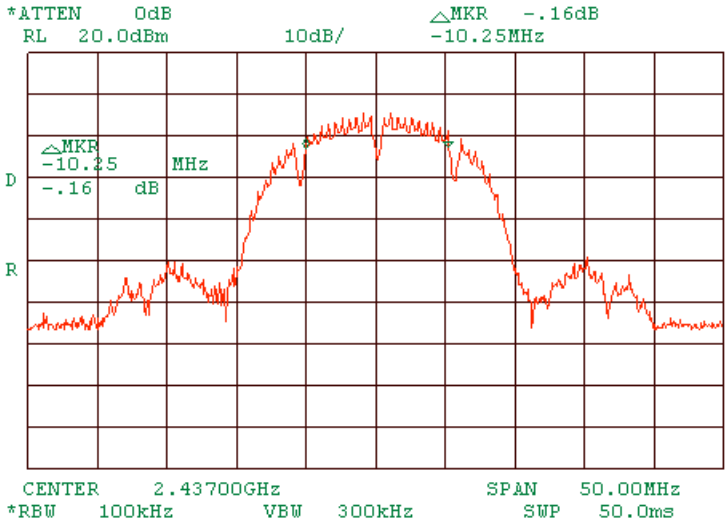
Plot 1.2.7 6 dB bandwidth test result at mid frequency of MA 850 stands alone. At 2 Mbps DSSS.



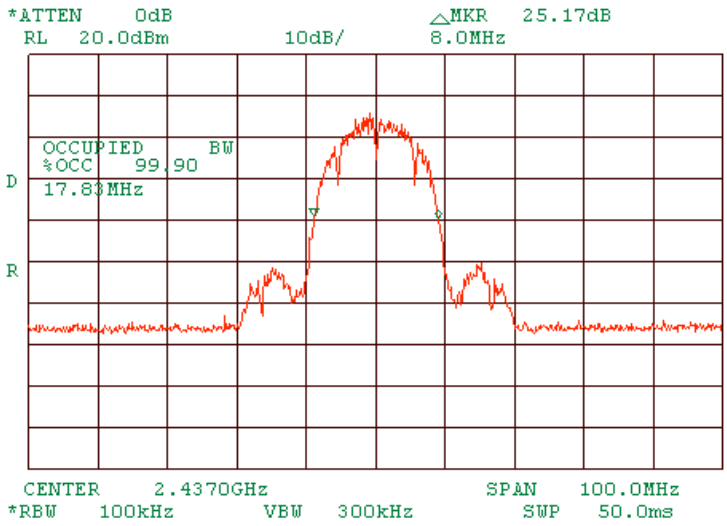
Plot 1.2.8 99% power bandwidth test result at mid frequency of MA 850 stands alone. At 2 Mbps DSSS



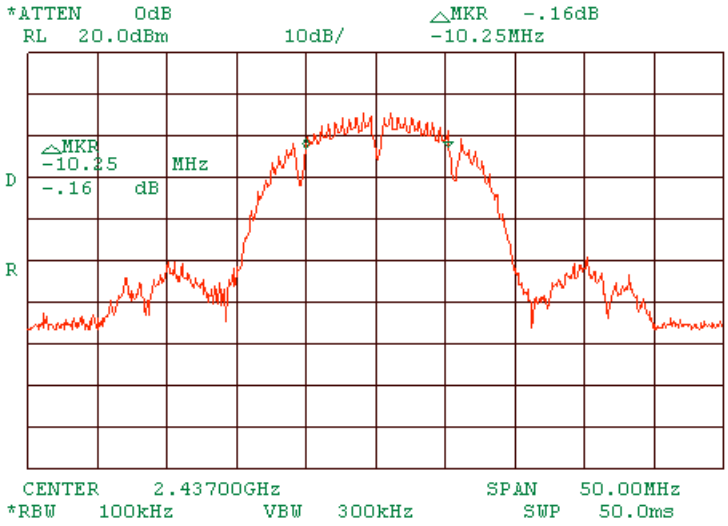
Plot 1.2.9 6 dB bandwidth test result at mid frequency of MA 850 stands alone. At 5.5 Mbps DSSS.



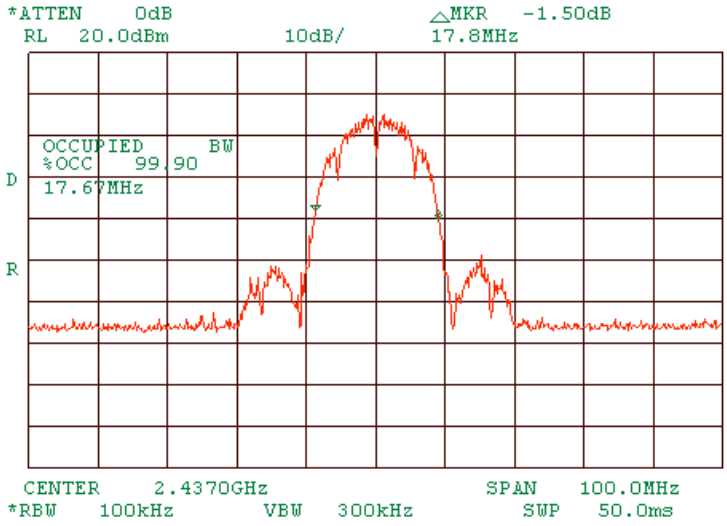
Plot 1.2.10 99% power bandwidth test result at mid frequency of MA 850 stands alone. At 5.5 Mbps DSSS



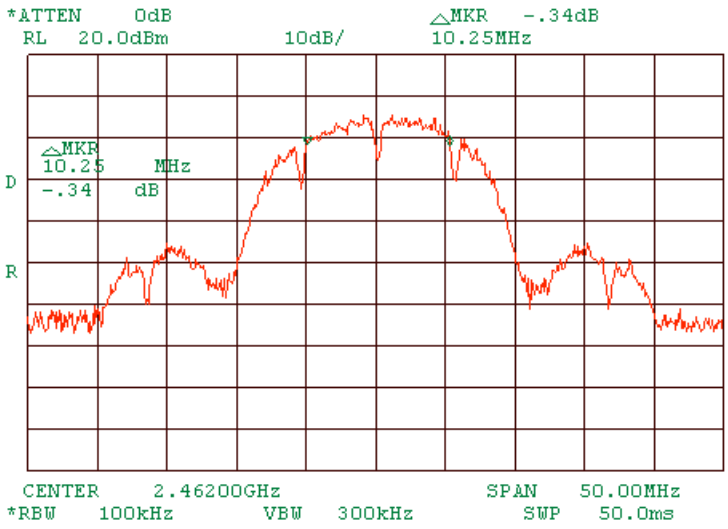
Plot 1.2.11 6 dB bandwidth test result at mid frequency of MA 850 stands alone. At 11 Mbps DSSS.



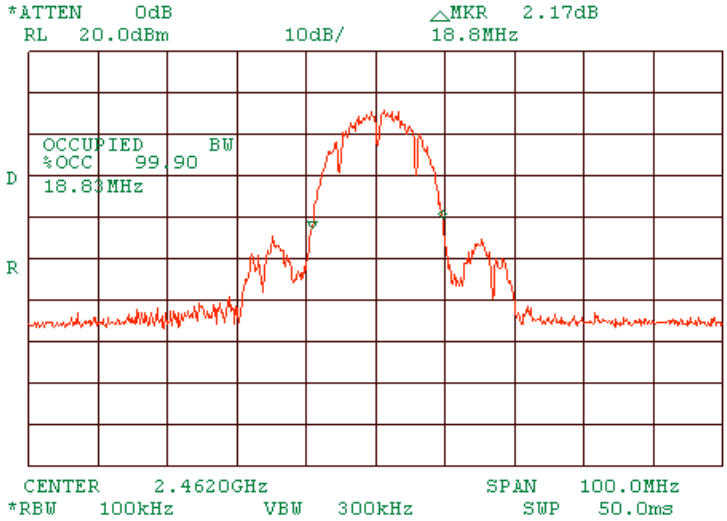
Plot 1.2.12 99% power bandwidth test result at mid frequency of MA 850 stands alone. At 11 Mbps DSSS



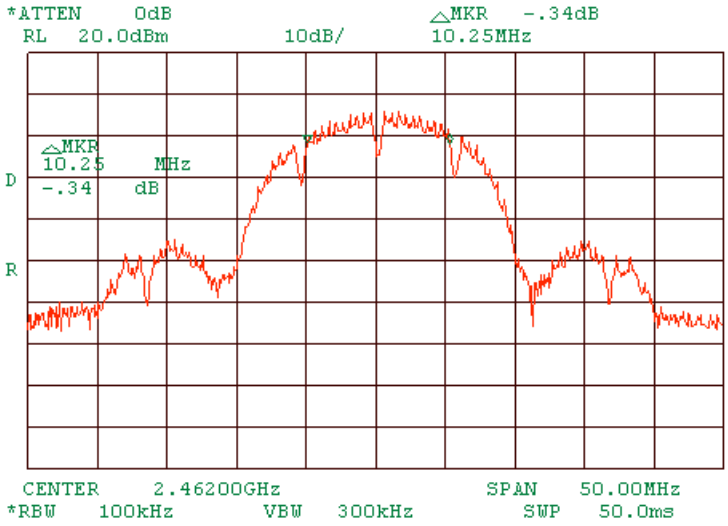
Plot 1.2.13 6 dB bandwidth test result at high frequency of MA 850 stands alone. At 1 Mbps DSSS.



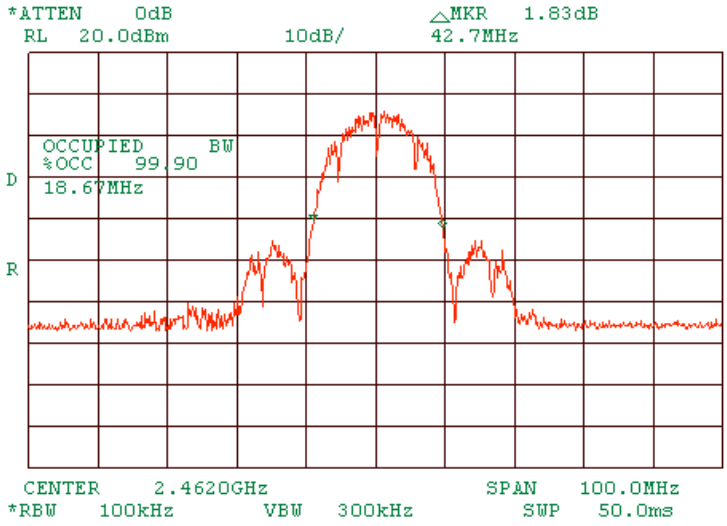
Plot 1.2.14 99% power bandwidth test result at high frequency of MA 850 stands alone. At 1 Mbps DSSS



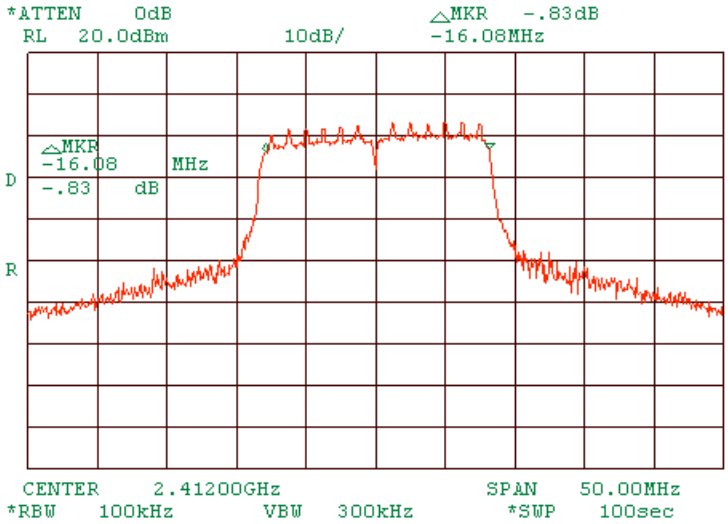
Plot 1.2.15 6 dB bandwidth test result at high frequency of MA 850 stands alone. At 11 Mbps DSSS.



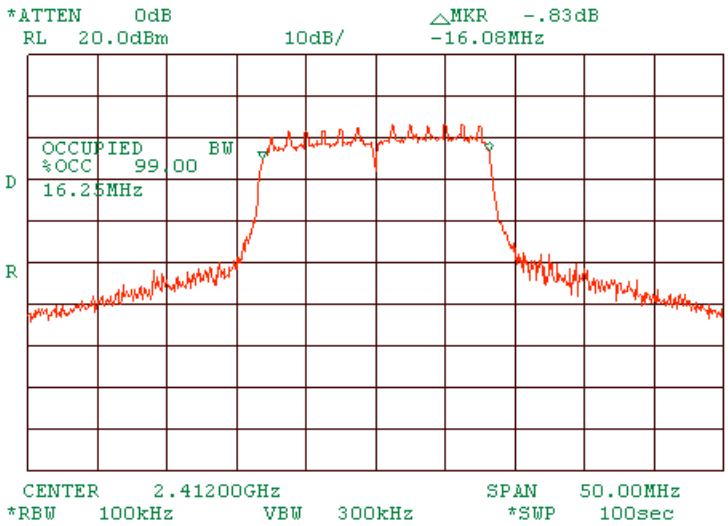
Plot 1.2.16 99% power bandwidth test result at high frequency of MA 850 stands alone. At 11 Mbps DSSS



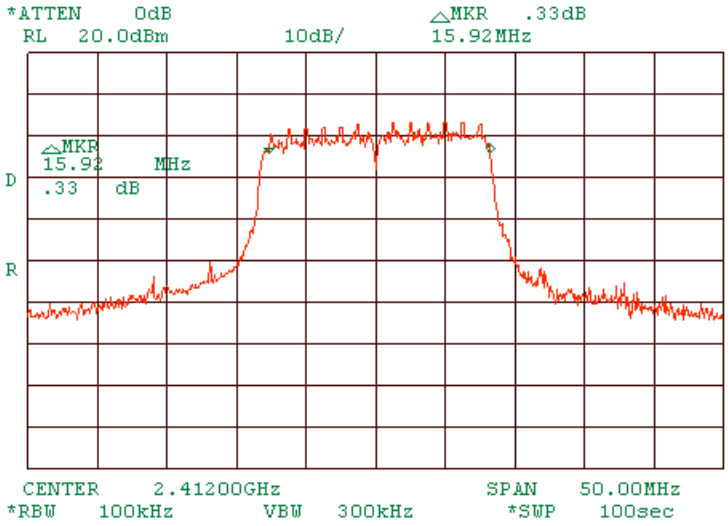
Plot 1.2.17 6 dB bandwidth test result at low frequency of MA 850 stands alone. At 6 Mbps OFDM.



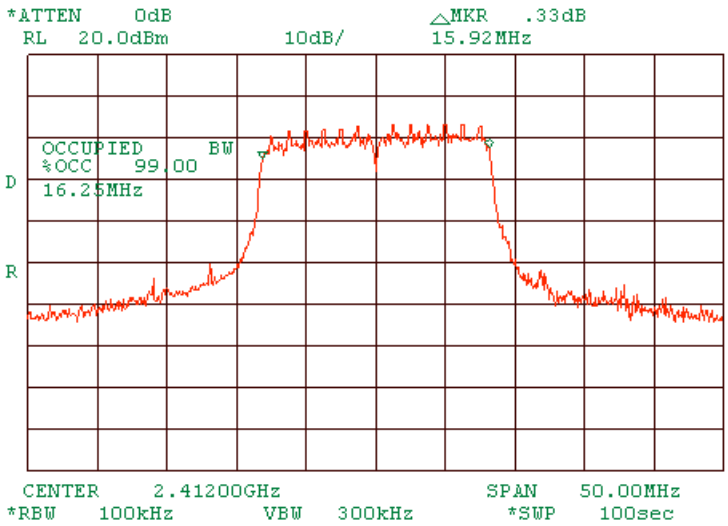
Plot 1.2.18 99% power bandwidth test result at low frequency of MA 850 stands alone. At 6 Mbps OFDM.



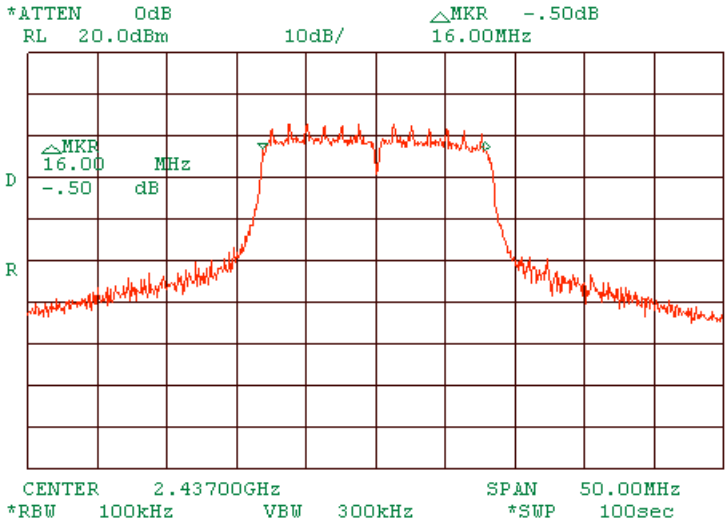
Plot 1.2.19 6 dB bandwidth test result at low frequency of MA 850 stands alone. At 54 Mbps OFDM.



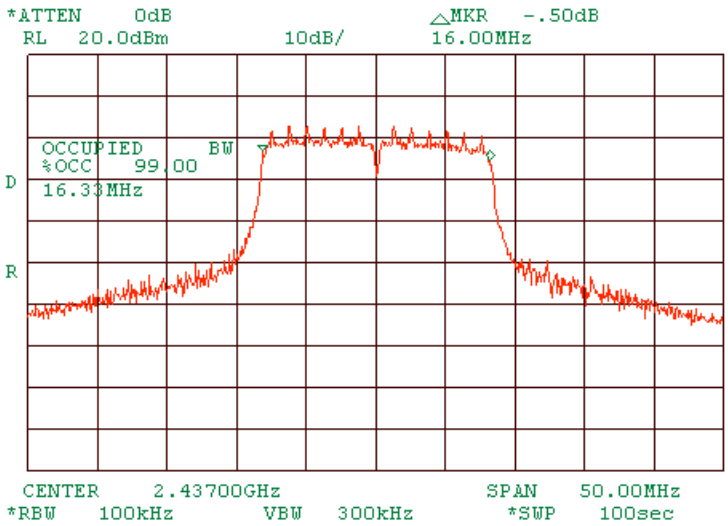
Plot 1.2.20 99% power bandwidth test result at low frequency of MA 850 stands alone. At 54 Mbps OFDM.



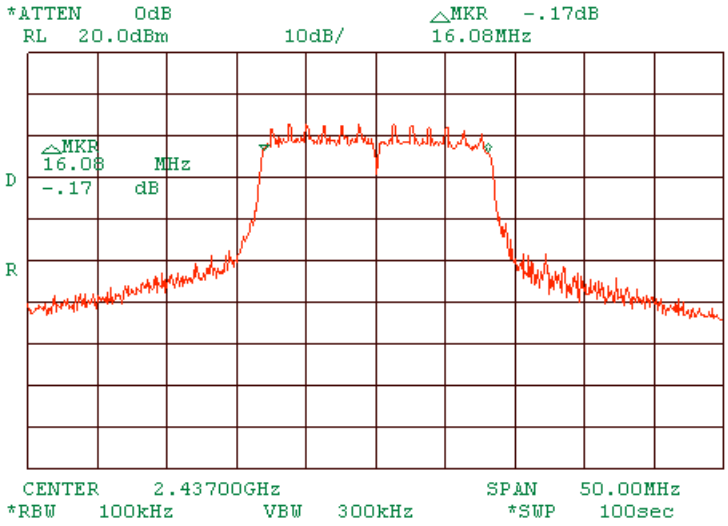
Plot 1.2.21 6 dB bandwidth test result at mid frequency of MA 850 stands alone. At 6 Mbps OFDM.



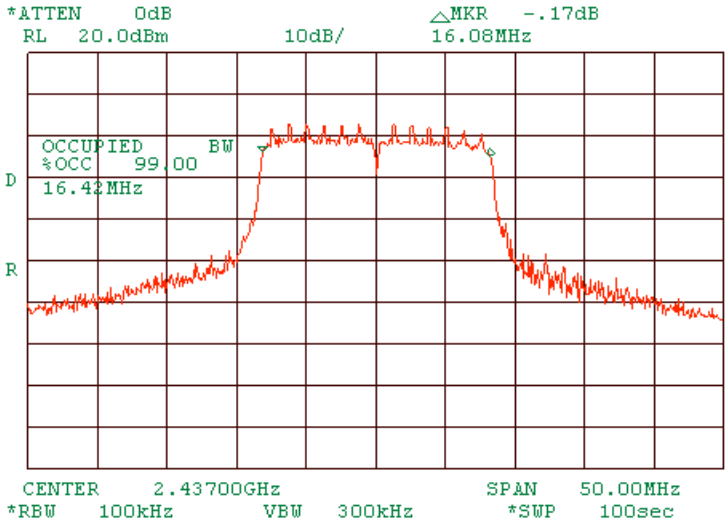
Plot 1.2.22 99% power bandwidth test result at mid frequency of MA 850 stands alone. At 6 Mbps OFDM.



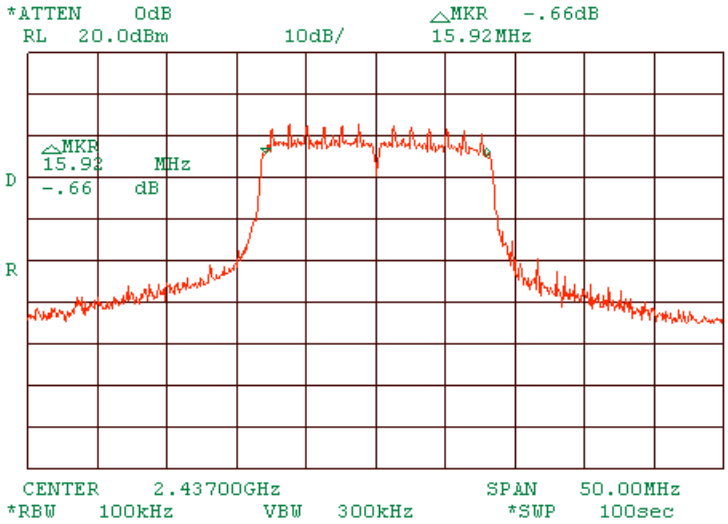
Plot 1.2.23 6 dB bandwidth test result at mid frequency of MA 850 stands alone. At 9 Mbps OFDM.



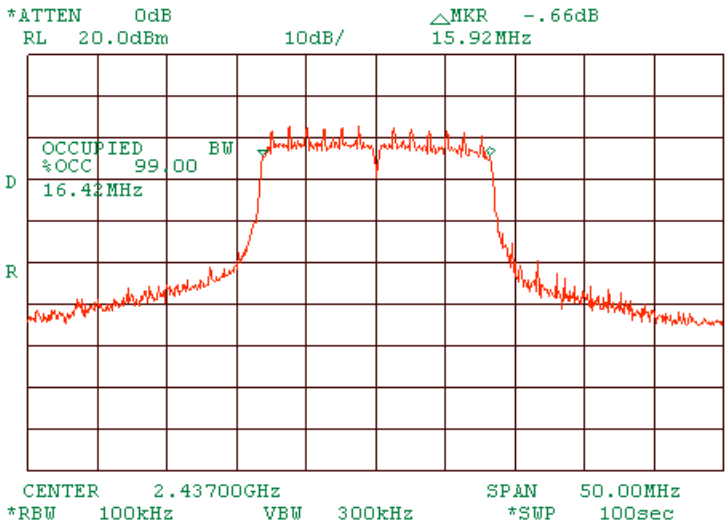
Plot 1.2.24 99% power bandwidth test result at mid frequency of MA 850 stands alone. At 9 Mbps OFDM.



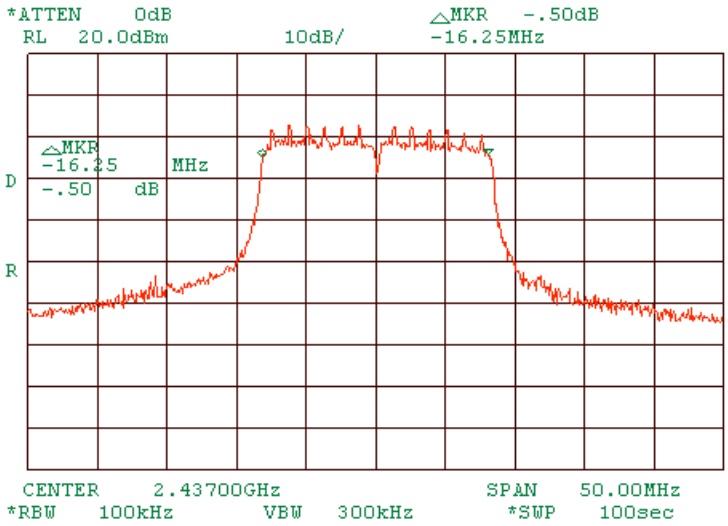
Plot 1.2.25 6 dB bandwidth test result at mid frequency of MA 850 stands alone. At 12 Mbps OFDM.



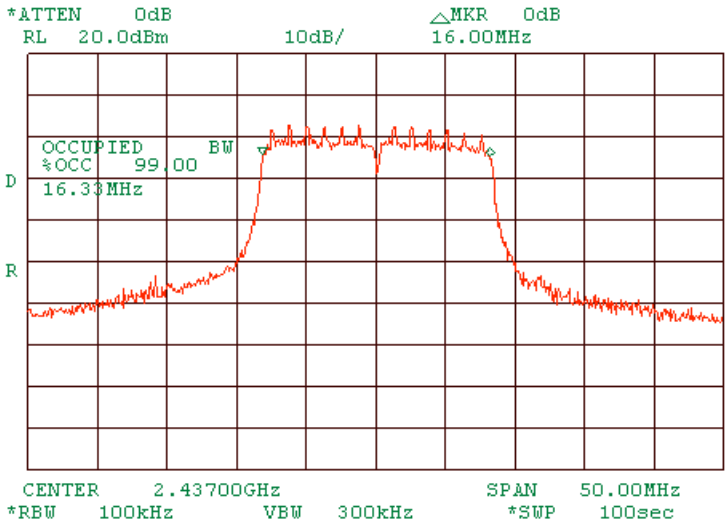
Plot 1.2.26 99% power bandwidth test result at mid frequency of MA 850 stands alone. At 12 Mbps OFDM.



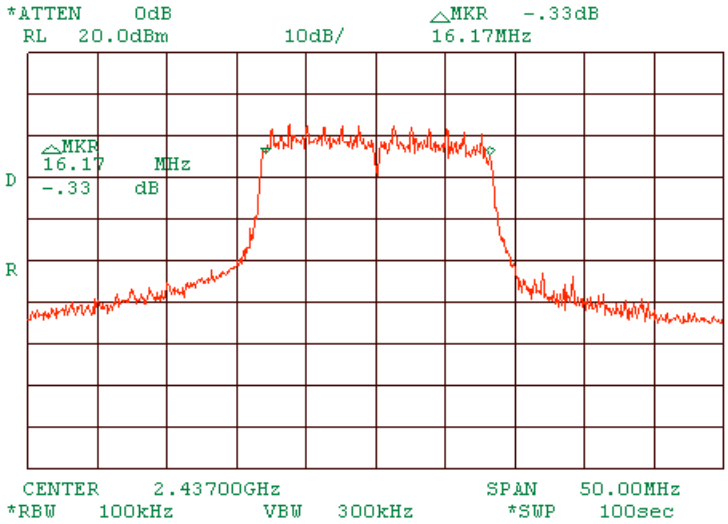
Plot 1.2.27 6 dB bandwidth test result at mid frequency of MA 850 stands alone. At 18 Mbps OFDM.



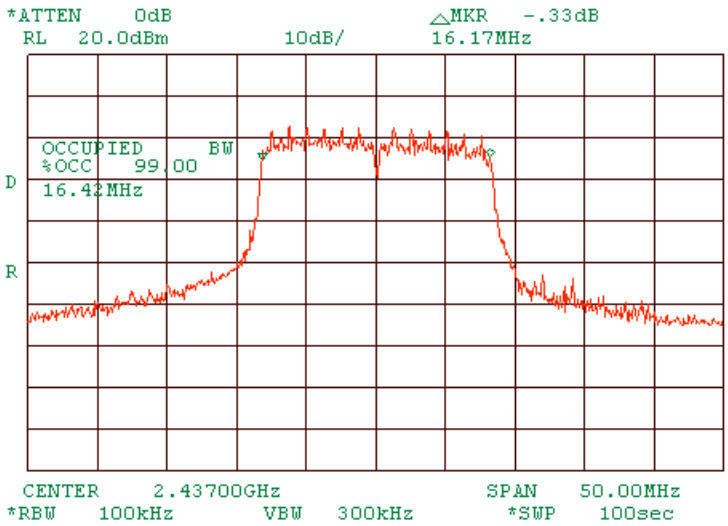
Plot 1.2.28 99% power bandwidth test result at mid frequency of MA 850 stands alone. At 18 Mbps OFDM.



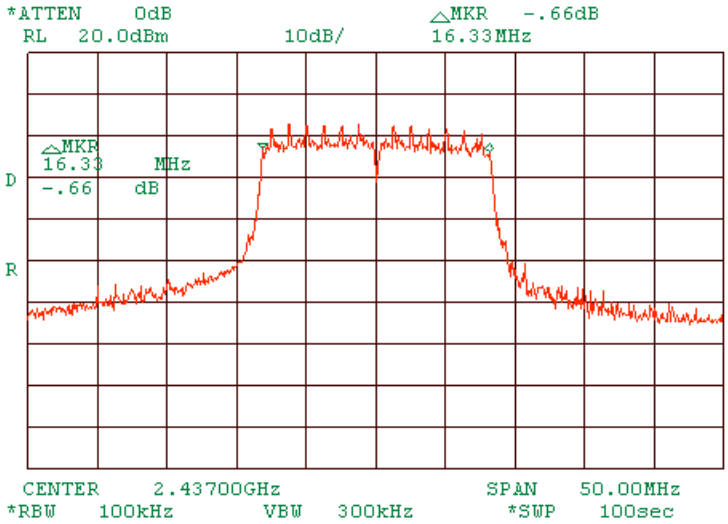
Plot 1.2.29 6 dB bandwidth test result at mid frequency of MA 850 stands alone. At 24 Mbps OFDM.



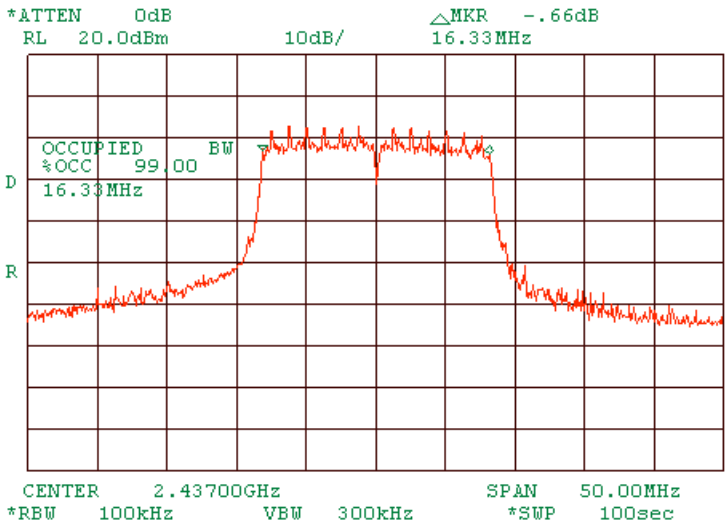
Plot 1.2.30 99% power bandwidth test result at mid frequency of MA 850 stands alone. At 24 Mbps OFDM.



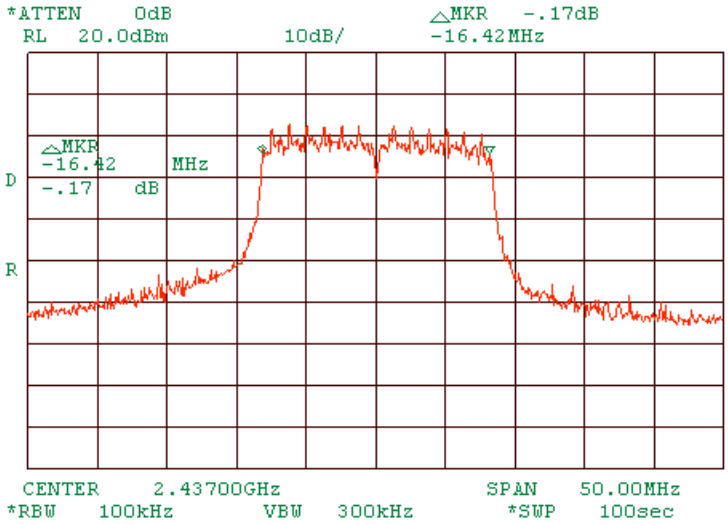
Plot 1.2.31 6 dB bandwidth test result at mid frequency of MA 850 stands alone. At 36 Mbps OFDM.



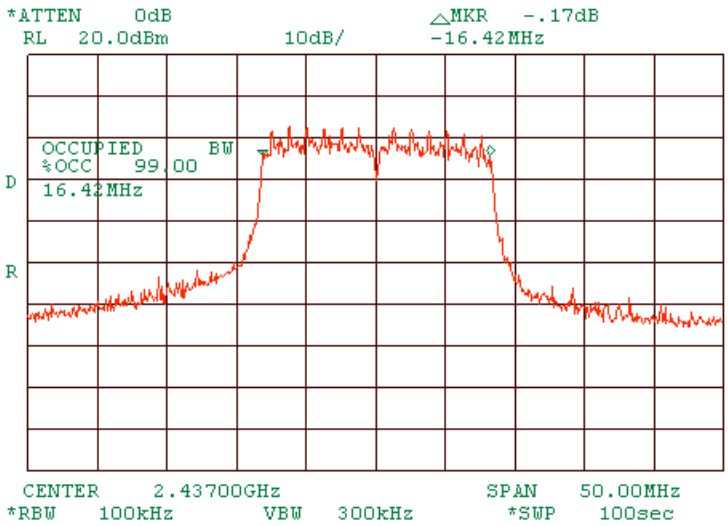
Plot 1.2.32 99% power bandwidth test result at mid frequency of MA 850 stands alone. At 36 Mbps OFDM.



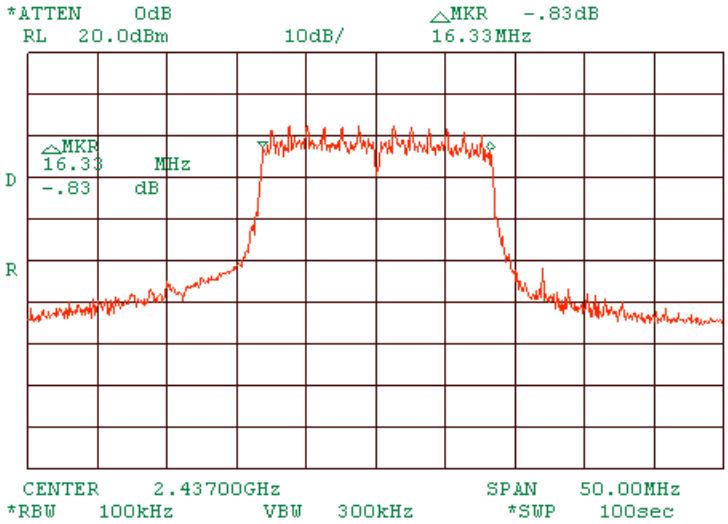
Plot 1.2.33 6 dB bandwidth test result at mid frequency of MA 850 stands alone. At 48 Mbps OFDM.



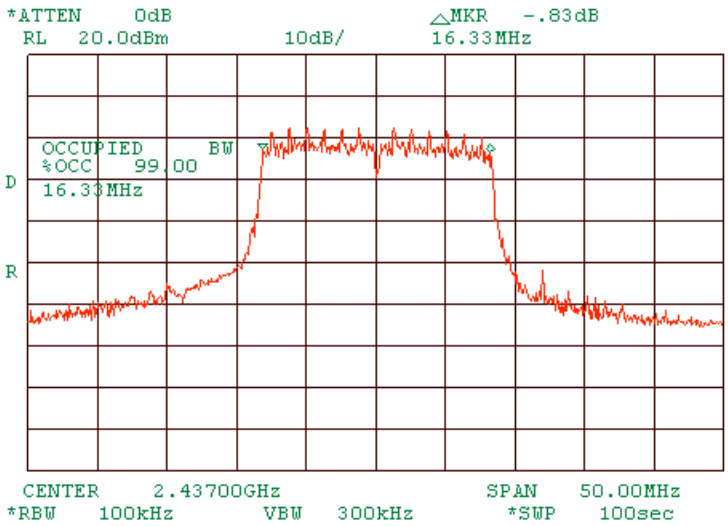
Plot 1.2.34 99% power bandwidth test result at mid frequency of MA 850 stands alone. At 48 Mbps OFDM.



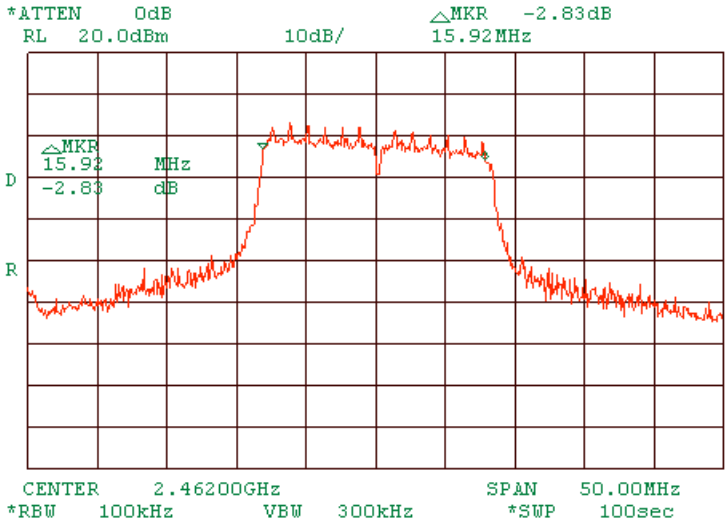
Plot 1.2.35 6 dB bandwidth test result at mid frequency of MA 850 stands alone. At 54 Mbps OFDM.



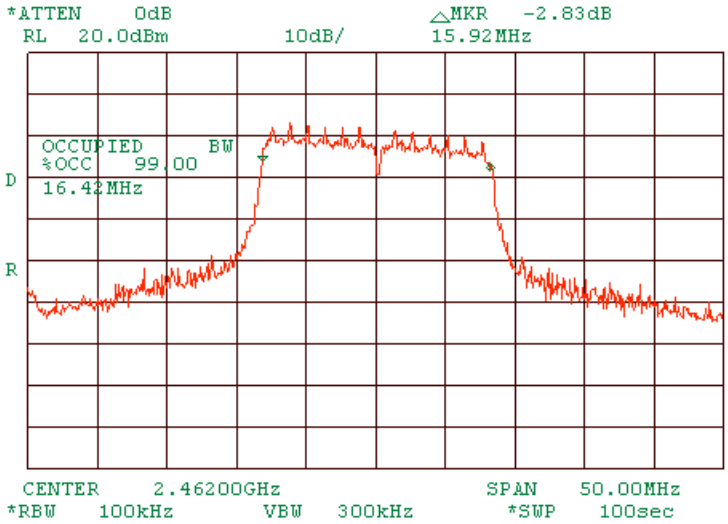
Plot 1.2.36 99% power bandwidth test result at mid frequency of MA 850 stands alone. At 54 Mbps OFDM.



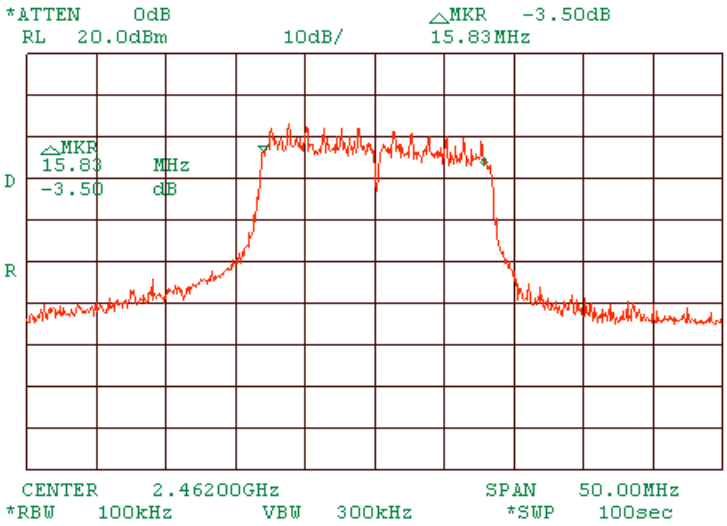
Plot 1.2.37 6 dB bandwidth test result at high frequency of MA 850 stands alone. At 6 Mbps OFDM.



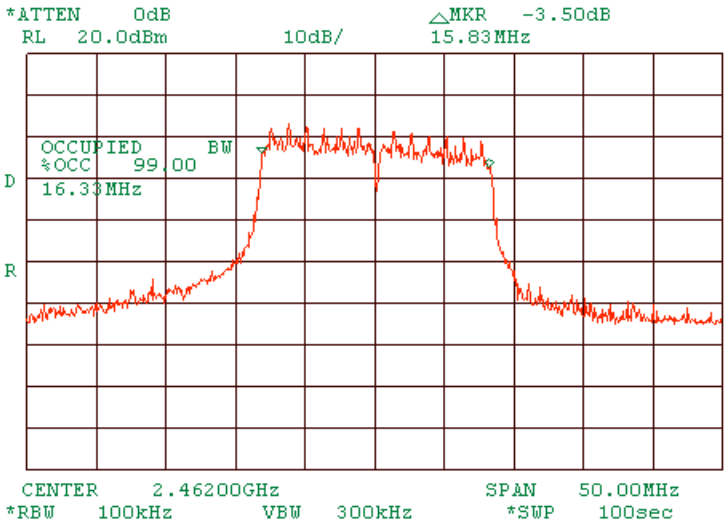
Plot 1.2.38 99% power bandwidth test result at high frequency of MA 850 stands alone. At 6 Mbps OFDM.



Plot 1.2.39 6 dB bandwidth test result at high frequency of MA 850 stands alone. At 54 Mbps OFDM.



Plot 1.2.40 99 power bandwidth test result at high frequency of MA 850 stands alone. At 54 Mbps OFDM.



1.3 Minimum 6 dB bandwidth

Photograph 1.3.1 6 dB bandwidth test setup

Table 1.3.1 6 dB bandwidth test results

ASSIGNED FREQUENCY BAND:	2400 – 2483.5 MHz
ASSEMBLY	MA 850, MA 1000 (operated at PCS 1900 mode)
MA 1000 SETTINGS:	Transmit at 1930.0125 and 1989.9875 MHz
PORT:	2
DETECTOR USED:	Peak
SWEEP MODE:	Single
SWEEP TIME:	Auto
RESOLUTION BANDWIDTH:	100 kHz
VIDEO BANDWIDTH:	300 kHz
MODULATION ENVELOPE REFERENCE POINTS:	6.0 dBc
MODULATION:	DSSS
MODULATING SIGNAL:	DBPSK
BIT RATE:	1, 11 Mbps

Carrier frequency, MHz	6 dB bandwidth, MHz	Limit, kHz	Margin, kHz	Verdict
Low frequency				
2412	12.75	>500	12.25	Pass
Mid frequency				
2437	12.67	>500	12.17	Pass
High frequency				
2462	13.50	>500	13.00	Pass

MODULATION:	OFDM
MODULATING SIGNAL:	BPSK
BIT RATE:	6, 54Mbps

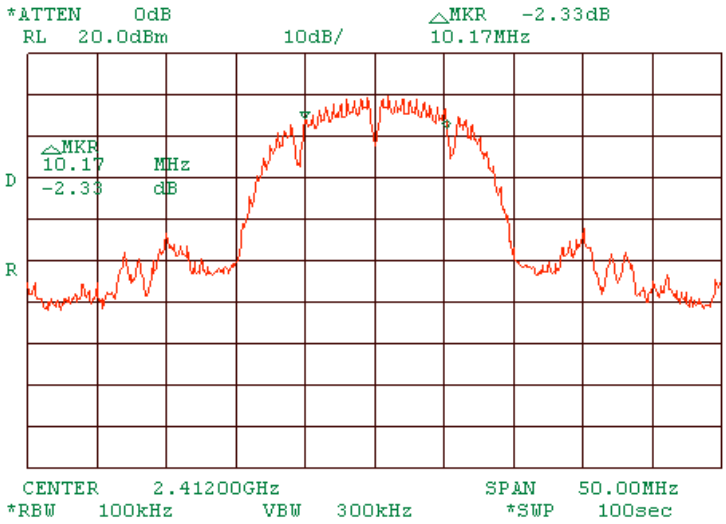
Carrier frequency, MHz	6 dB bandwidth, MHz	Limit, kHz	Margin, kHz	Verdict
Low frequency				
2412	16.00	>500	15.50	Pass
Mid frequency				
2437	15.83	>500	15.33	Pass
High frequency				
2462	15.75	>500	15.25	Pass

Reference numbers of test equipment used

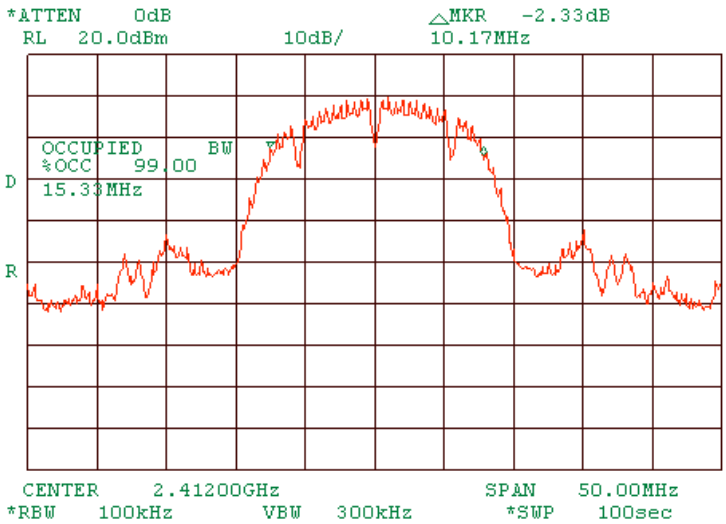
HL 1424	HL 1651	HL 2399						

Full description is given in Appendix A.

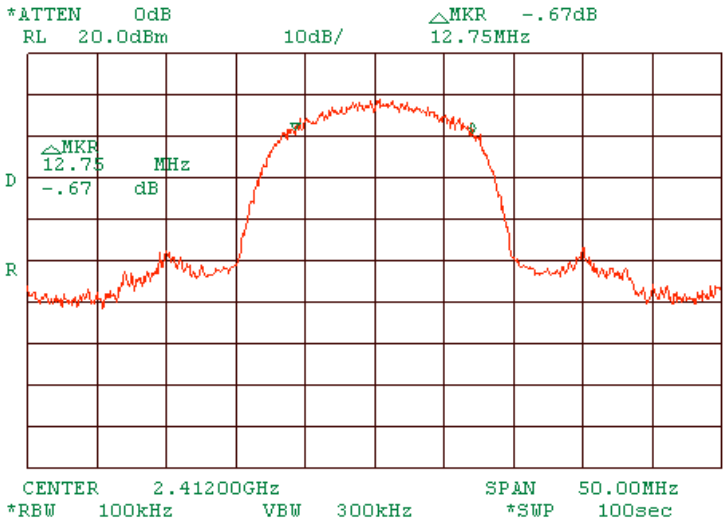
Plot 1.3.1 6 dB bandwidth test result at low frequency with MA 850 and MA 1000 interconnected. At 1 Mbps DSSS.



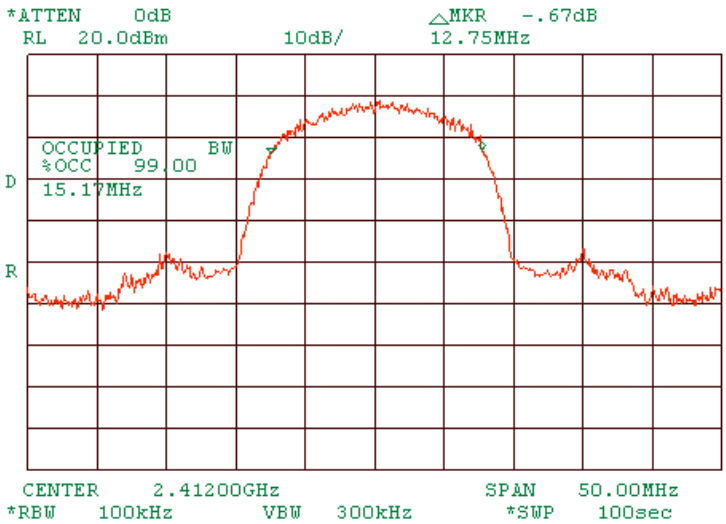
Plot 1.3.2 99% power bandwidth test result at low frequency with MA 850 and MA 1000 interconnected. At 1 Mbps DSSS.



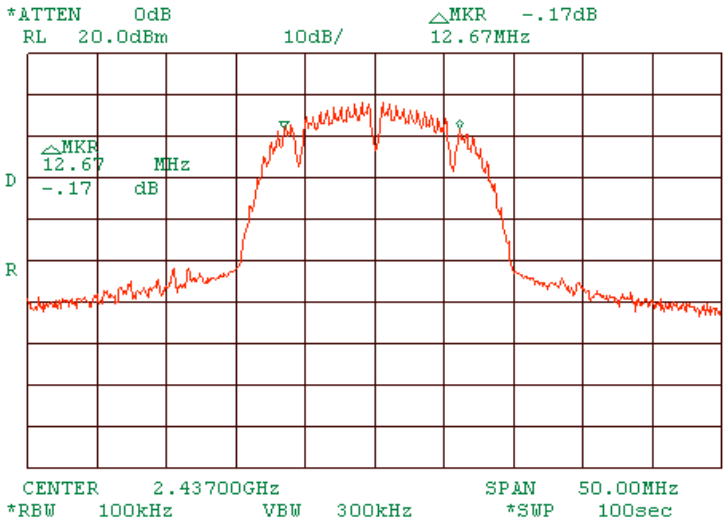
Plot 1.3.3 6 dB bandwidth test result at low frequency with MA 850 and MA 1000 interconnected. At 11 Mbps DSSS.



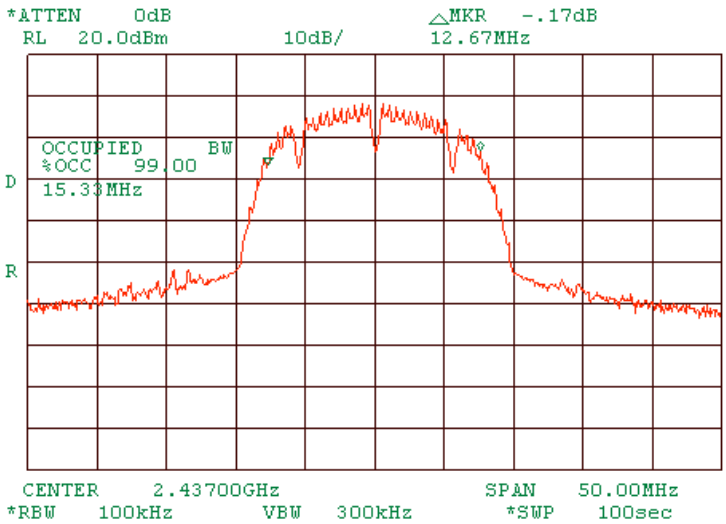
Plot 1.3.4 99% power bandwidth test result at low frequency with MA 850 and MA 1000 interconnected. At 11 Mbps DSSS.



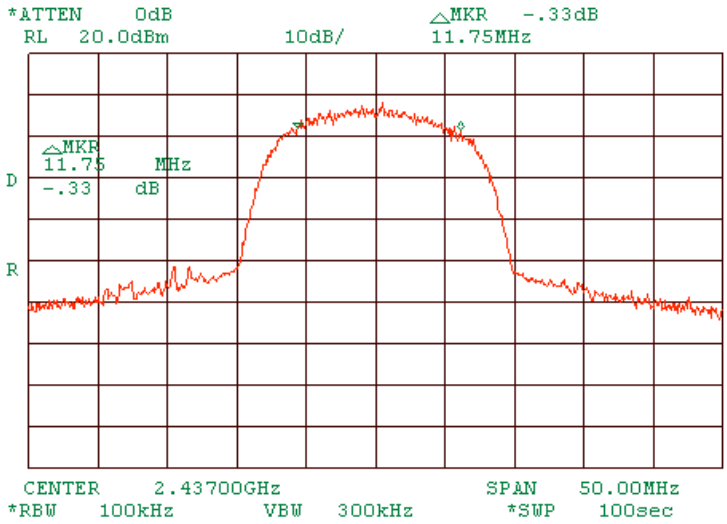
Plot 1.3.5 6 dB bandwidth test result at mid frequency with MA 850 and MA 1000 interconnected. At 1 Mbps DSSS.



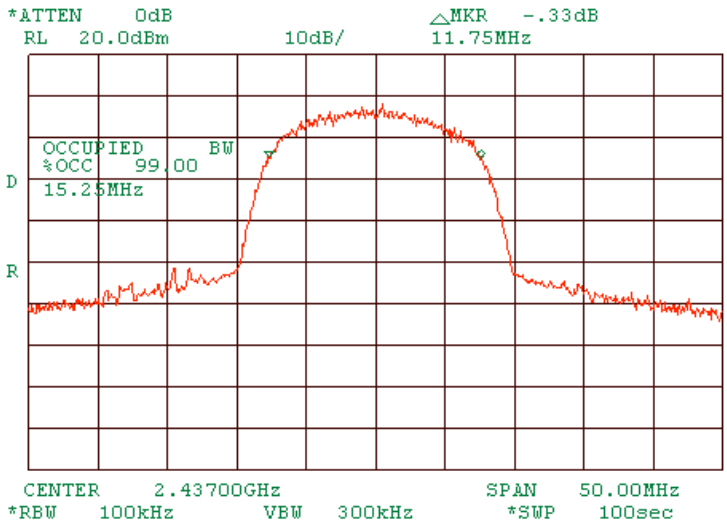
Plot 1.3.6 99% power bandwidth test result at mid frequency with MA 850 and MA 1000 interconnected. At 1 Mbps DSSS.



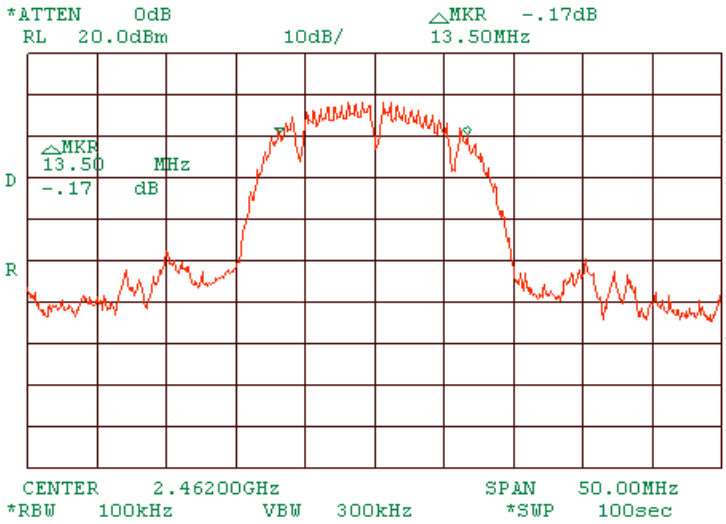
Plot 1.3.7 6 dB bandwidth test result at mid frequency with MA 850 and MA 1000 interconnected. At 11 Mbps DSSS.



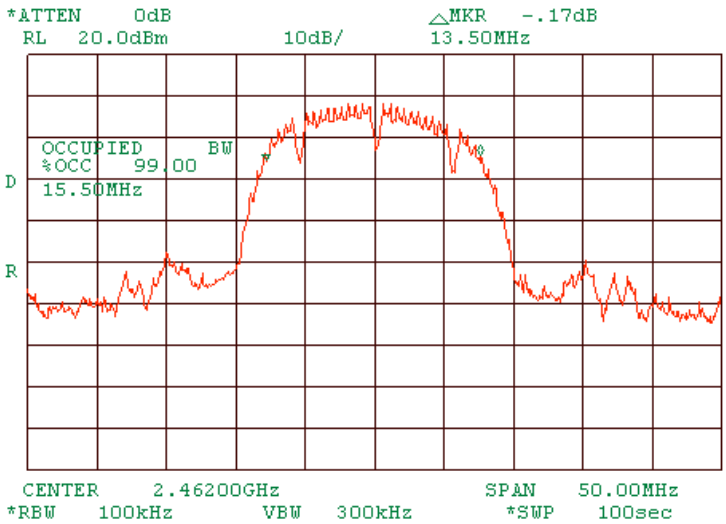
Plot 1.3.8 99% power bandwidth test result at mid frequency with MA 850 and MA 1000 interconnected. At 11 Mbps DSSS.



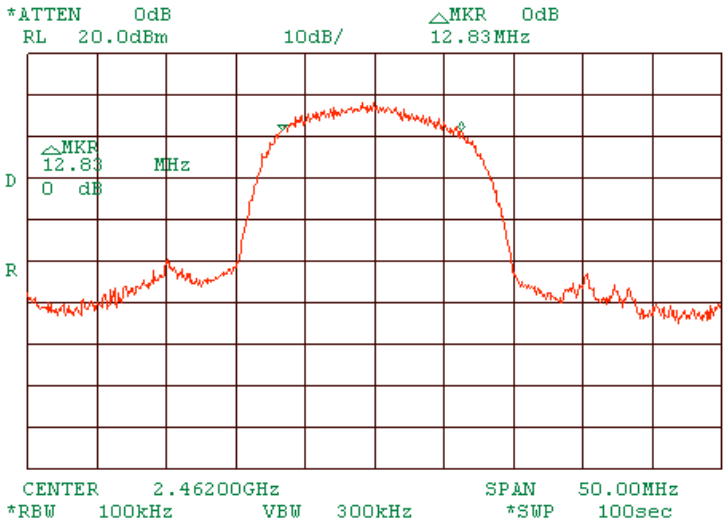
Plot 1.3.9 6 dB bandwidth test result at high frequency with MA 850 and MA 1000 interconnected. At 1 Mbps DSSS.



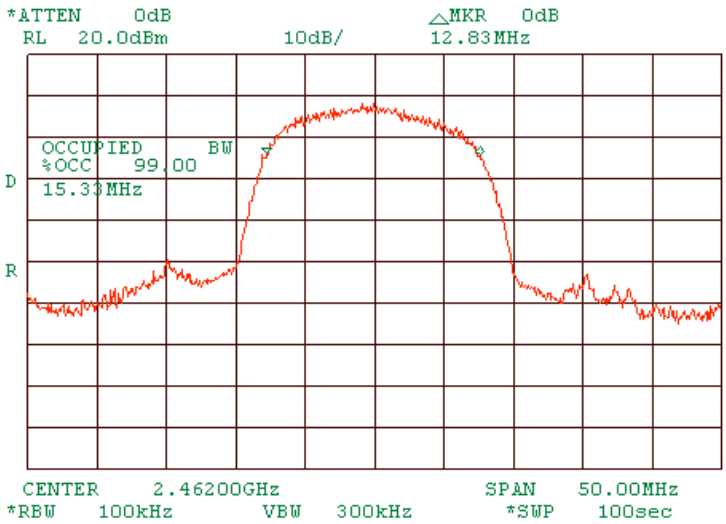
Plot 1.3.10 99% power bandwidth test result at high frequency with MA 850 and MA 1000 interconnected. At 1 Mbps DSSS.



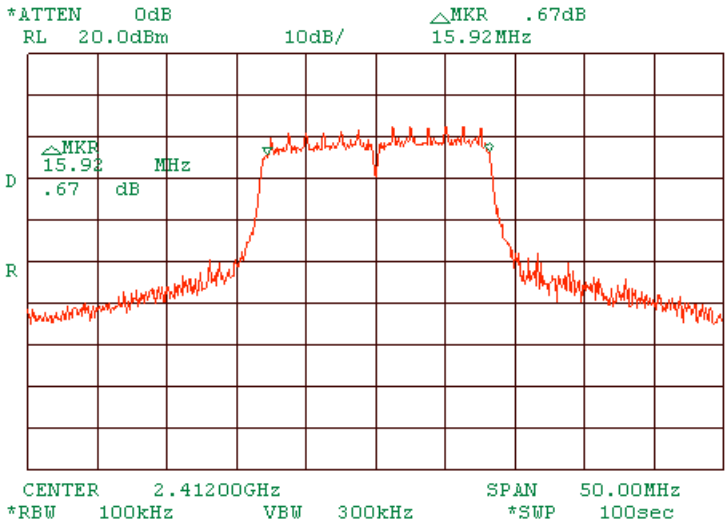
Plot 1.3.11 6 dB bandwidth test result at high frequency with MA 850 and MA 1000 interconnected. At 11 Mbps DSSS.



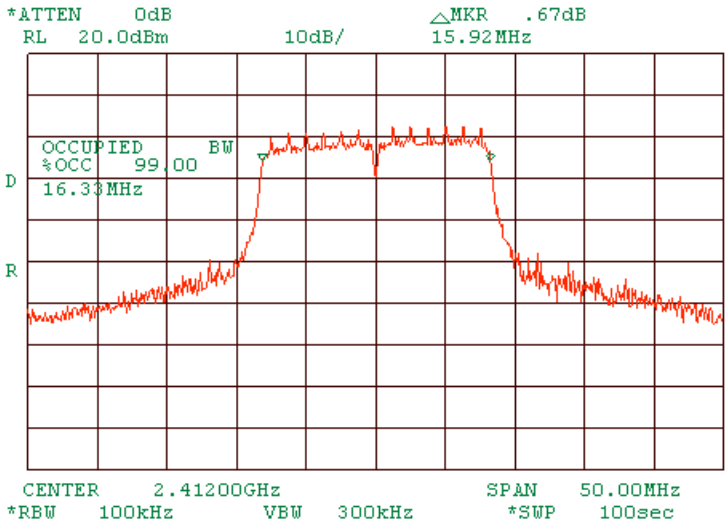
Plot 1.3.12 99% power bandwidth test result at high frequency with MA 850 and MA 1000 interconnected. At 11 Mbps DSSS.



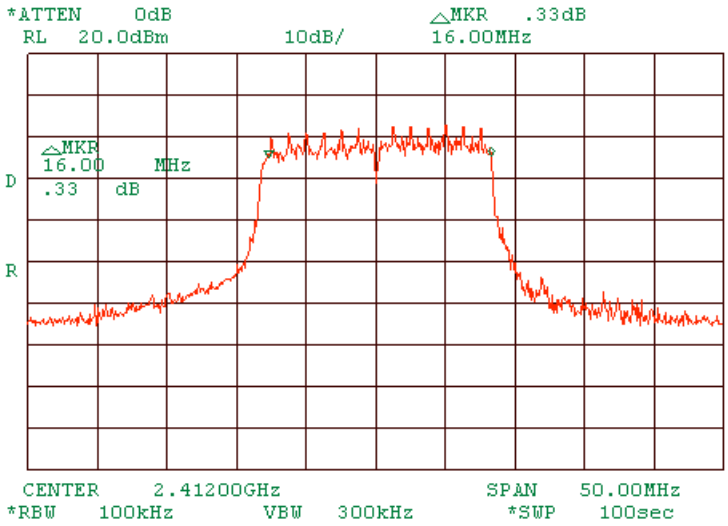
Plot 1.3.13 6 dB bandwidth test result at low frequency with MA 850 and MA 1000 interconnected. At 6 Mbps OFDM.



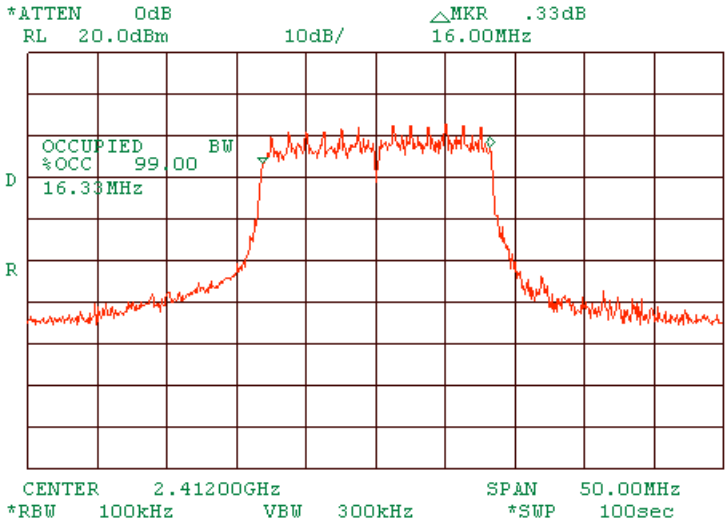
Plot 1.3.14 99% power bandwidth test result at low frequency with MA 850 and MA 1000 interconnected. At 6 Mbps OFDM



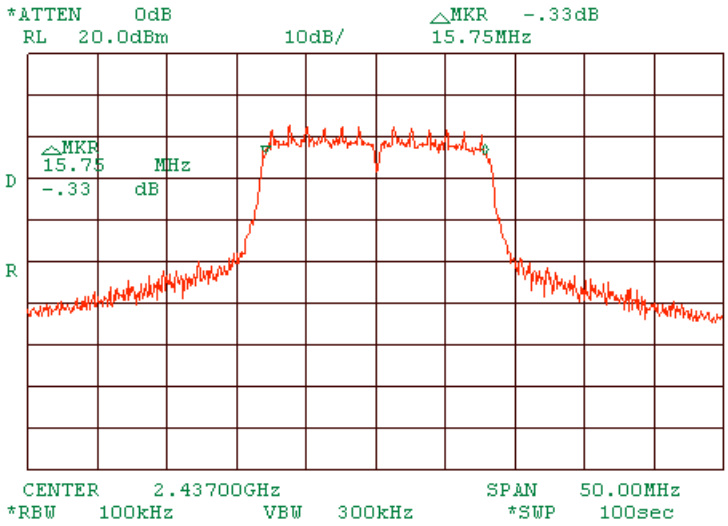
Plot 1.3.15 6 dB bandwidth test result at low frequency with MA 850 and MA 1000 interconnected. At 54 Mbps OFDM.



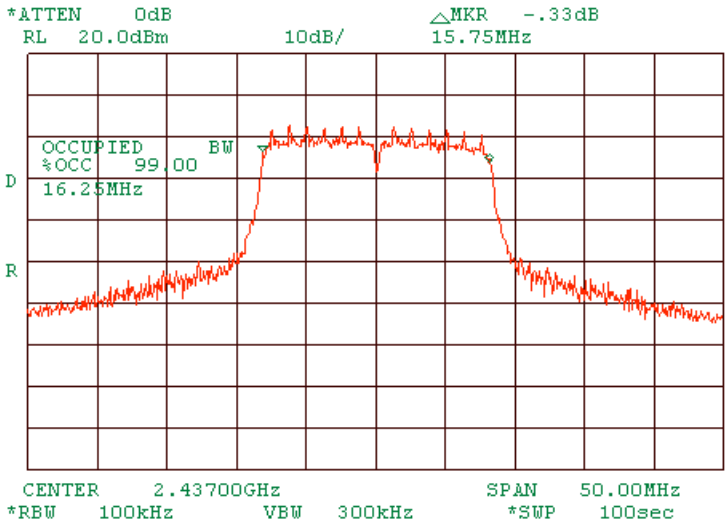
Plot 1.3.16 99% power bandwidth test result at low frequency with MA 850 and MA 1000 interconnected. At 54 Mbps OFDM.



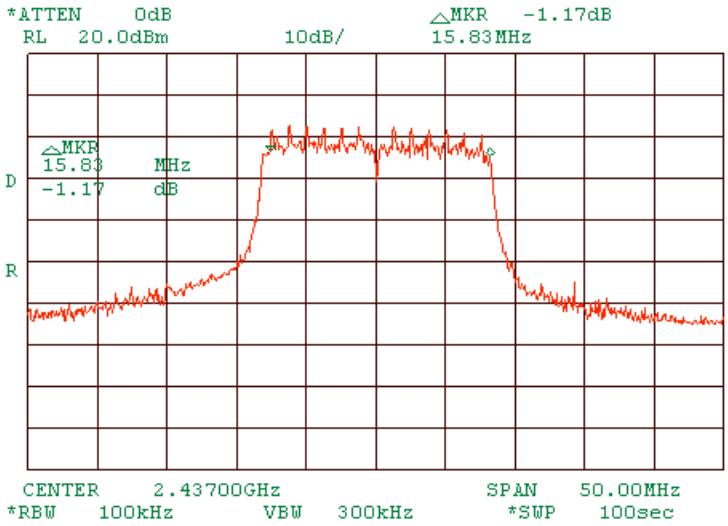
Plot 1.3.17 6 dB bandwidth test result at mid frequency with MA 850 and MA 1000 interconnected. At 6 Mbps OFDM.



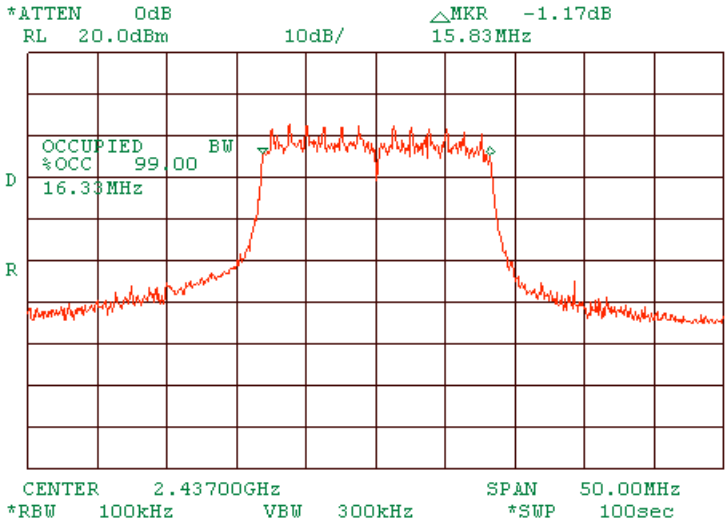
Plot 1.3.18 99% power bandwidth test result at mid frequency with MA 850 and MA 1000 interconnected. At 6 Mbps OFDM.



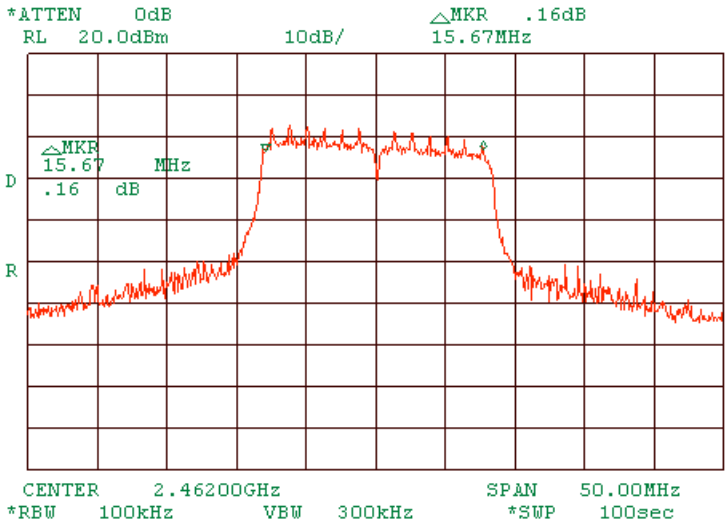
Plot 1.3.19 6 dB bandwidth test result at mid frequency with MA 850 and MA 1000 interconnected. At 54 Mbps OFDM.



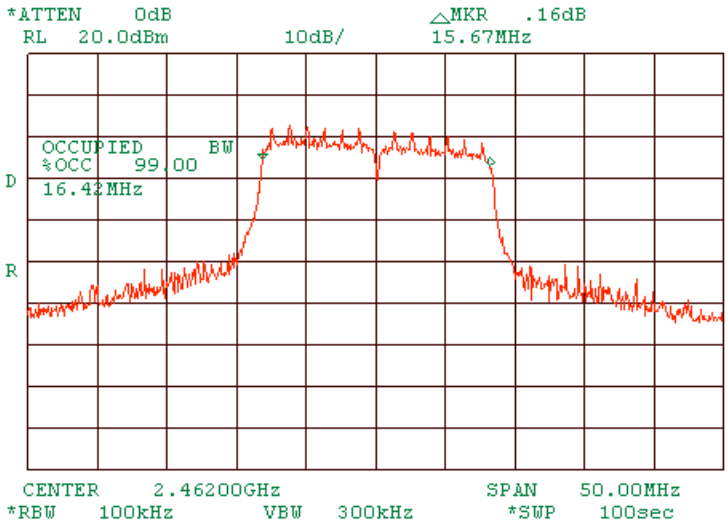
Plot 1.3.20 99% power bandwidth test result at mid frequency with MA 850 and MA 1000 interconnected. At 54 Mbps OFDM.



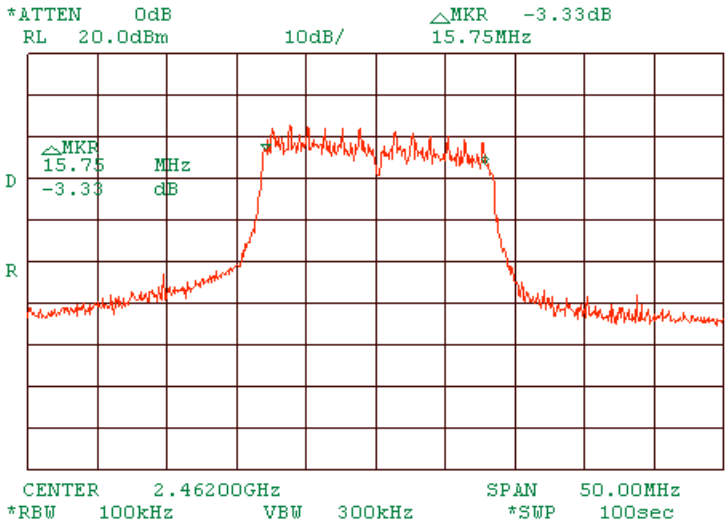
Plot 1.3.21 6 dB bandwidth test result at high frequency with MA 850 and MA 1000 interconnected. At 6 Mbps OFDM.



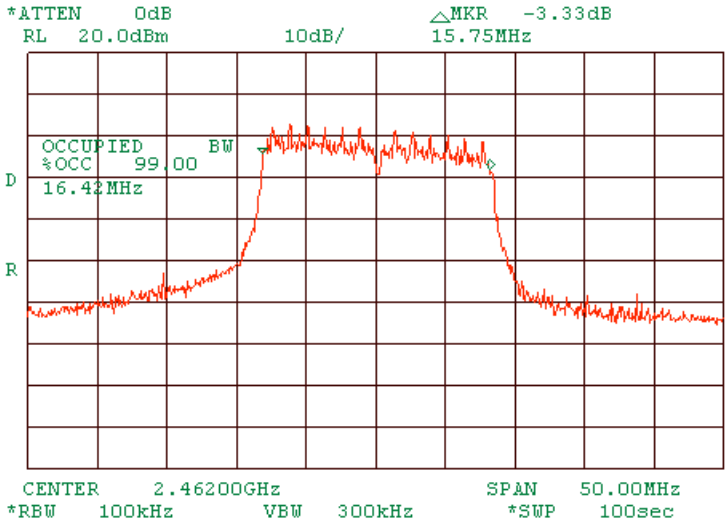
Plot 1.3.22 99% power bandwidth test result at high frequency with MA 850 and MA 1000 interconnected. At 6 Mbps OFDM.



Plot 1.3.23 6 dB bandwidth test result at high frequency with MA 850 and MA 1000 interconnected. At 54 Mbps OFDM.



Plot 1.3.24 99% power bandwidth test result at high frequency with MA 850 and MA 1000 interconnected. At 54 Mbps OFDM.



1.4 Peak output power

Photograph 1.4.1 Peak output power test setup

Table 1.4.1 Peak output power test results

ASSIGNED FREQUENCY:	2401 - 2473 MHz
ASSEMBLY	MA 850, MA 1000 (PCS 1900 mode)
MA 1000 SETTINGS	Transmit at 1930.0125 and 1989.9875 MHz
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
DETECTOR USED:	Peak
CHANNEL POWER BANDWIDTH	50 MHz
RESOLUTION BANDWIDTH:	100 kHz
VIDEO BANDWIDTH:	300 kHz

Carrier frequency, MHz	Modulating signal	Bit rate, Mbps	Port	Peak output power, dBm	Limit, dBm	Margin*, dB	Verdict
DSSS							
2412	CCK	5.5	2	26.6	30	-3.4	Pass
2437				25.2	30	-4.8	Pass
2462				26.4	30	-3.6	Pass
OFDM							
2412	BPSK	6	2	19.9	30	-10.1	Pass
2437				20.2	30	-9.8	Pass
2462				19.3	30	-10.7	Pass

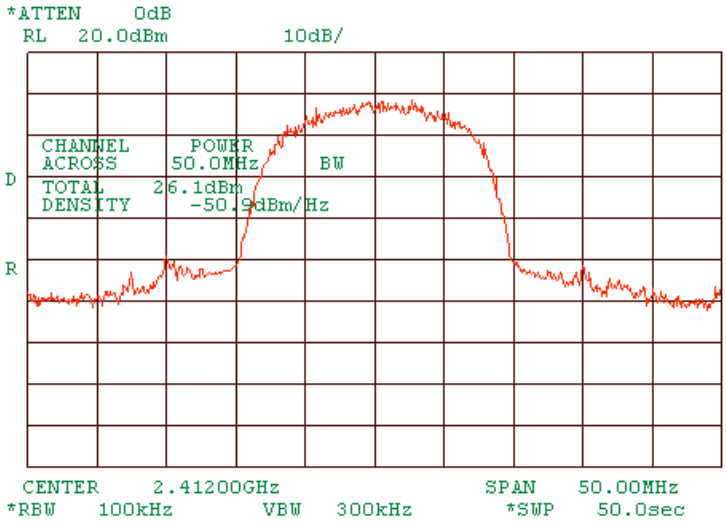
* - Margin = Peak output power – specification limit.

Reference numbers of test equipment used

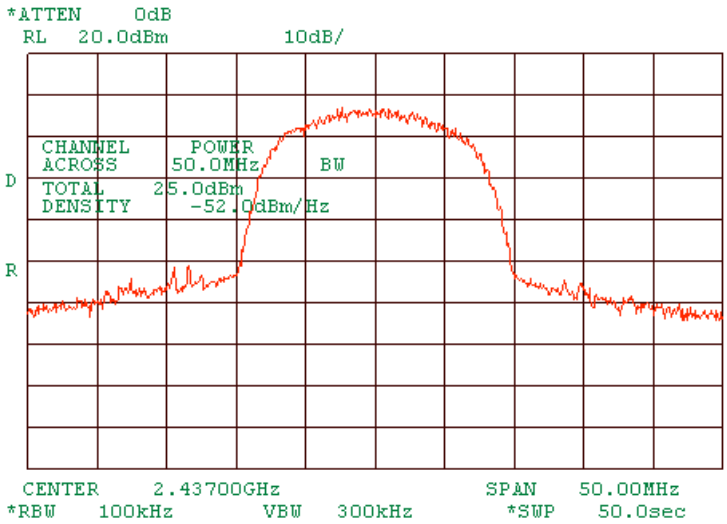
HL 1424	HL 1651	HL 2399					

Full description is given in Appendix A.

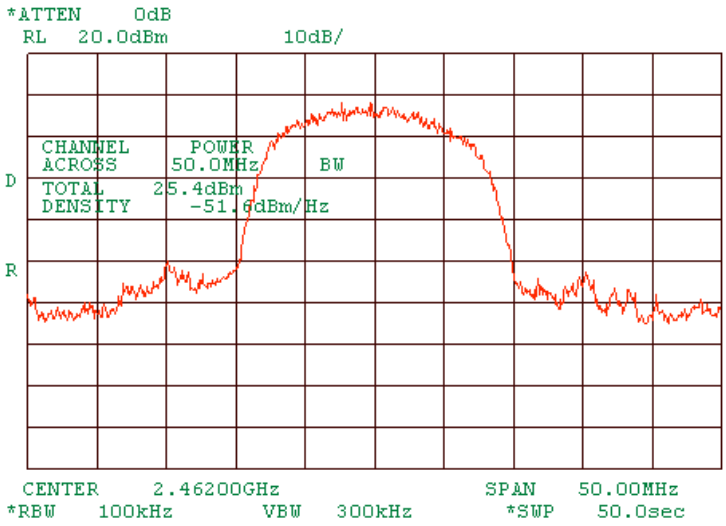
Plot 1.4.1 Peak output power at low frequency of MA 850 and MA 1000 interconnected, port 1. At 5.5Mbps DSSS.



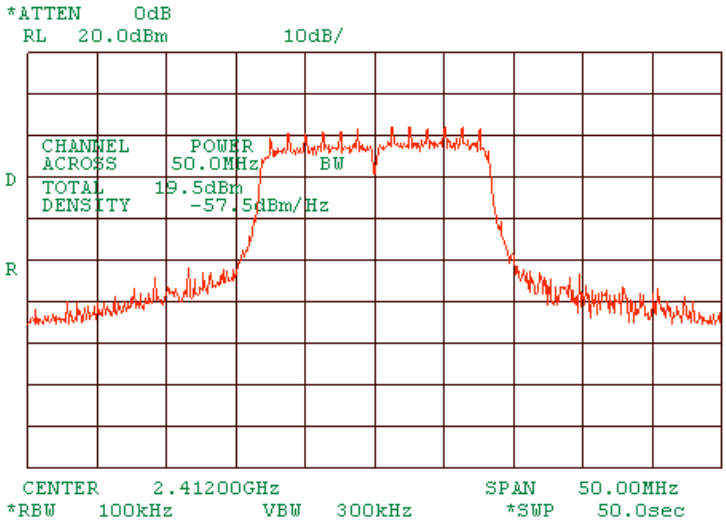
Plot 1.4.2 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 1. At 5.5Mbps DSSS.



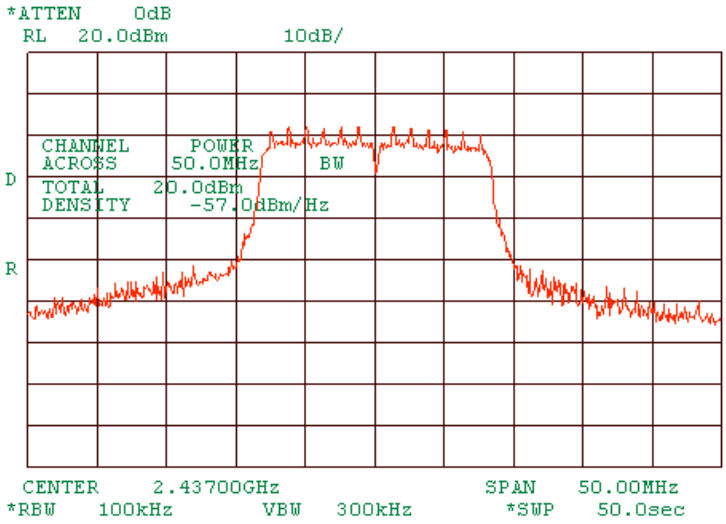
Plot 1.4.3 Peak output power at high frequency of MA 850 and MA 1000 interconnected, port 1. At 5.5Mbps DSSS.



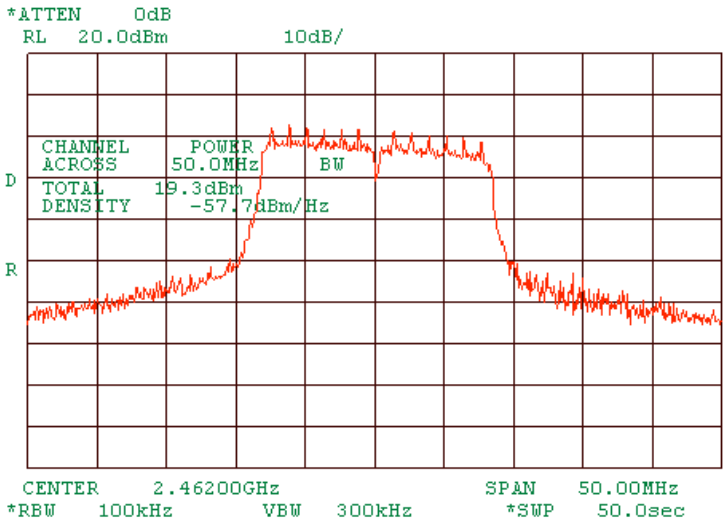
Plot 1.4.4 Peak output power at low frequency of MA 850 and MA 1000 interconnected, port 1. At 6 Mbps OFDM.



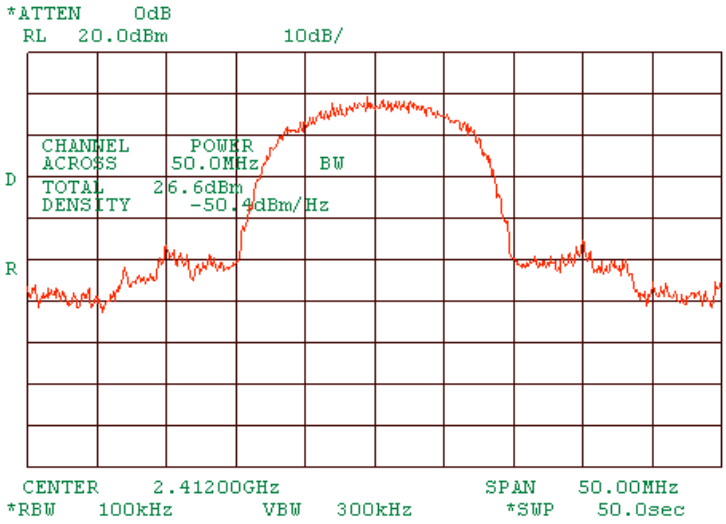
Plot 1.4.5 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 1. At 6Mbps OFDM.



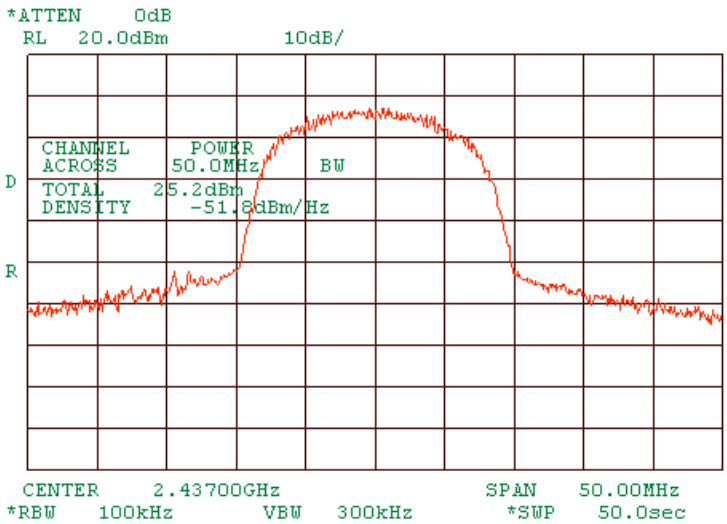
Plot 1.4.6 Peak output power at high frequency of MA 850 and MA 1000 interconnected, port 1. At 6 Mbps OFDM.



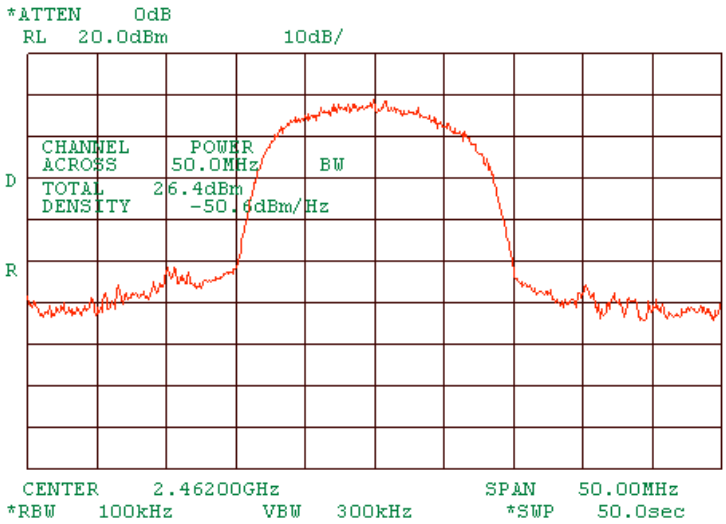
Plot 1.4.7 Peak output power at low frequency of MA 850 and MA 1000 interconnected, port 2. At 5.5Mbps DSSS.



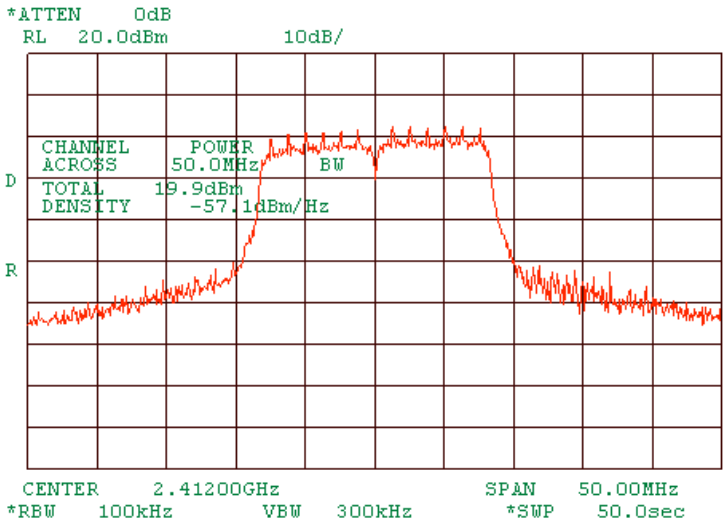
Plot 1.4.8 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 2. At 5.5Mbps DSSS.



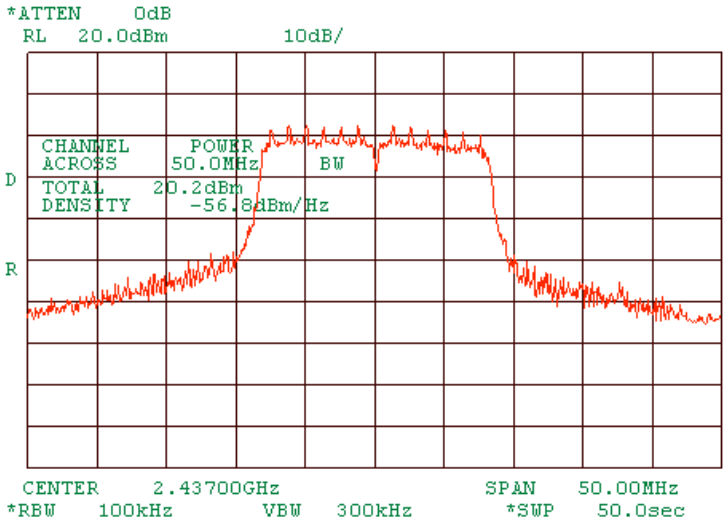
Plot 1.4.9 Peak output power at high frequency of MA 850 and MA 1000 interconnected, port 2. At 5.5Mbps DSSS.



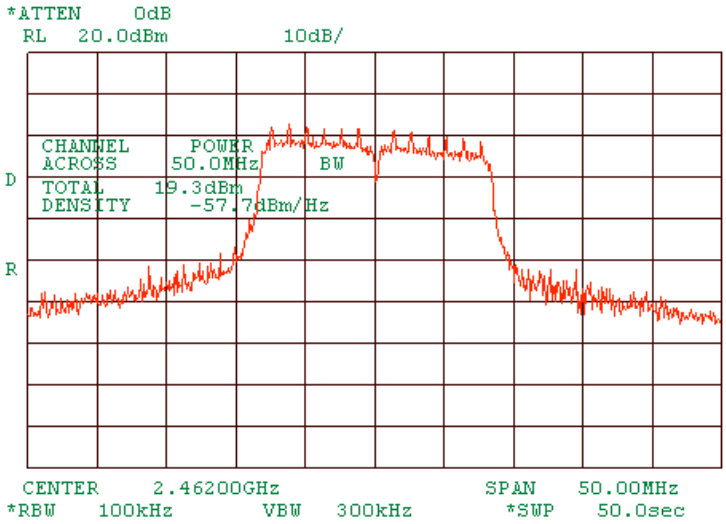
Plot 1.4.10 Peak output power at low frequency of MA 850 and MA 1000 interconnected, port 2. At 6Mbps OFDM.



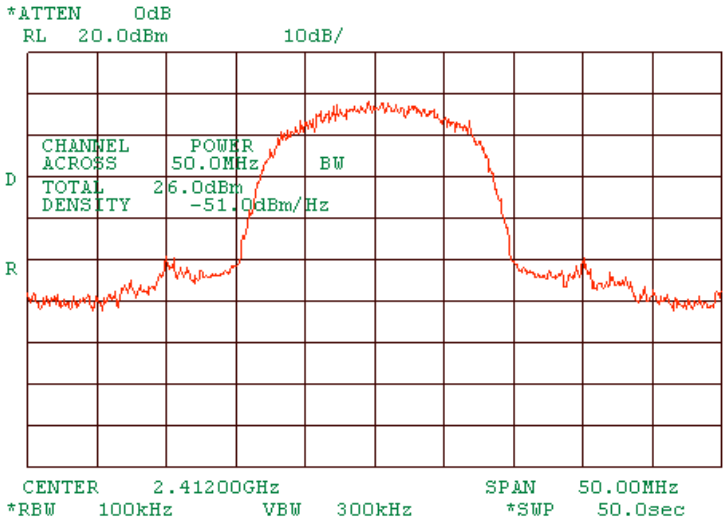
Plot 1.4.11 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 2. At 6Mbps OFDM.



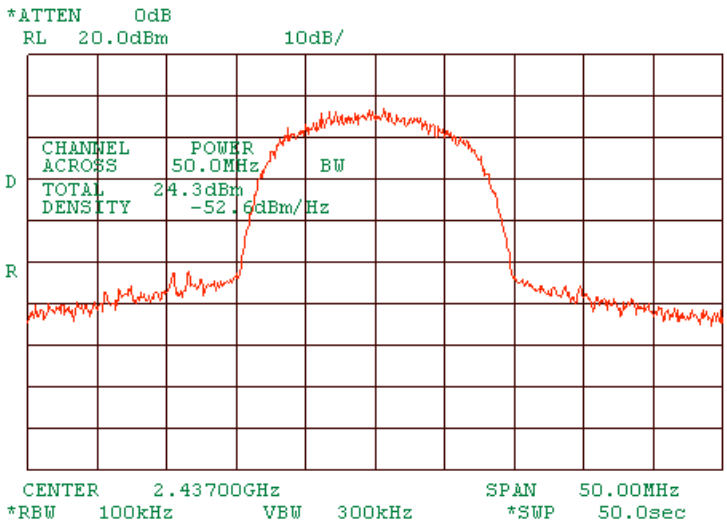
Plot 1.4.12 Peak output power at high frequency of MA 850 and MA 1000 interconnected, port 2. At 6Mbps OFDM.



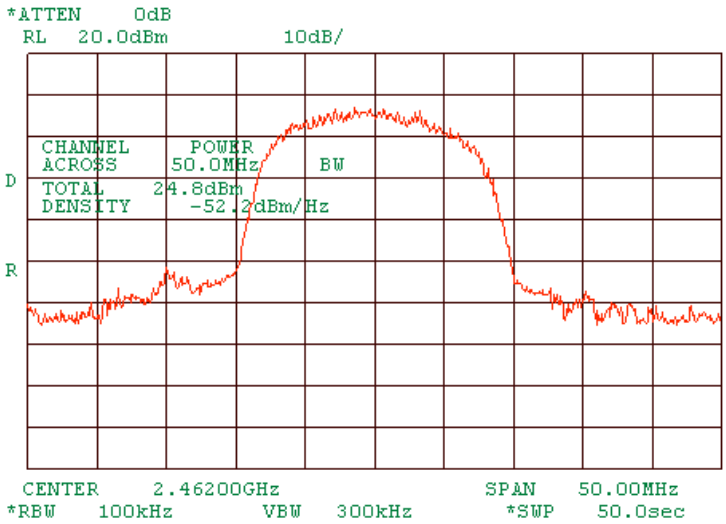
Plot 1.4.13 Peak output power at low frequency of MA 850 and MA 1000 interconnected, port 3. At 5.5Mbps DSSS.



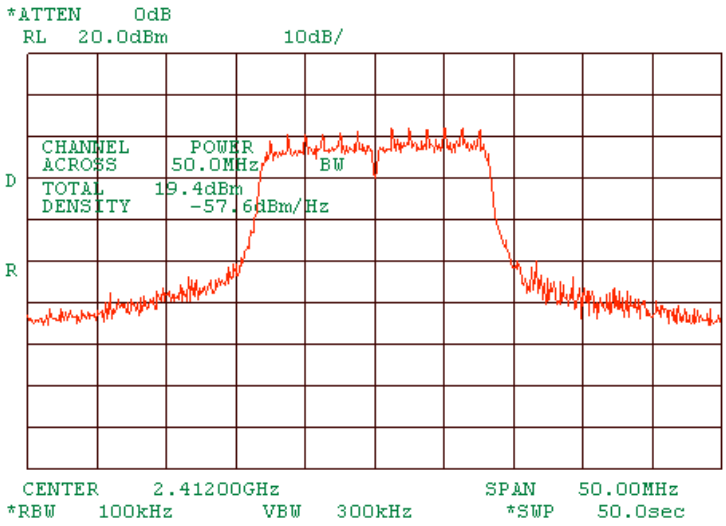
Plot 1.4.14 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 3. At 5.5 Mbps DSSS.



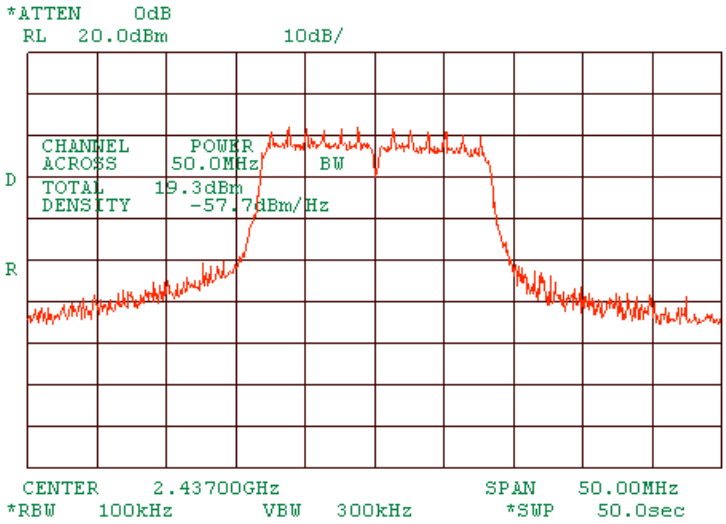
Plot 1.4.15 Peak output power at high frequency of MA 850 and MA 1000 interconnected, port 3. At 5.5Mbps DSSS.



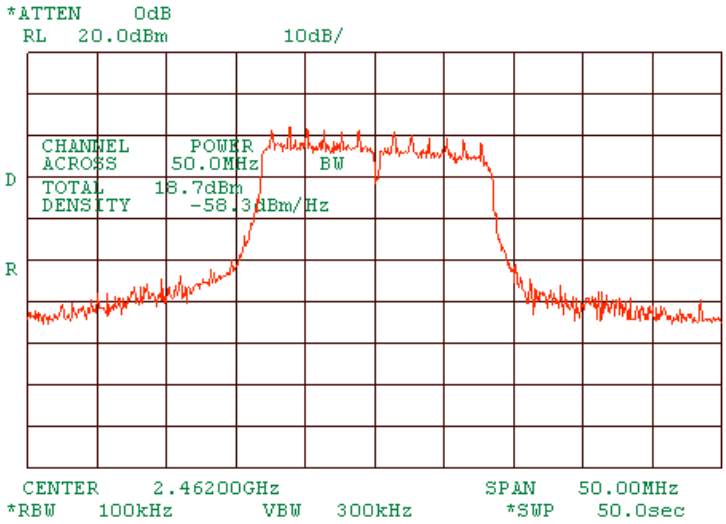
Plot 1.4.16 Peak output power at low frequency of MA 850 and MA 1000 interconnected, port 3. At 6Mbps OFDM.



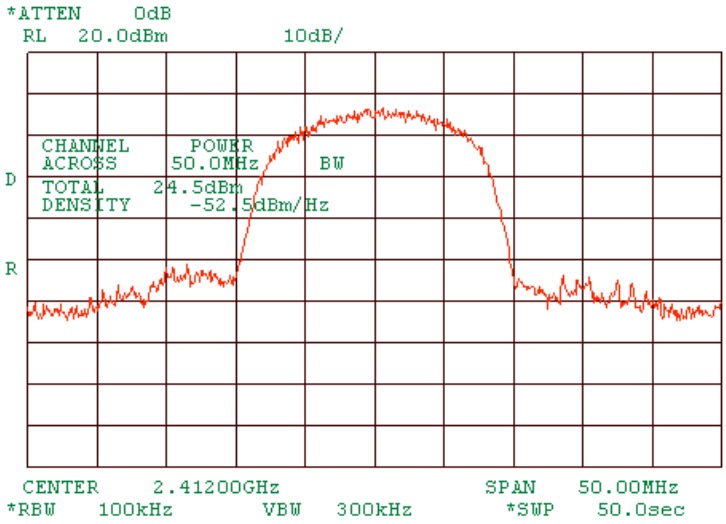
Plot 1.4.17 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 3. At 6Mbps OFDM.



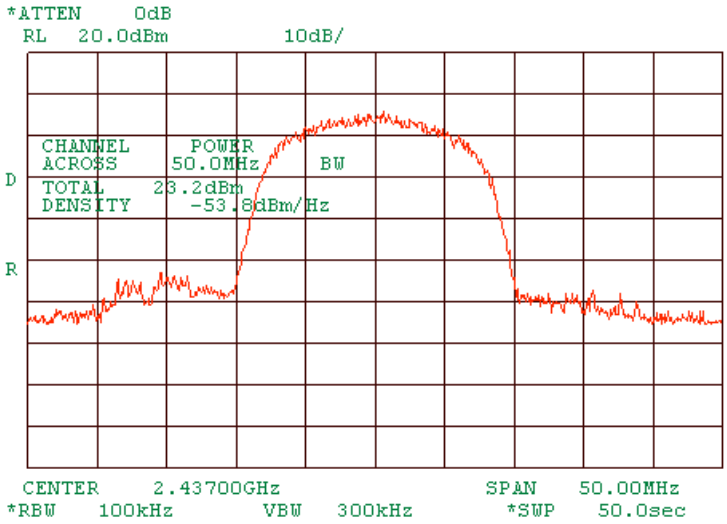
Plot 1.4.18 Peak output power at high frequency of MA 850 and MA 1000 interconnected, port 3. At 6Mbps OFDM.



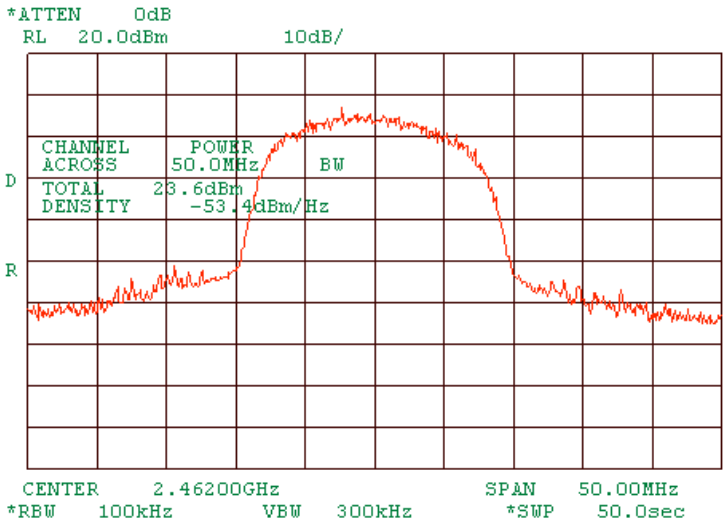
Plot 1.4.19 Peak output power at low frequency of MA 850 and MA 1000 interconnected, port 4. At 5.5Mbps DSSS.



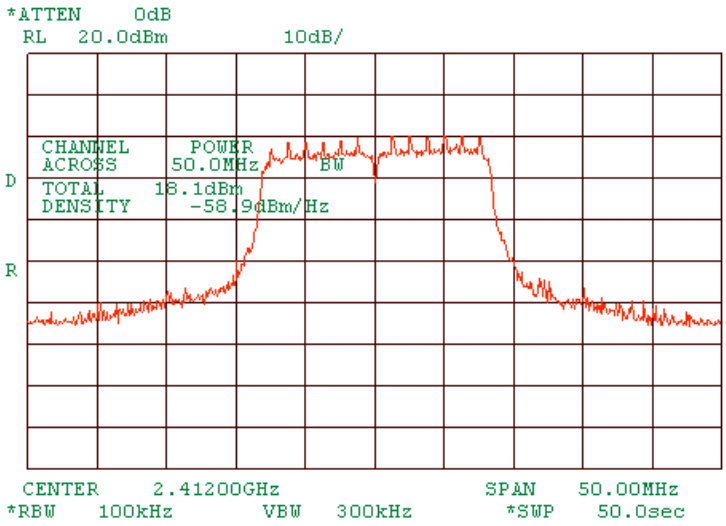
Plot 1.4.20 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 4. At 5.5Mbps DSSS.



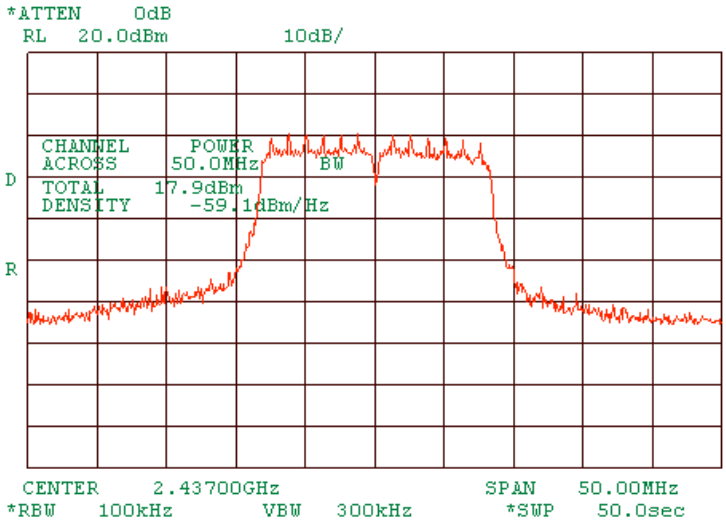
Plot 1.4.21 Peak output power at high frequency of MA 850 and MA 1000 interconnected, port 4. At 5.5Mbps DSSS.



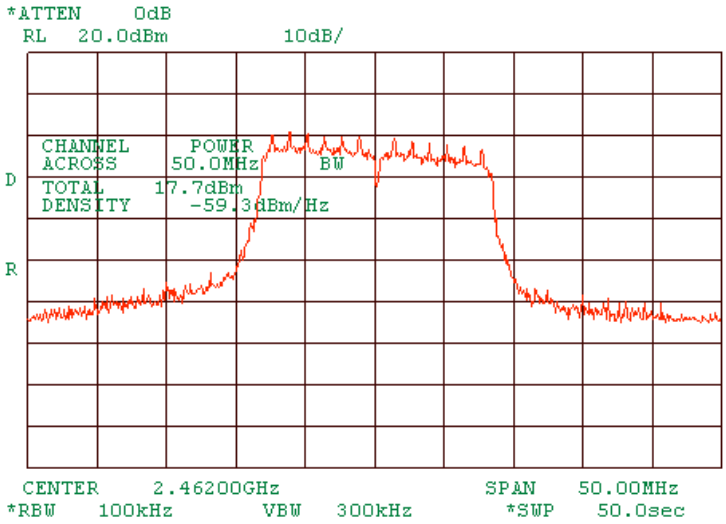
Plot 1.4.22 Peak output power at low frequency of MA 850 and MA 1000 interconnected, port 4. At 6Mbps OFDM.



Plot 1.4.23 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 4. At 6Mbps OFDM.



Plot 1.4.24 Peak output power at high frequency of MA 850 and MA 1000 interconnected, port 4. At 6Mbps OFDM.



1.5 Peak output power

Photograph 1.5.1 Peak output power test setup

Table 1.5.1 Peak output power test results

ASSIGNED FREQUENCY:	2401 - 2473 MHz
ASSEMBLY	MA 850, MA 1000 (Cell 800 mode)
MA 1000 SETTINGS	Transmit at 869.0125 and 893.9875 MHz
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
DETECTOR USED:	Peak
CHANNEL POWER BANDWIDTH	50 MHz
RESOLUTION BANDWIDTH:	100 kHz
VIDEO BANDWIDTH:	300 kHz

Carrier frequency, MHz	Modulating signal	Bit rate, Mbps	Port	Peak output power, dBm	Limit, dBm	Margin*, dB	Verdict
DSSS							
2412	CCK	5.5	2	26.1	30	-4.0	Pass
2437				26.6	30	-3.4	Pass
2462				25.6	30	-4.4	Pass
OFDM							
2412	BPSK	6	2	19.8	30	-10.2	Pass
2437				20.3	30	-9.7	Pass
2462				20.1	30	-9.9	Pass

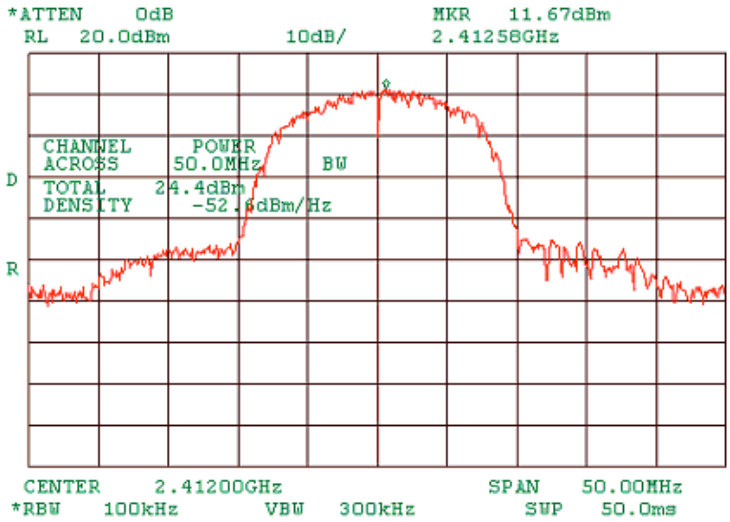
* - Margin = Peak output power – specification limit.

Reference numbers of test equipment used

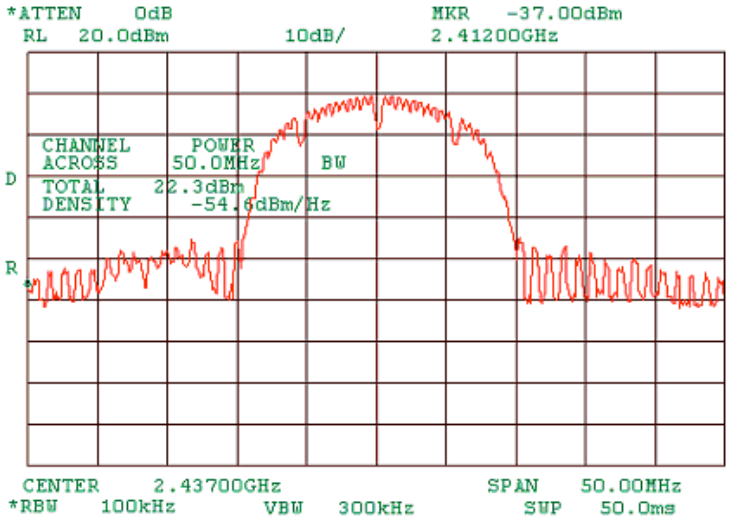
HL 1424	HL 2399	HL 2524					

Full description is given in Appendix A.

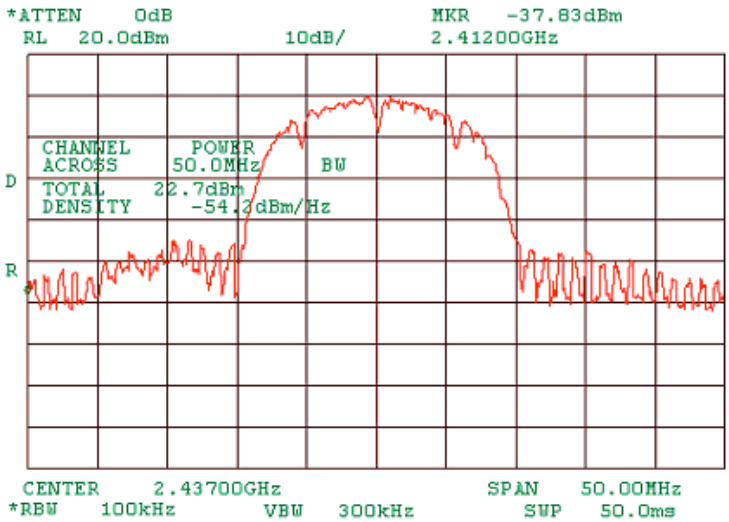
Plot 1.5.1 Peak output power at low frequency of MA 850 and MA 1000 interconnected, port 1. At 5.5Mbps DSSS.



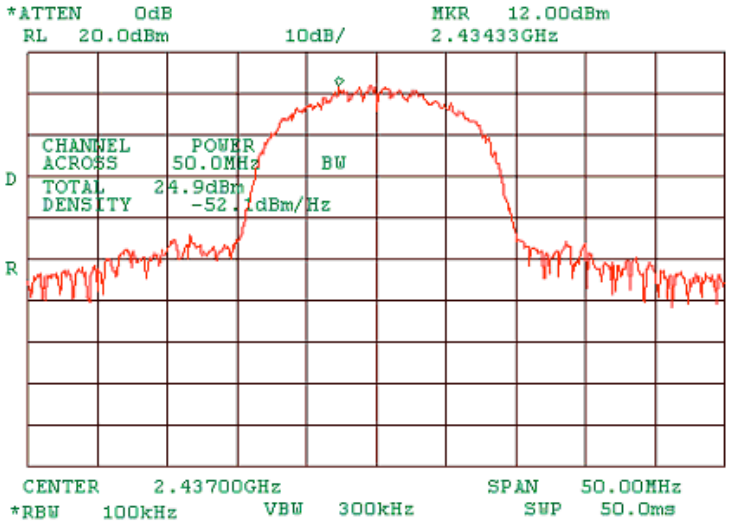
Plot 1.5.2 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 1. At 1Mbps DSSS.



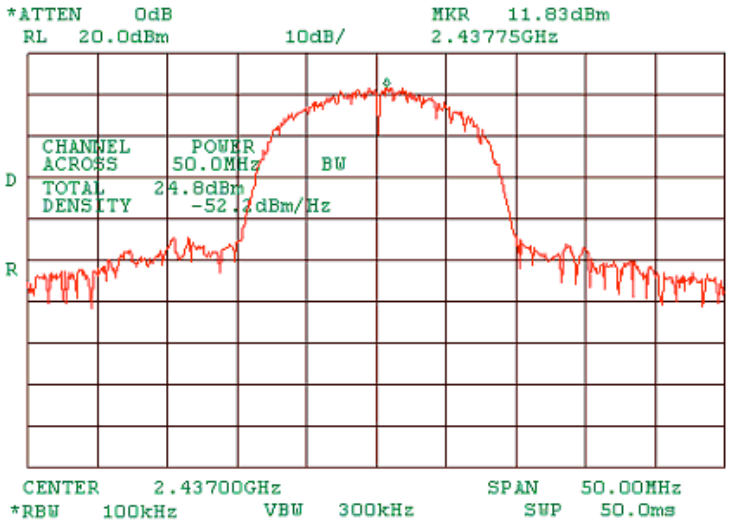
Plot 1.5.3 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 1. At 2Mbps DSSS.



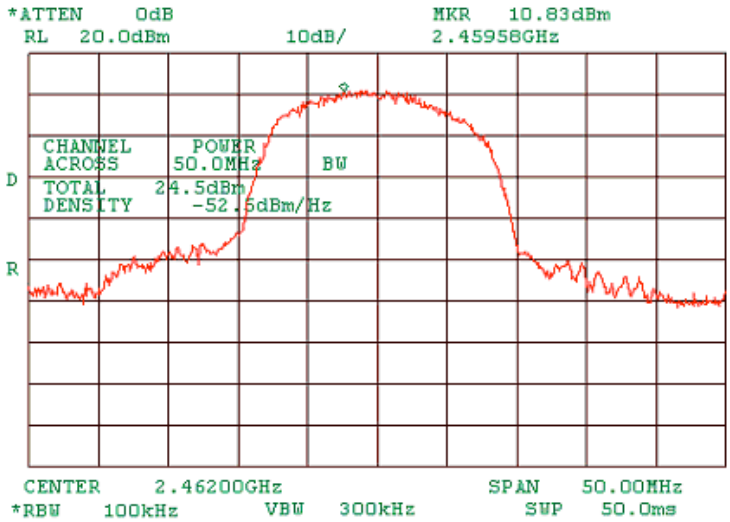
Plot 1.5.4 Peak output power at low frequency of MA 850 and MA 1000 interconnected, port 1. At 5.5Mbps DSSS.



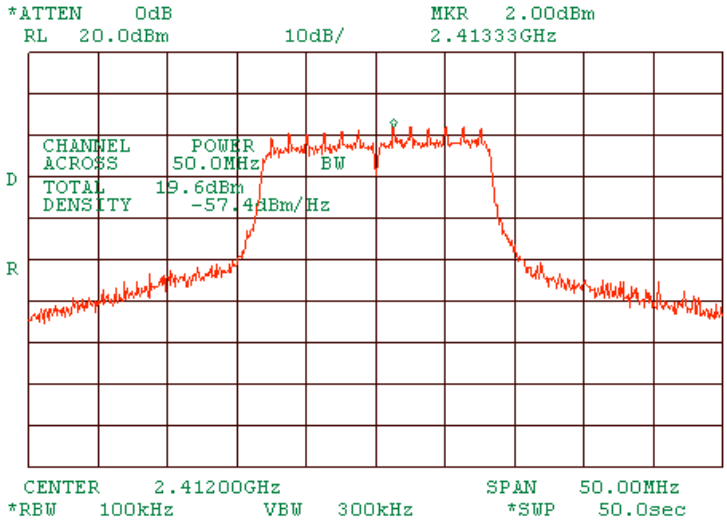
Plot 1.5.5 Peak output power at low frequency of MA 850 and MA 1000 interconnected, port 1. At 11Mbps DSSS.



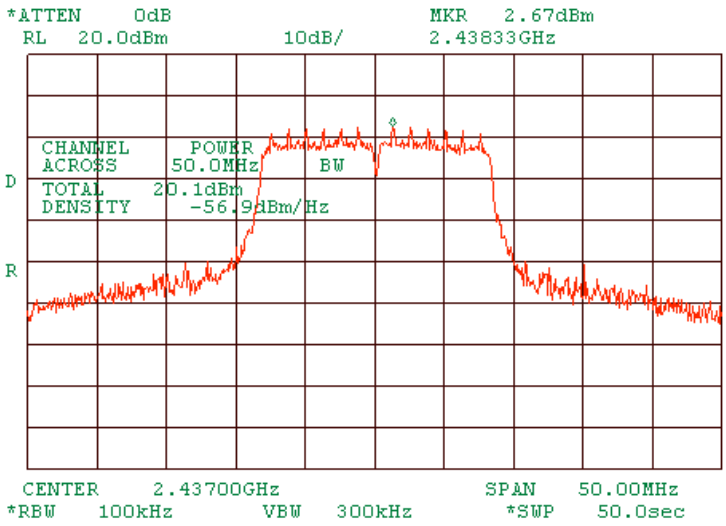
Plot 1.5.6 Peak output power at high frequency of MA 850 and MA 1000 interconnected, port 1. At 5.5Mbps DSSS.



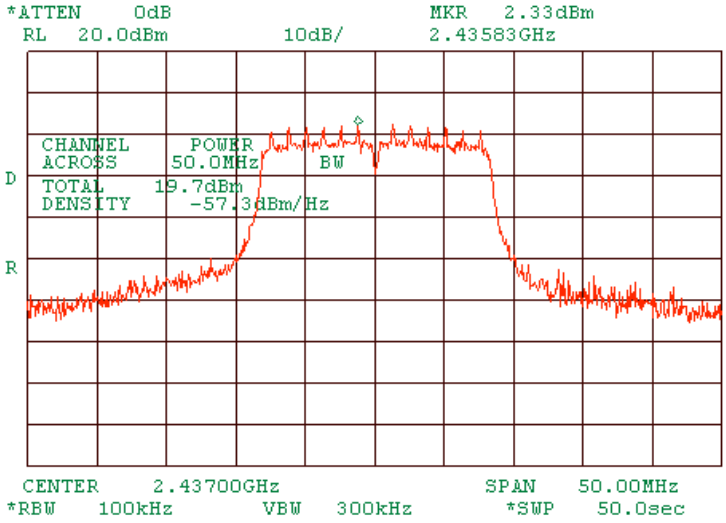
Plot 1.5.7 Peak output power at low frequency of MA 850 and MA 1000 interconnected, port 1. At 6 Mbps OFDM.



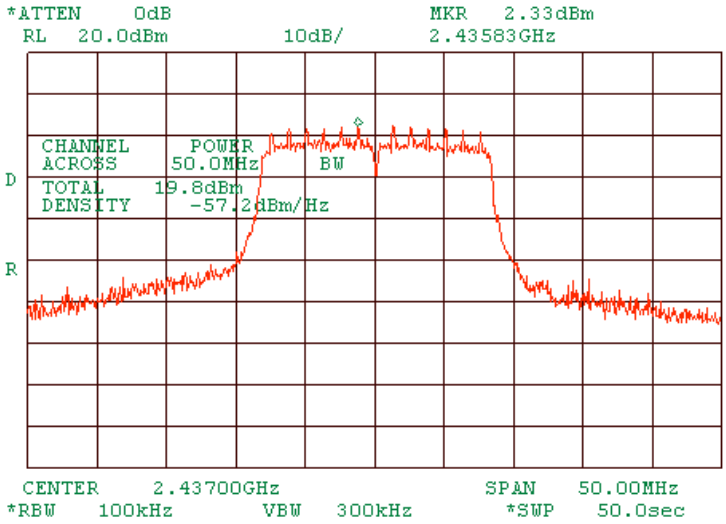
Plot 1.5.8 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 1. At 6Mbps OFDM.



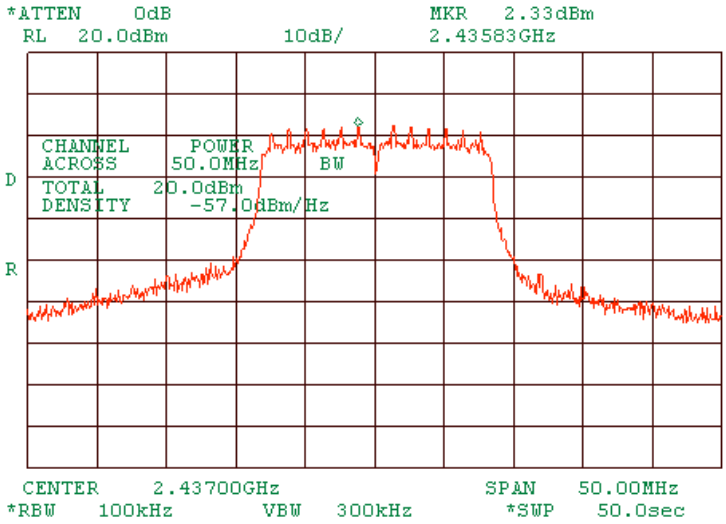
Plot 1.5.9 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 1. At 9Mbps OFDM.



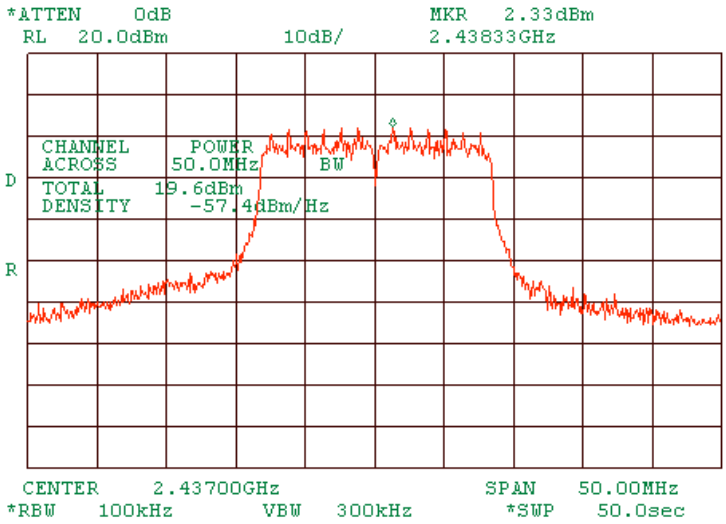
Plot 1.5.10 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 1. At 12Mbps OFDM.



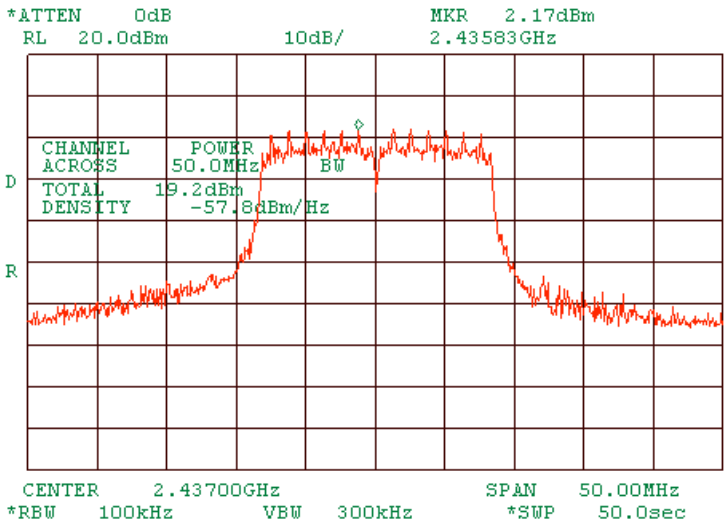
Plot 1.5.11 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 1. At 18Mbps OFDM.



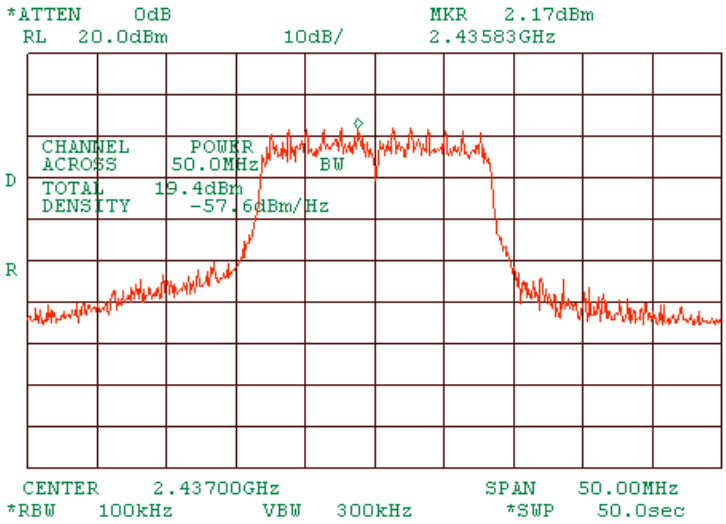
Plot 1.5.12 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 1. At 24Mbps OFDM.



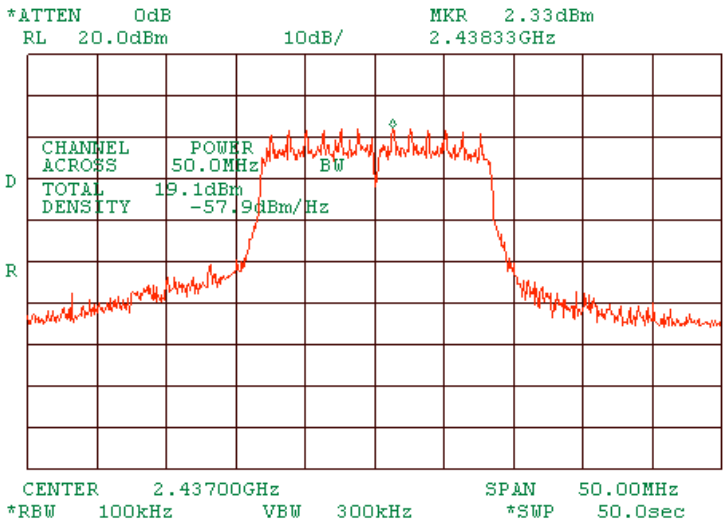
Plot 1.5.13 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 1. At 36Mbps OFDM.



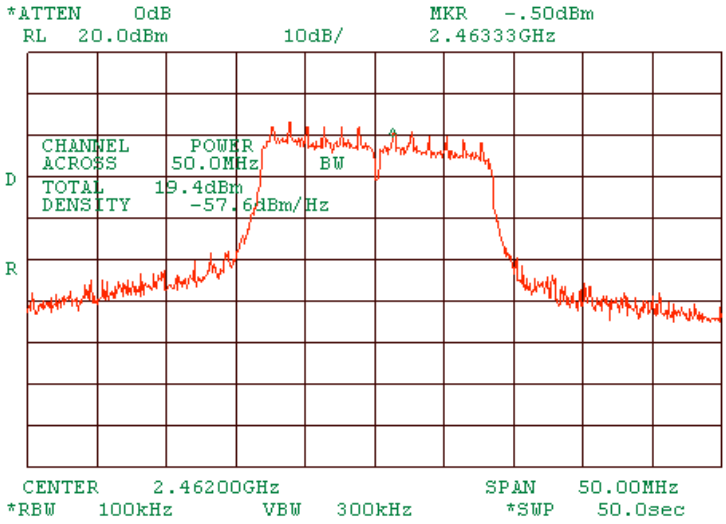
Plot 1.5.14 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 1. At 48Mbps OFDM.



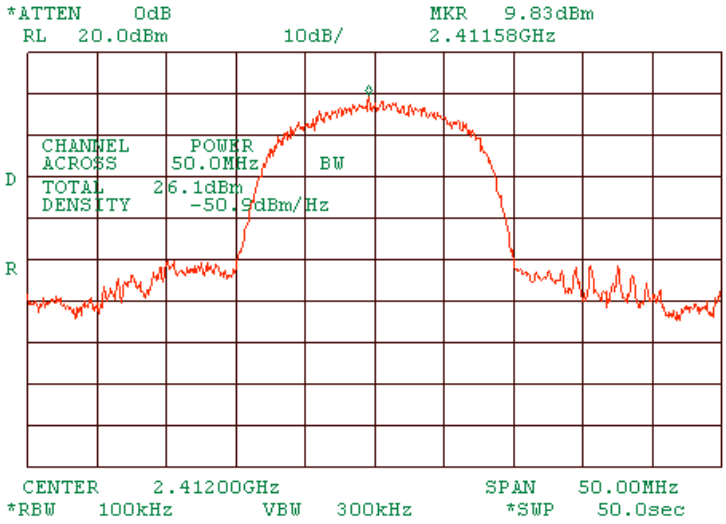
Plot 1.5.15 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 1. At 54Mbps OFDM.



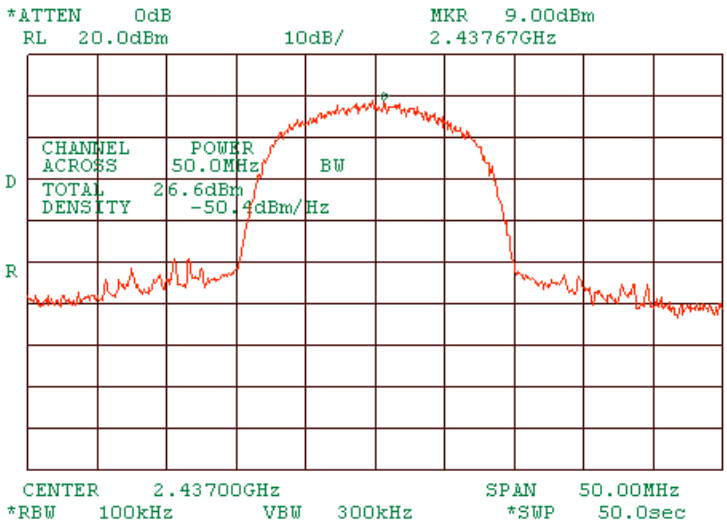
Plot 1.5.16 Peak output power at high frequency of MA 850 and MA 1000 interconnected, port 1. At 6 Mbps OFDM.



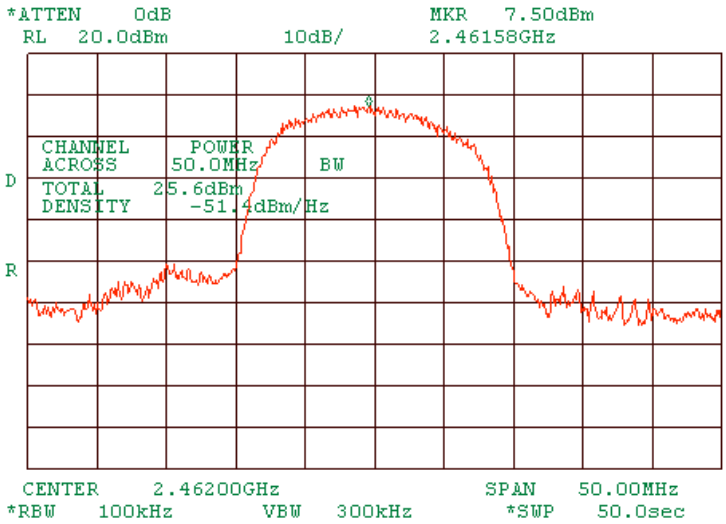
Plot 1.5.17 Peak output power at low frequency of MA 850 and MA 1000 interconnected, port 2. At 5.5Mbps DSSS.



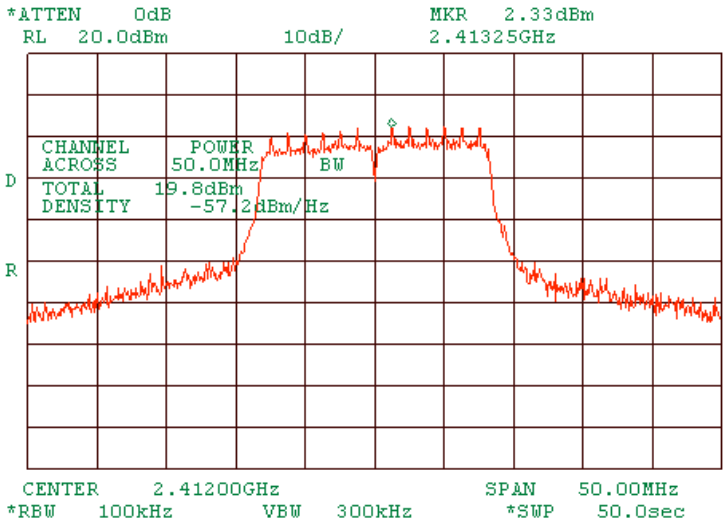
Plot 1.5.18 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 2. At 5.5Mbps DSSS.



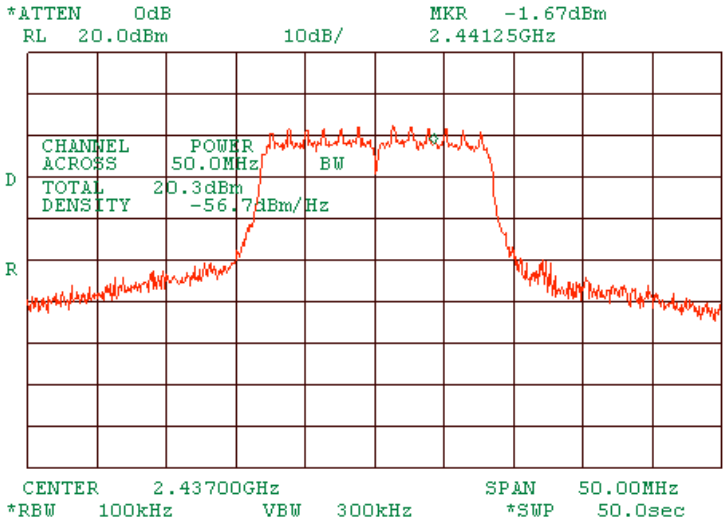
Plot 1.5.19 Peak output power at high frequency of MA 850 and MA 1000 interconnected, port 2. At 5.5Mbps DSSS.



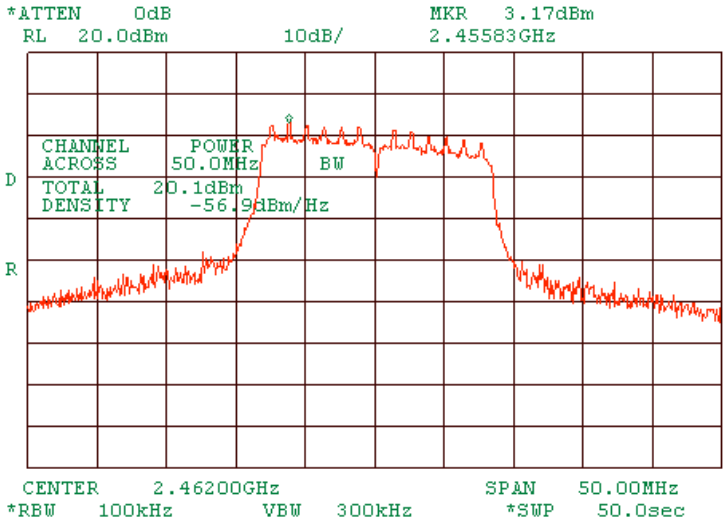
Plot 1.5.20 Peak output power at low frequency of MA 850 and MA 1000 interconnected, port 2. At 6Mbps OFDM.



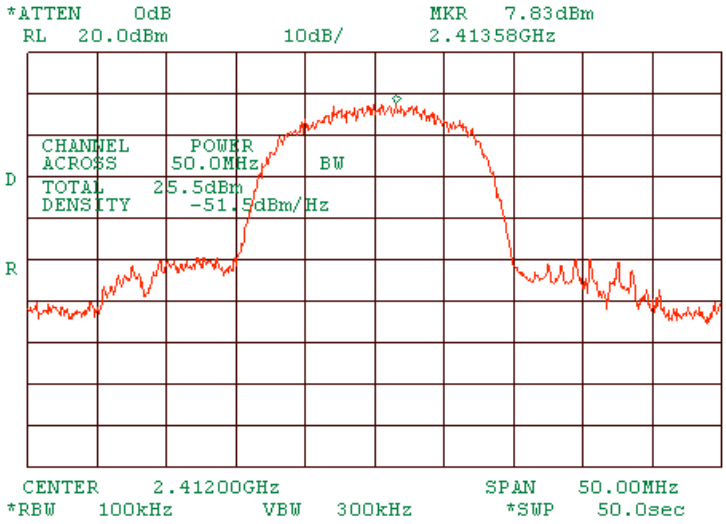
Plot 1.5.21 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 2. At 6Mbps OFDM.



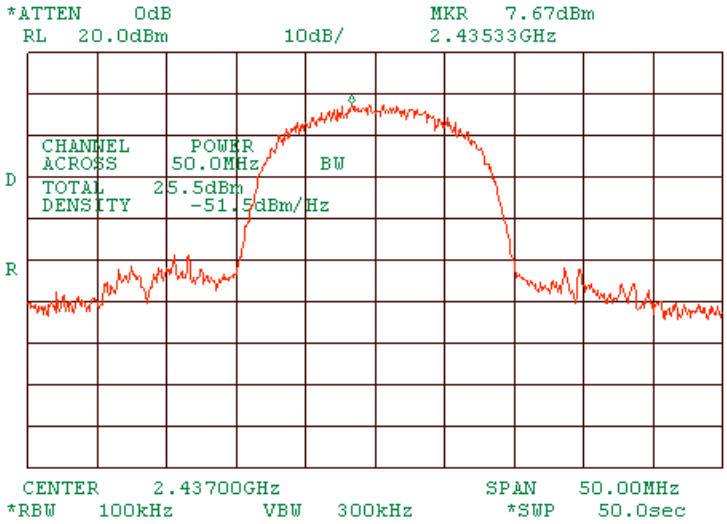
Plot 1.5.22 Peak output power at high frequency of MA 850 and MA 1000 interconnected, port 2. At 6Mbps OFDM.



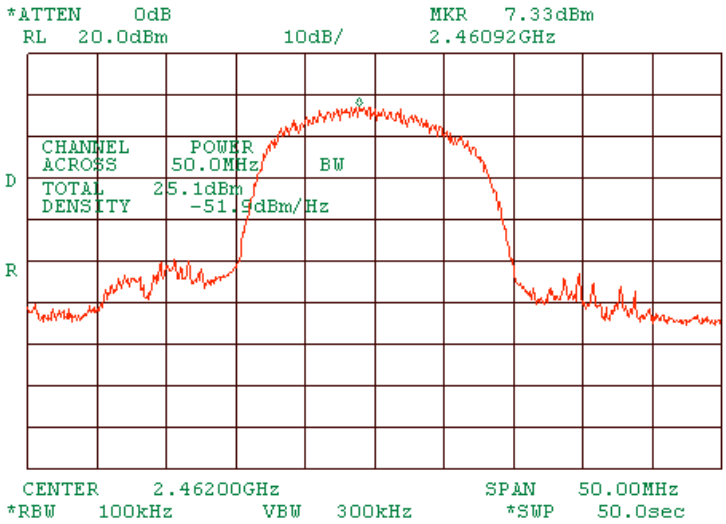
Plot 1.5.23 Peak output power at low frequency of MA 850 and MA 1000 interconnected, port 3. At 5.5Mbps DSSS.



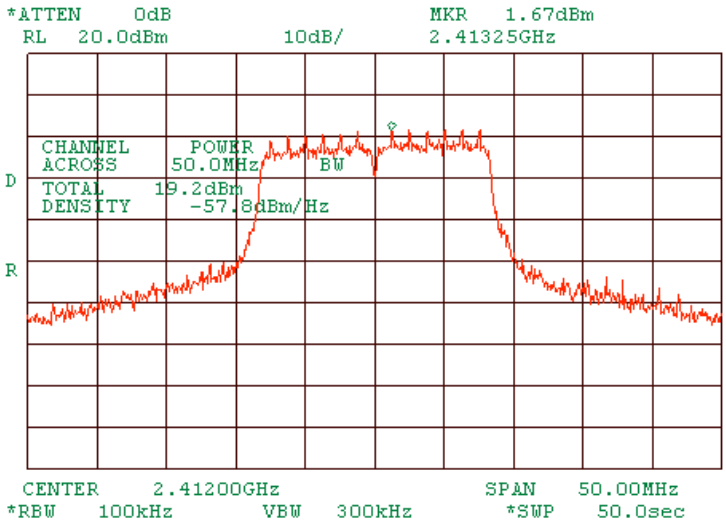
Plot 1.5.24 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 3. At 5.5Mbps DSSS.



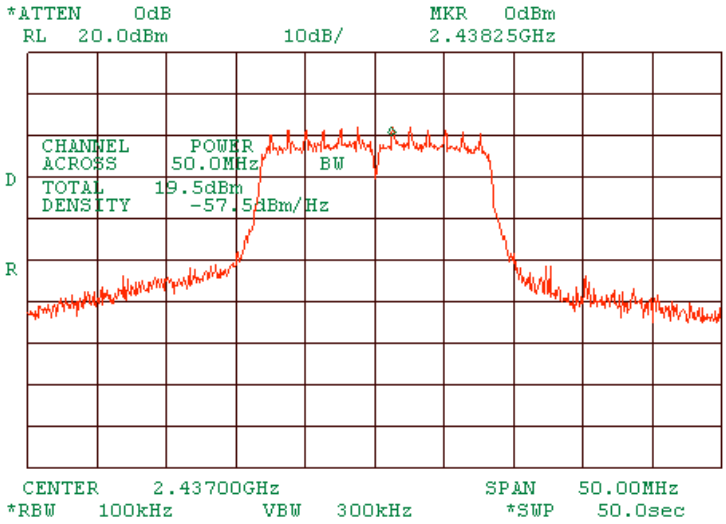
Plot 1.5.25 Peak output power at high frequency of MA 850 and MA 1000 interconnected, port 3. At 5.5Mbps DSSS.



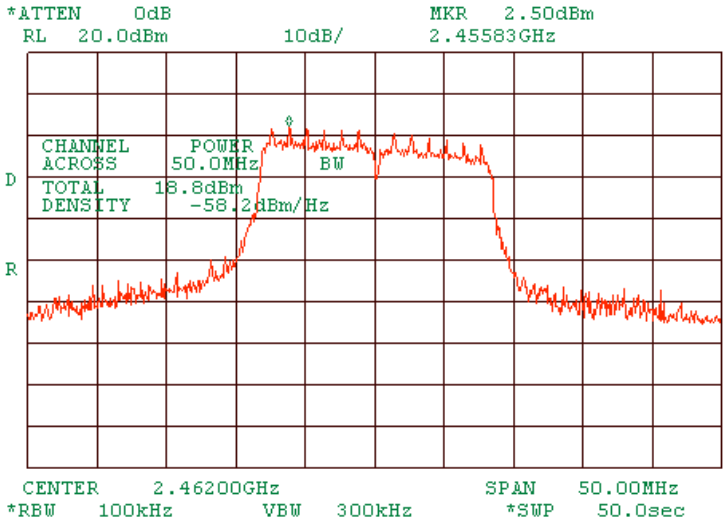
Plot 1.5.26 Peak output power at low frequency of MA 850 and MA 1000 interconnected, port 3. At 6Mbps OFDM.



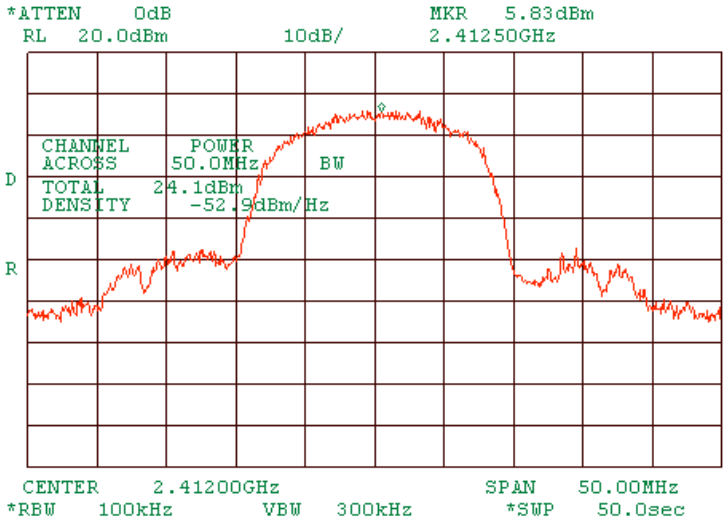
Plot 1.5.27 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 3. At 6Mbps OFDM.



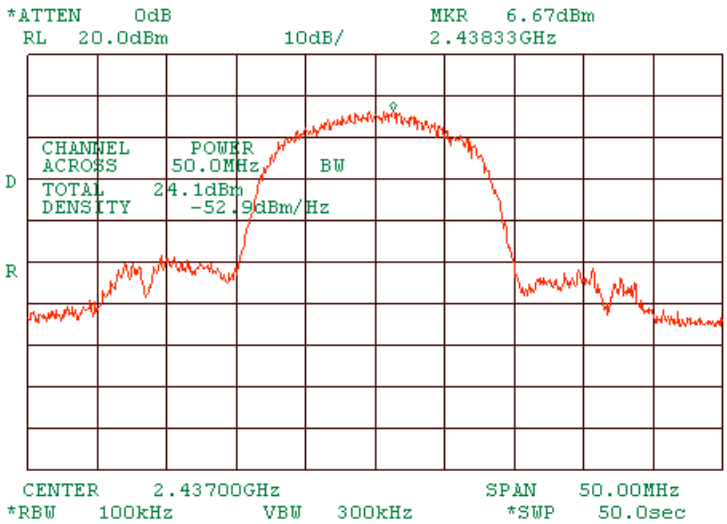
Plot 1.5.28 Peak output power at high frequency of MA 850 and MA 1000 interconnected, port 3. At 6Mbps OFDM.



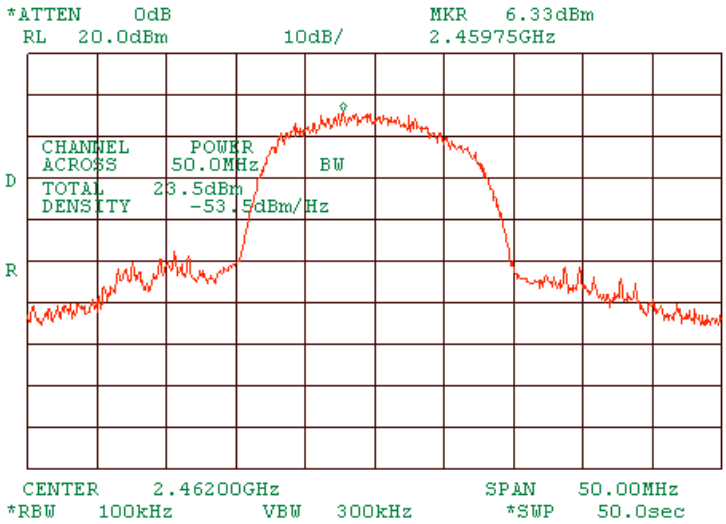
Plot 1.5.29 Peak output power at low frequency of MA 850 and MA 1000 interconnected, port 4. At 5.5Mbps DSSS.



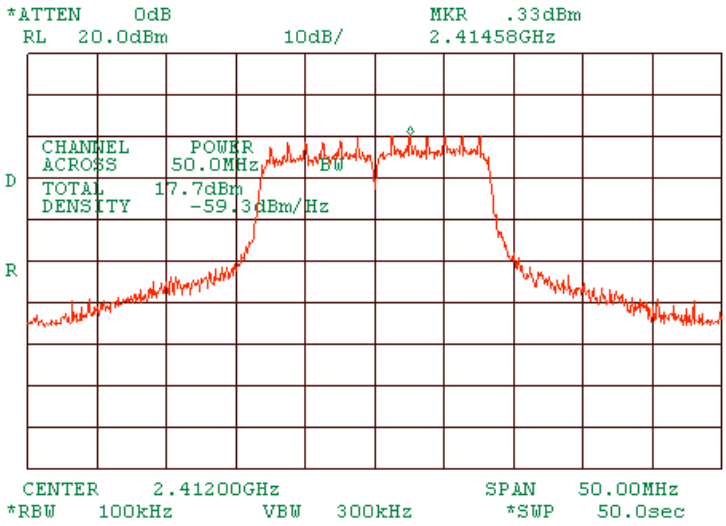
Plot 1.5.30 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 4. At 5.5Mbps DSSS.



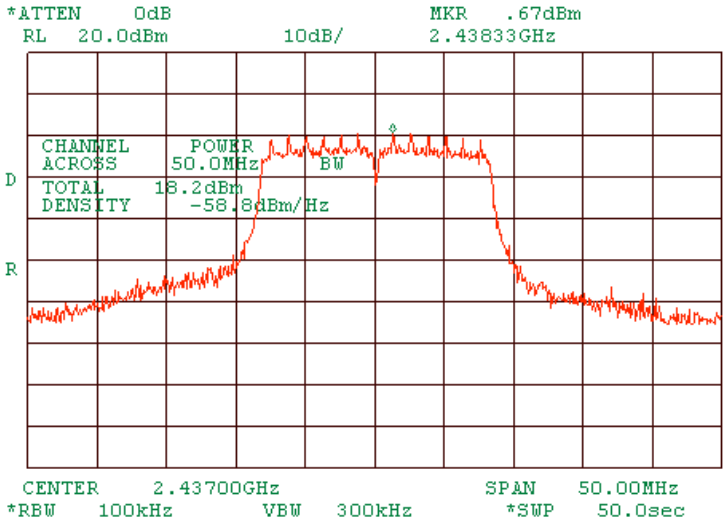
Plot 1.5.31 Peak output power at high frequency of MA 850 and MA 1000 interconnected, port 4. At 5.5Mbps DSSS.



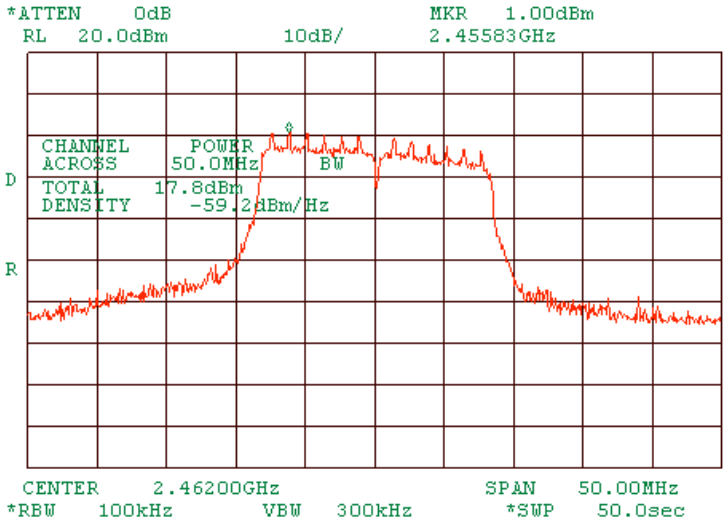
Plot 1.5.32 Peak output power at low frequency of MA 850 and MA 1000 interconnected, port 4. At 6Mbps OFDM.



Plot 1.5.33 Peak output power at mid frequency of MA 850 and MA 1000 interconnected, port 4. At 6Mbps OFDM.



Plot 1.5.34 Peak output power at high frequency of MA 850 and MA 1000 interconnected, port 4. At 6Mbps OFDM.



1.6 Peak output power

Photograph 1.6.1 Peak output power test setup

Table 1.6.1 Peak output power test results

ASSIGNED FREQUENCY:	2401 - 2473 MHz
ASSEMBLY	MA 850
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
DETECTOR USED:	Peak
CHANNEL POWER BANDWIDTH	50 MHz
RESOLUTION BANDWIDTH:	100 kHz
VIDEO BANDWIDTH:	300 kHz

Carrier frequency, MHz	Modulating signal	Bit rate, Mbps	Port	Peak output power, dBm	Limit, dBm	Margin*, dB	Verdict
DSSS							
2412	CCK	5.5	2	26.0	30	-4.0	Pass
2437				26.3	30	-3.7	Pass
2462				25.8	30	-4.2	Pass
OFDM							
2412	BPSK	6	2	20.1	30	-9.9	Pass
2437				20.2	30	-9.8	Pass
2462				20.1	30	-9.9	Pass

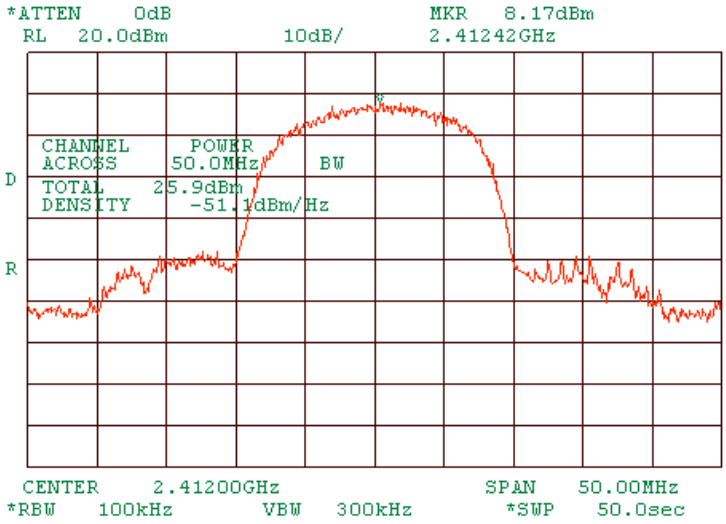
* - Margin = Peak output power – specification limit.

Reference numbers of test equipment used

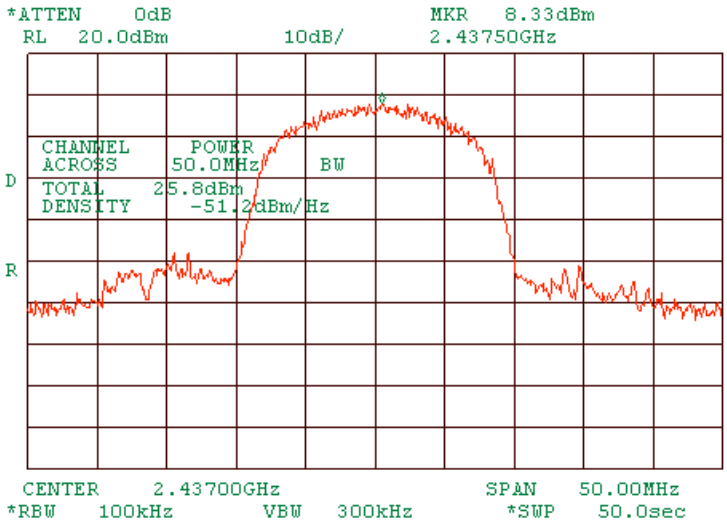
HL 1424	HL 1651	HL 2399					

Full description is given in Appendix A.

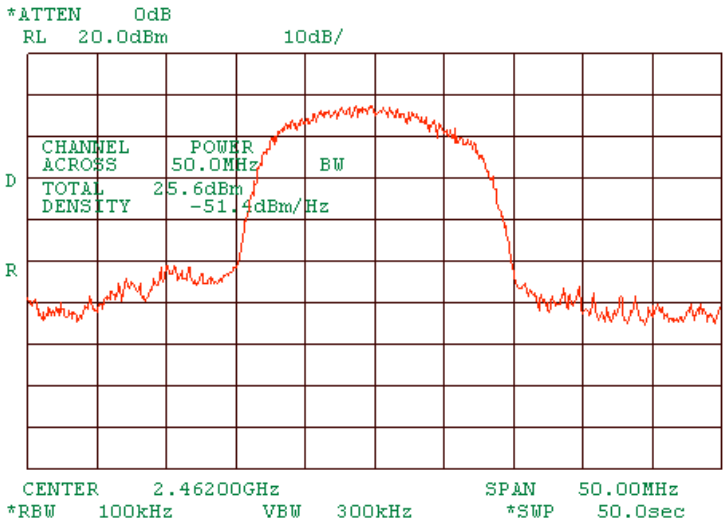
Plot 1.6.1 Peak output power at low frequency of MA 850, port 1. At 5.5Mbps DSSS.



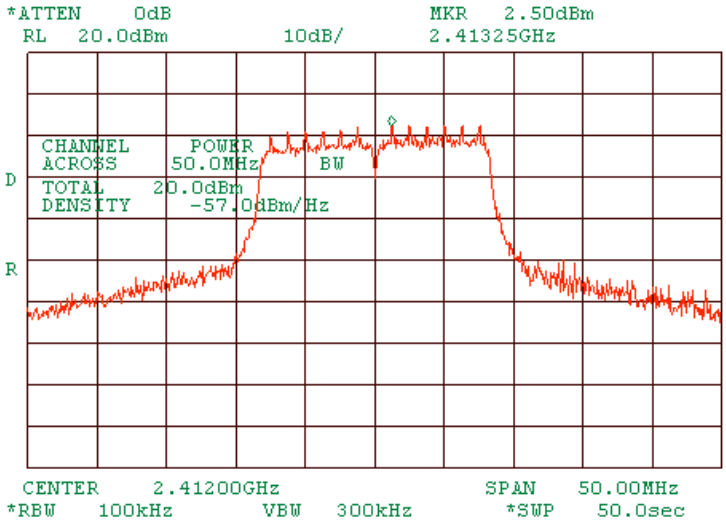
Plot 1.6.2 Peak output power at mid frequency of MA 850, port 1. At 5.5Mbps DSSS.



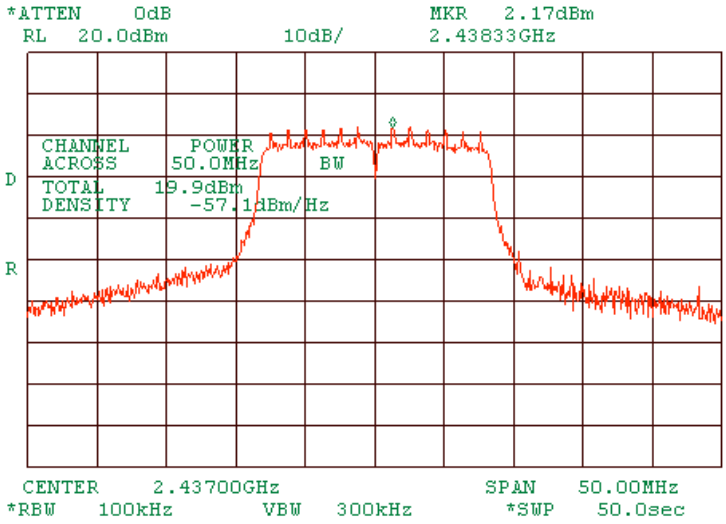
Plot 1.6.3 Peak output power at high frequency of MA 850 and MA 1000 interconnected, port 1. At 5.5Mbps DSSS.



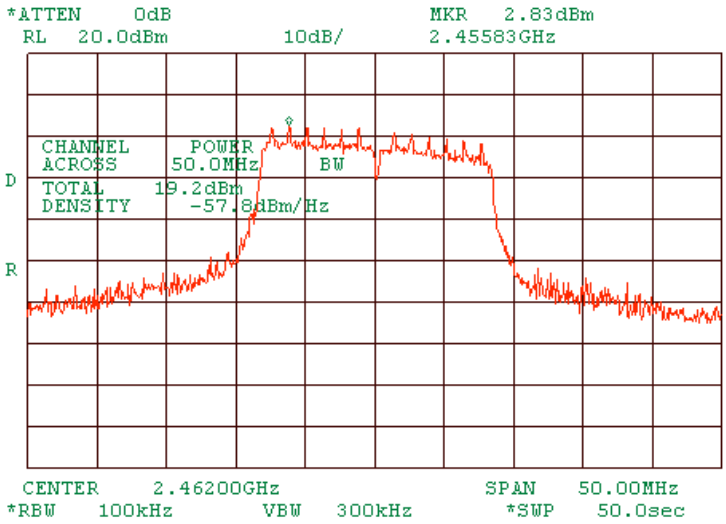
Plot 1.6.4 Peak output power at low frequency of MA 850, port 1. At 6 Mbps OFDM.



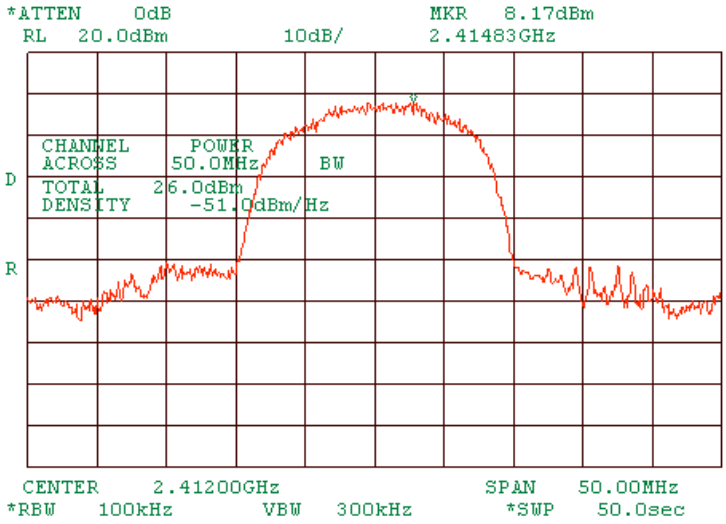
Plot 1.6.5 Peak output power at mid frequency of MA 850, port 1. At 6Mbps OFDM.



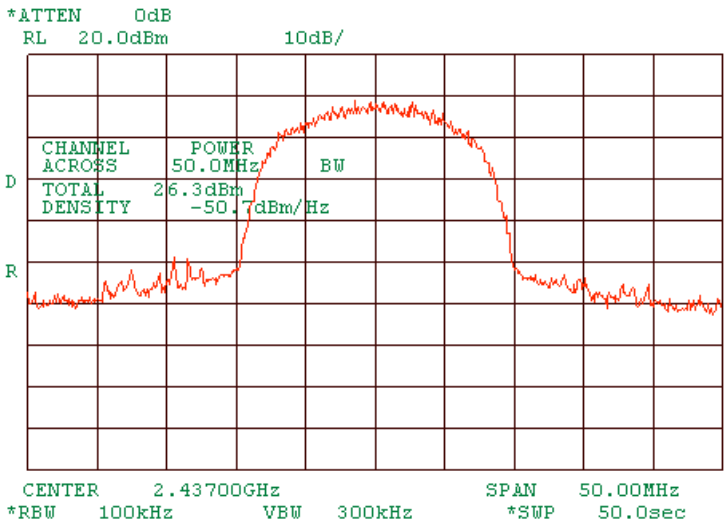
Plot 1.6.6 Peak output power at high frequency of MA 850, port 1. At 6 Mbps OFDM.



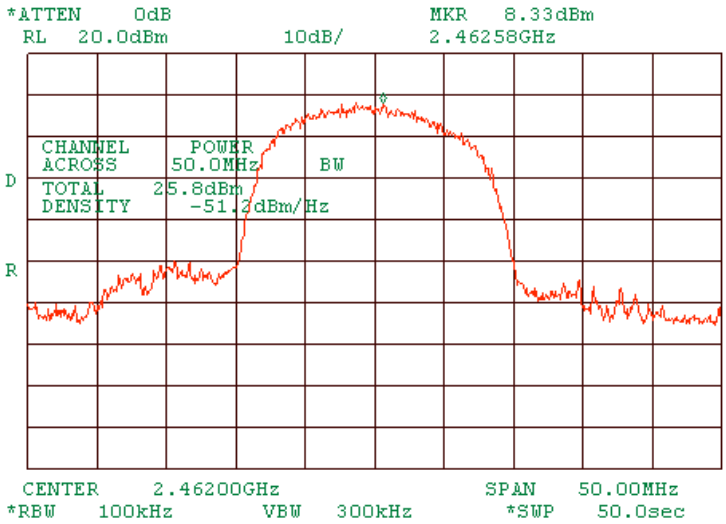
Plot 1.6.7 Peak output power at low frequency of MA 850, port 2. At 5.5Mbps DSSS.



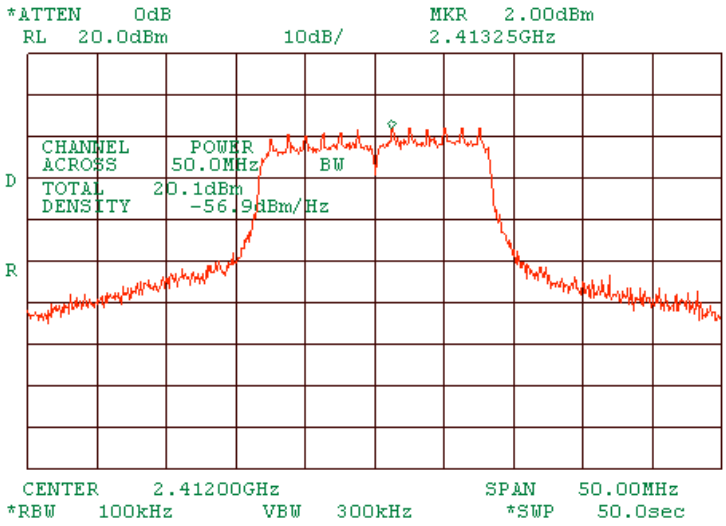
Plot 1.6.8 Peak output power at mid frequency of MA 850, port 2. At 5.5Mbps DSSS.



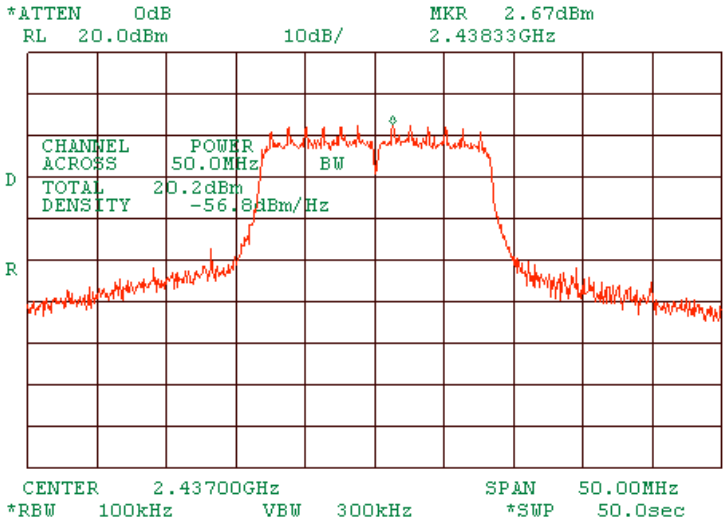
Plot 1.6.9 Peak output power at high frequency of MA 850, port 2. At 5.5Mbps DSSS.



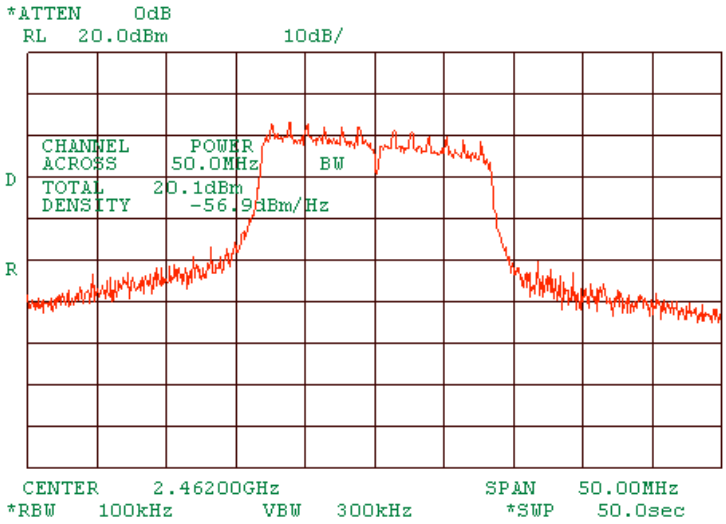
Plot 1.6.10 Peak output power at low frequency of MA 850, port 2. At 6Mbps OFDM.



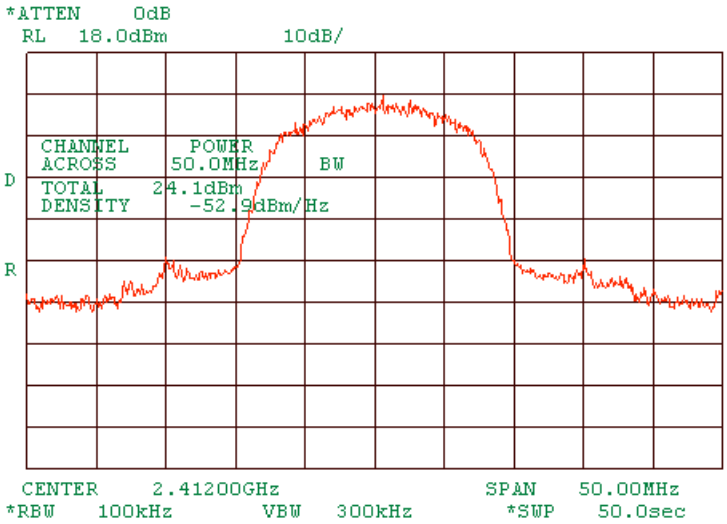
Plot 1.6.11 Peak output power at mid frequency of MA 850, port 2. At 6Mbps OFDM.



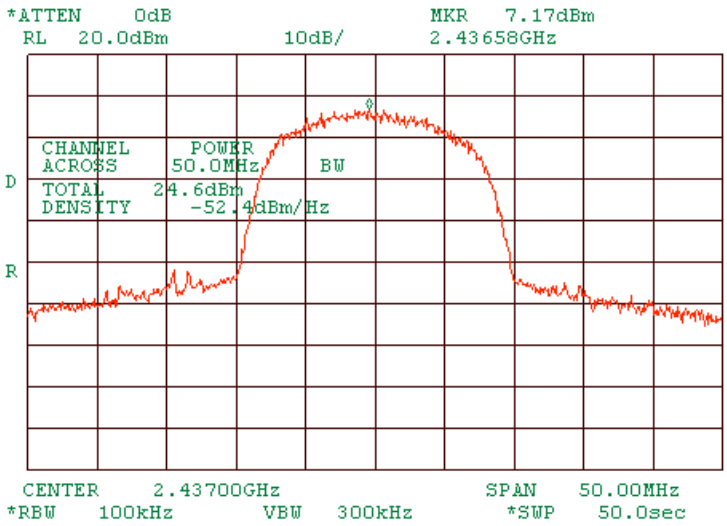
Plot 1.6.12 Peak output power at high frequency of MA 850, port 2. At 6Mbps OFDM.



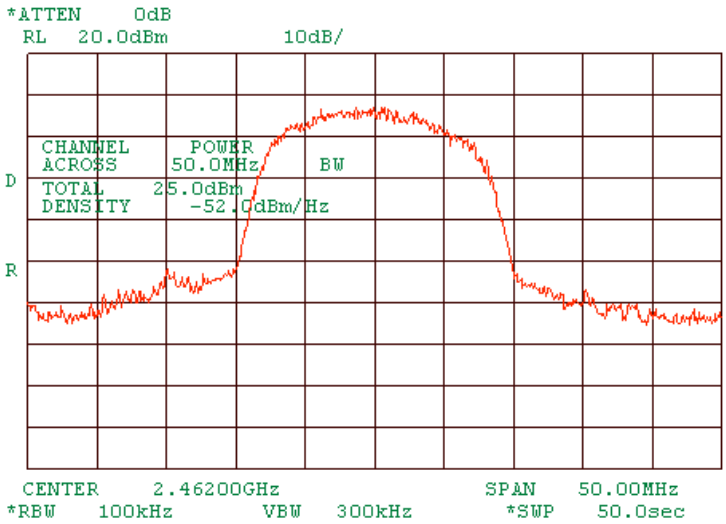
Plot 1.6.13 Peak output power at low frequency of MA 850, port 3. At 5.5Mbps DSSS.



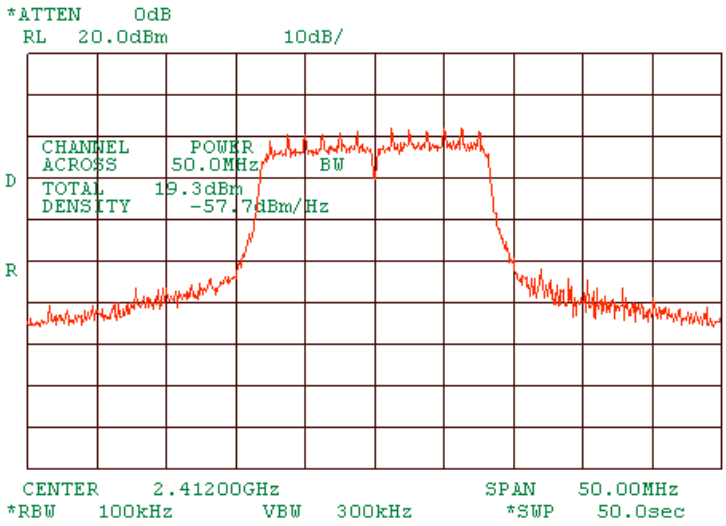
Plot 1.6.14 Peak output power at mid frequency of MA 850, port 3. At 5.5 Mbps DSSS.



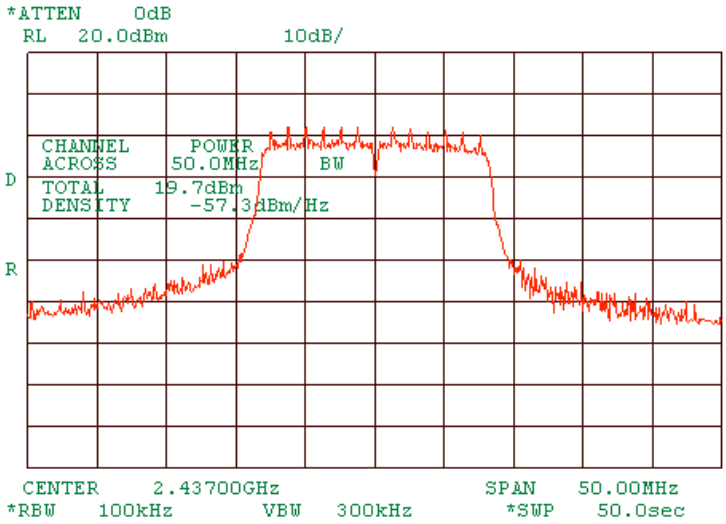
Plot 1.6.15 Peak output power at high frequency of MA 850, port 3. At 5.5Mbps DSSS.



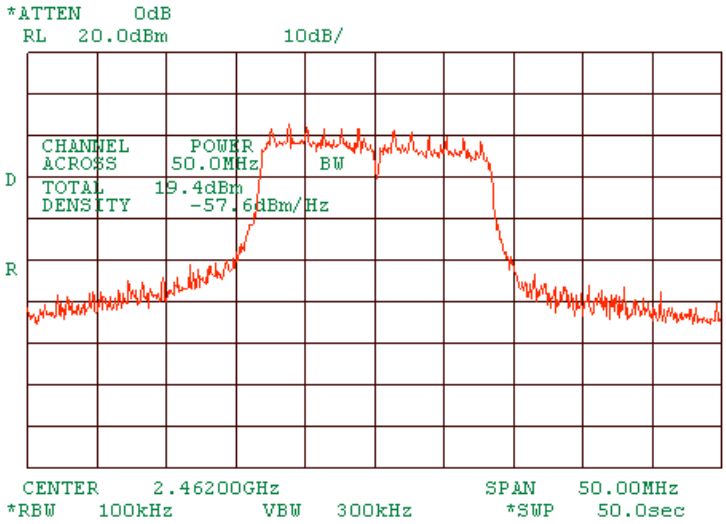
Plot 1.6.16 Peak output power at low frequency of MA 850, port 3. At 6Mbps OFDM.



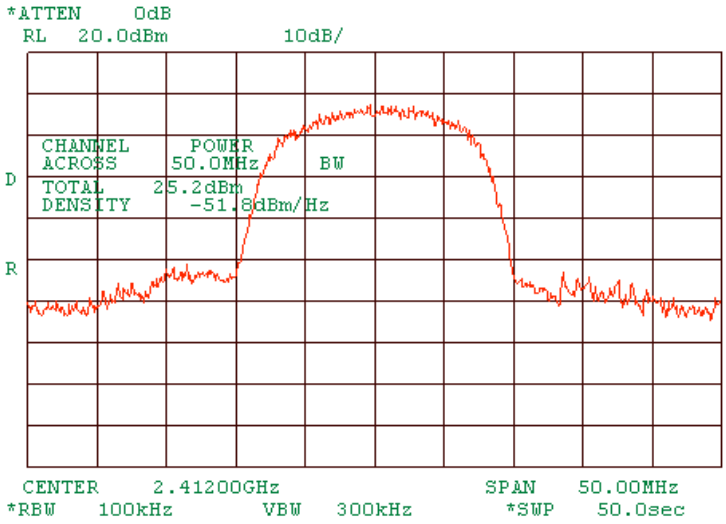
Plot 1.6.17 Peak output power at mid frequency of MA 850, port 3. At 6Mbps OFDM.



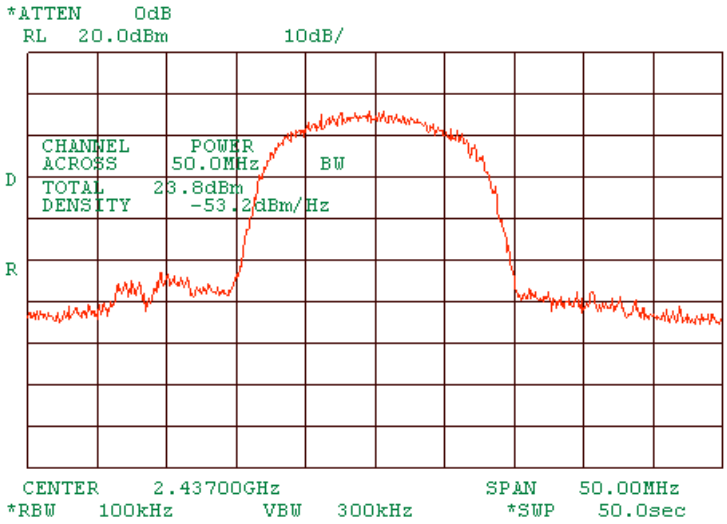
Plot 1.6.18 Peak output power at high frequency of MA 850. At 6Mbps OFDM.



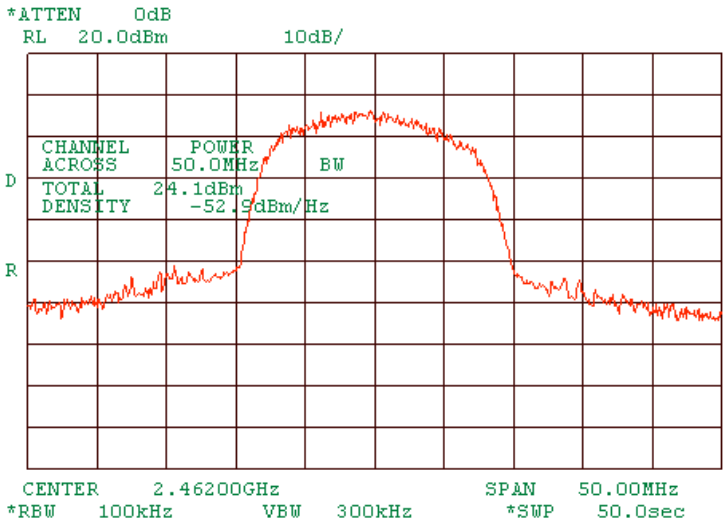
Plot 1.6.19 Peak output power at low frequency of MA 850, port 4. At 5.5Mbps DSSS.



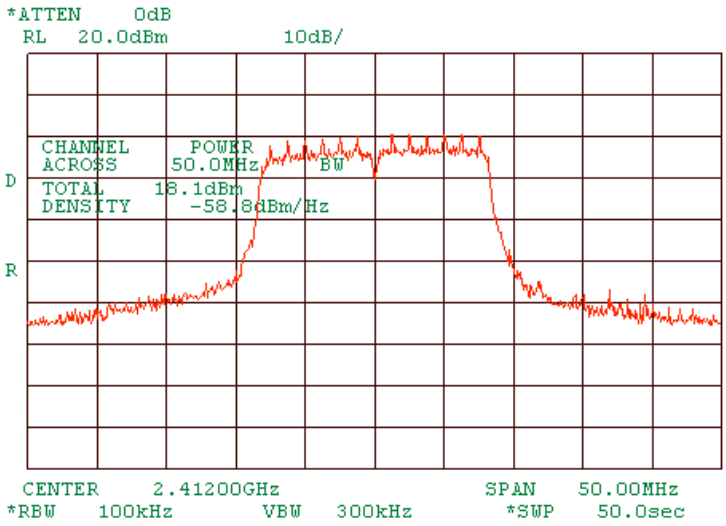
Plot 1.6.20 Peak output power at mid frequency of MA 850, port 4. At 5.5Mbps DSSS.



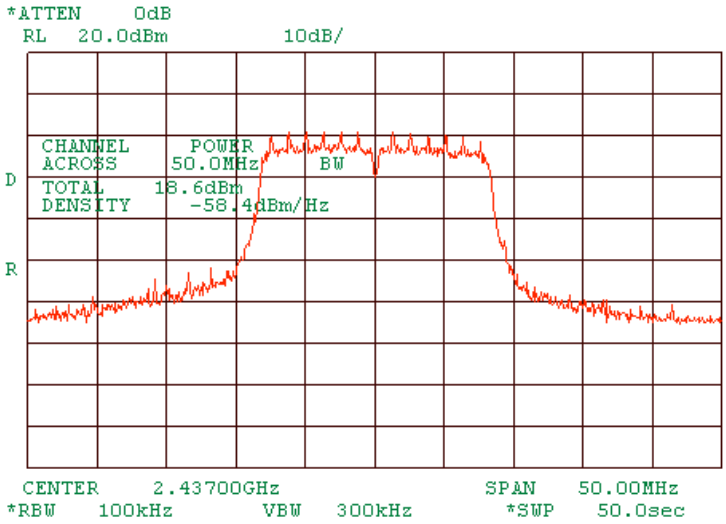
Plot 1.6.21 Peak output power at high frequency of MA 850, port 4. At 5.5Mbps DSSS.



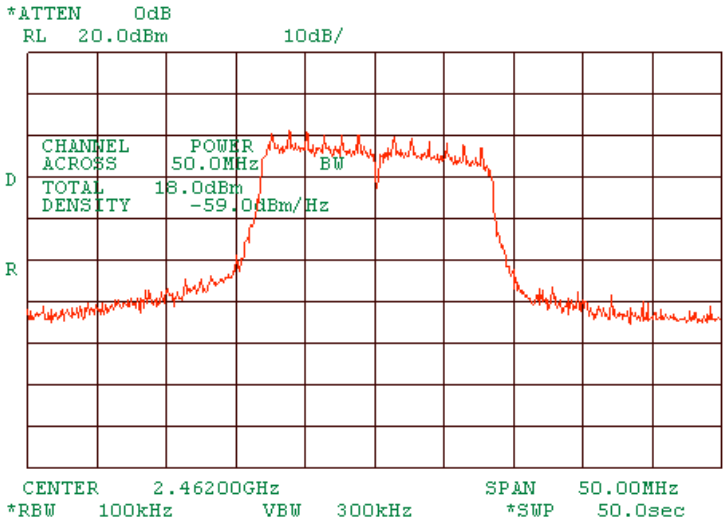
Plot 1.6.22 Peak output power at low frequency of MA 850, port 4. At 6Mbps OFDM.



Plot 1.6.23 Peak output power at mid frequency of MA 850, port 4. At 6Mbps OFDM.



Plot 1.6.24 Peak output power at high frequency of MA 850, port 4. At 6Mbps OFDM.



1.7 Spurious emissions at RF antenna connector

Photograph 1.7.1 Spurious emission test setup

Table 1.7.1 Spurious emission test results

ASSIGNED FREQUENCY RANGE:	2400 – 2483.5 MHz
INVESTIGATED FREQUENCY RANGE:	0.009 – 26500 MHz
ASSEMBLY:	MA 850, MA 1000 (Cell 800)
MA 1000 SETTINGS	Transmit at 869.0125, 869.0250 and 893.9875 MHz
PORT	2
DETECTOR USED:	Peak
RESOLUTION BANDWIDTH:	100 kHz
VIDEO BANDWIDTH:	300 kHz
MODULATION:	DSSS, OFDM
MODULATING SIGNAL:	CCK, BQPSK
BIT RATE:	5.5, 6 Mbps
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
TRANSMITTER OUTPUT POWER:	26.1 dBm at low carrier frequency 26.6 dBm at mid carrier frequency 25.6 dBm at high carrier frequency

Frequency, MHz	Spurious emission, dBm	Emission at carrier, dBm	Attenuation below carrier, dBc	Limit, dBc	Margin, dB*	Verdict
DSSS modulation						
Low carrier frequency						
918.957	-24.67	11.17	35.84	20.0	15.84	Pass
1969.3	-38.67		38.67		38.67	
Mid carrier frequency						
918.954	-24.83	8.00	32.83	20.0	12.83	Pass
1964.0	-38.00		38.00		38	
High carrier frequency						
918.950	-24.83	9.17	34.00	20.0	14	Pass
1974.0	-36.67		36.67		36.67	
OFDM modulation						
Low carrier frequency						
0.38508	-38.17	3.50	41.67	20.0	21.67	Pass
918.957	-25.00		25.00		25	
1970.3	-38.83		38.83		38.83	
Mid carrier frequency						
0.38525	-38.00	3.50	41.50	20.0	21.5	Pass
918.960	-24.83		24.83		24.83	
1973.0	-38.00		38.00		38	
High carrier frequency						
0.38483	-37.83	4.17	42.00	20.0	22	Pass
918.953	-25.00		25.00		25	
1967.0	-37.67		37.67		37.67	

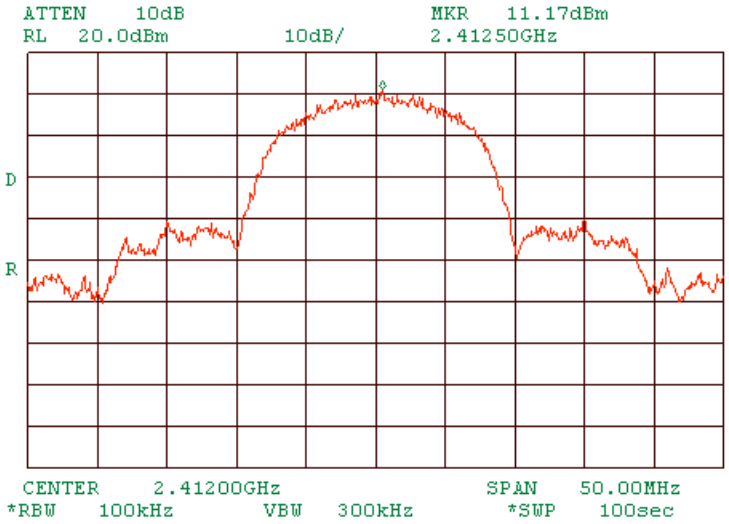
*****- Margin = Attenuation below carrier – specification limit.

Reference numbers of test equipment used

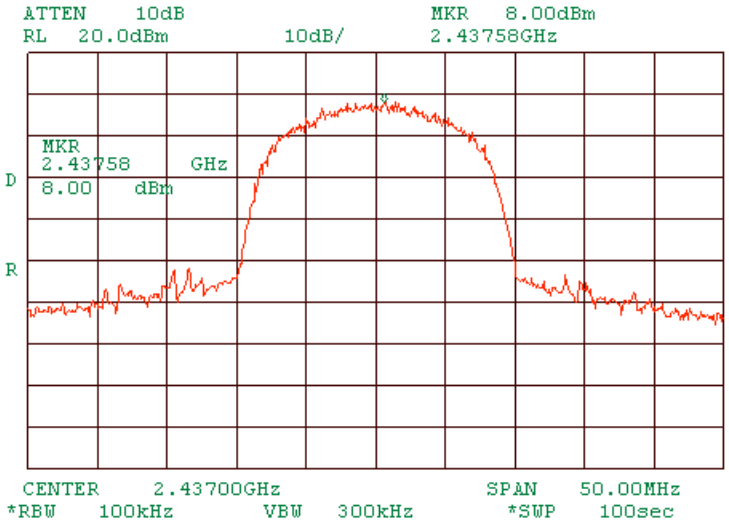
HL 1424	HL 2399	HL 2524					

Full description is given in Appendix A.

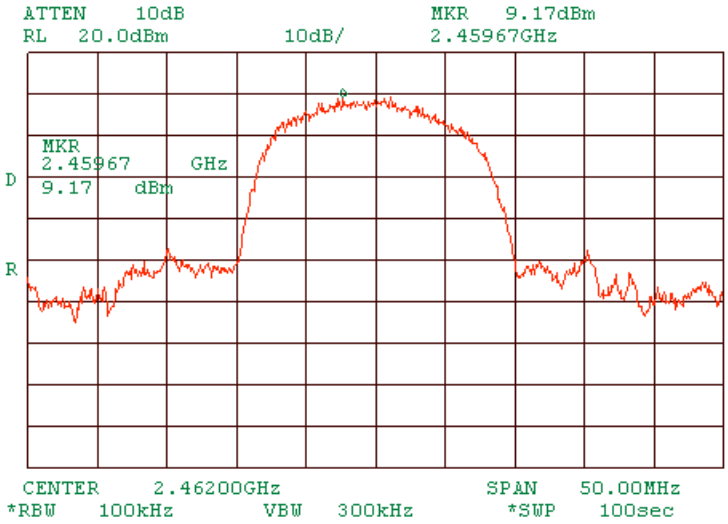
Plot 1.7.1 The highest emission level within the assigned band at low carrier frequency DSSS



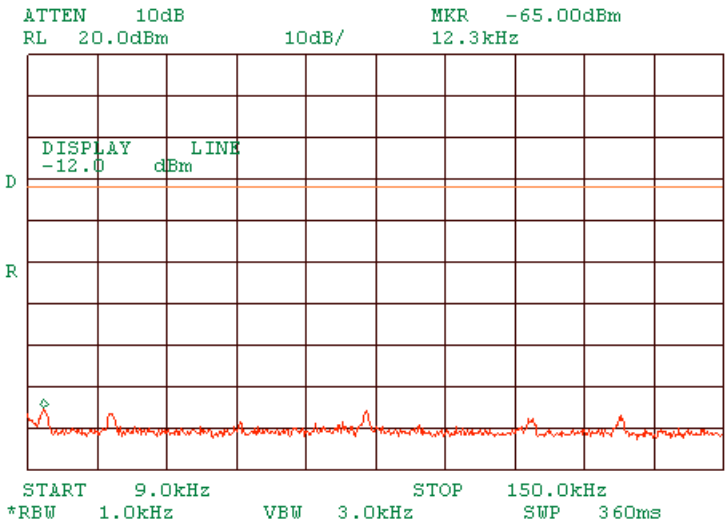
Plot 1.7.2 The highest emission level within the assigned band at mid carrier frequency DSSS



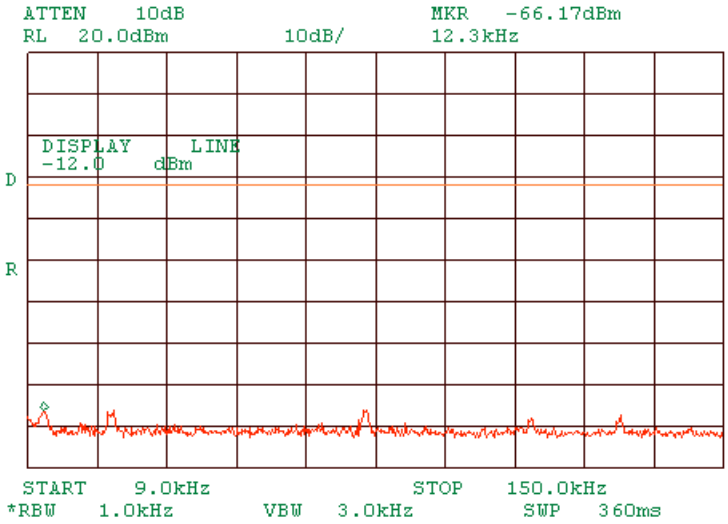
Plot 1.7.3 The highest emission level within the assigned band at high carrier frequency DSSS



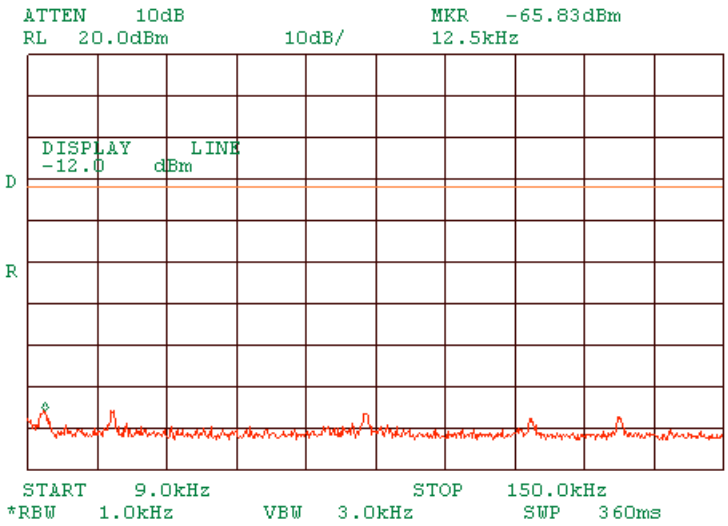
Plot 1.7.4 Spurious emission measurements in 9 - 150 kHz range at low carrier frequency DSSS



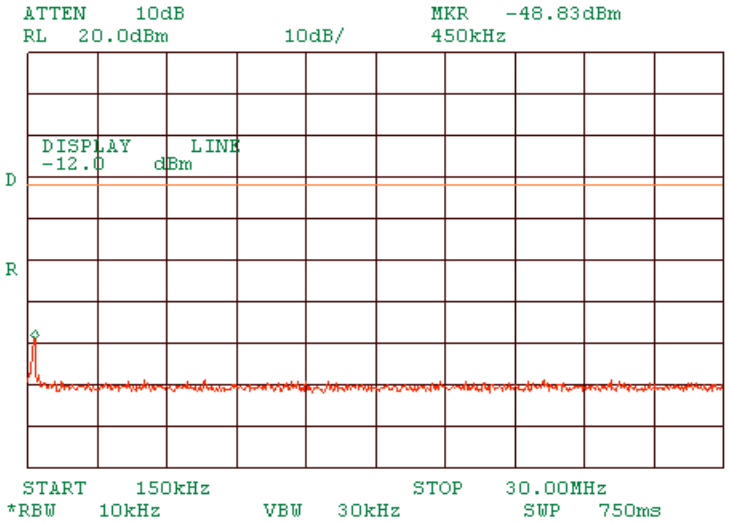
Plot 1.7.5 Spurious emission measurements in 9 - 150 kHz range at mid carrier frequency DSSS



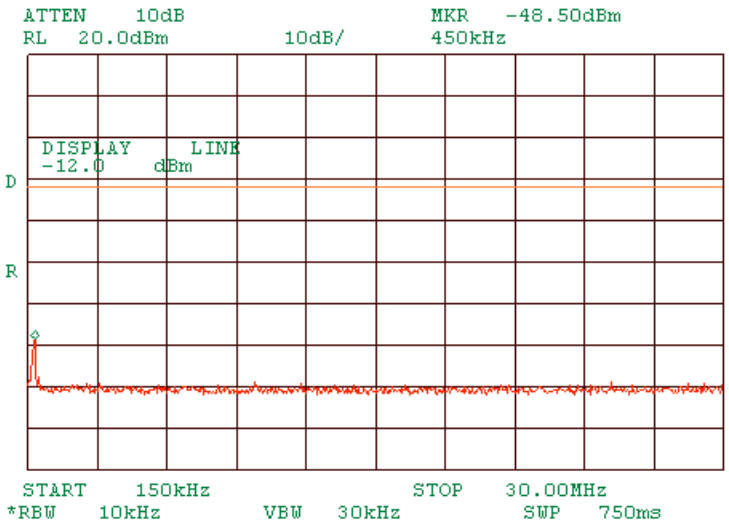
Plot 1.7.6 Spurious emission measurements in 9 - 150 kHz range at high carrier frequency DSSS



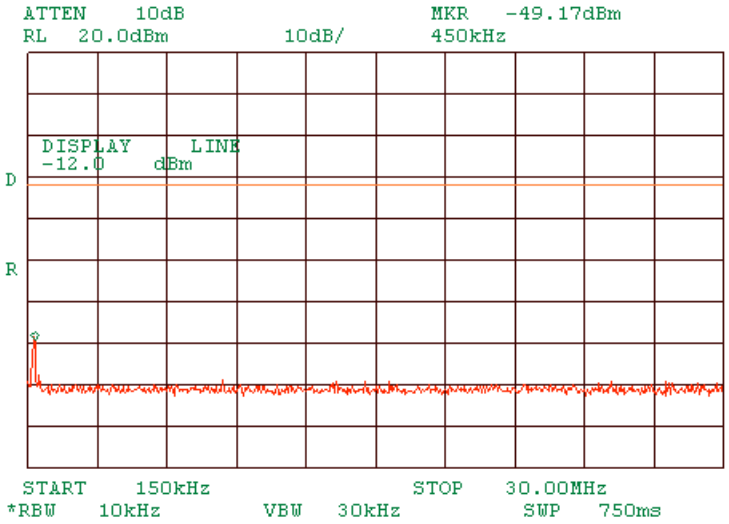
Plot 1.7.7 Spurious emission measurements in 0.15 - 30 MHz range at low carrier frequency DSSS



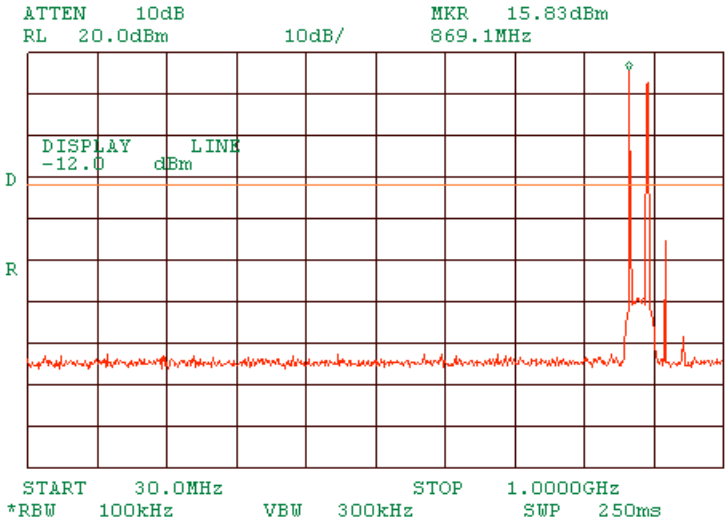
Plot 1.7.8 Spurious emission measurements in 0.15 - 30 MHz range at mid carrier frequency DSSS



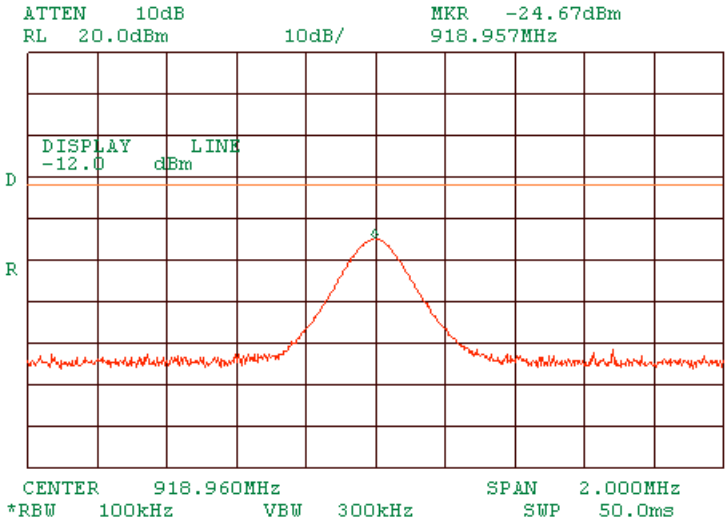
Plot 1.7.9 Spurious emission measurements in 0.15 - 30 MHz range at high carrier frequency DSSS



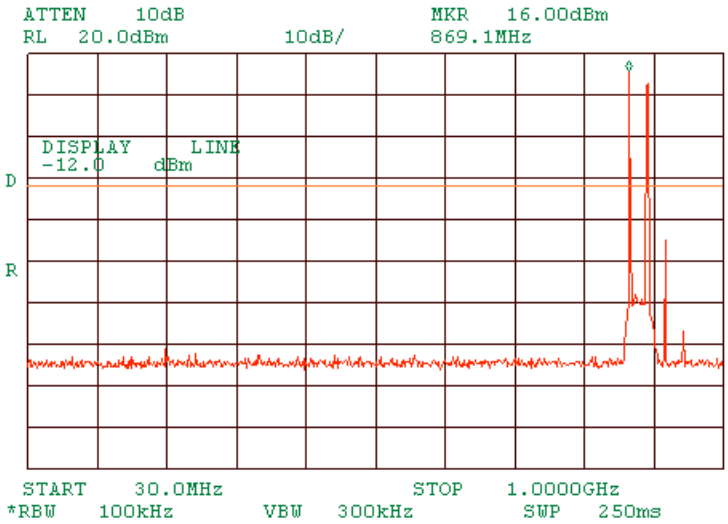
Plot 1.7.10 Spurious emission measurements in 30 - 1000 MHz range at low carrier frequency DSSS



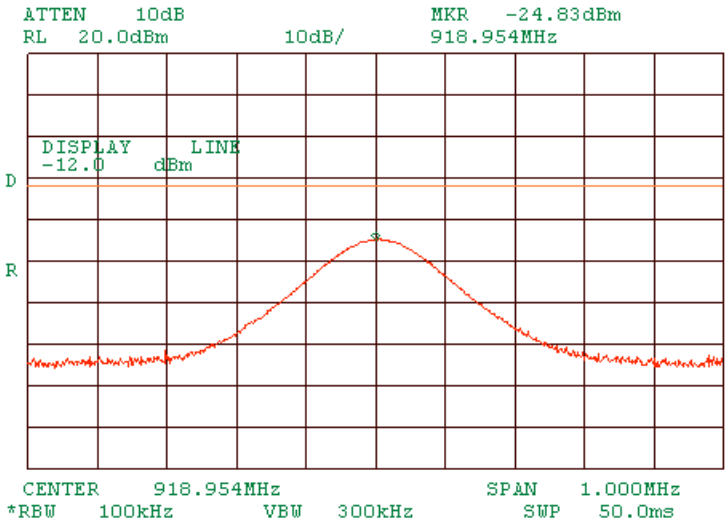
Plot 1.7.11 Zoom into spurious at low carrier frequency DSSS



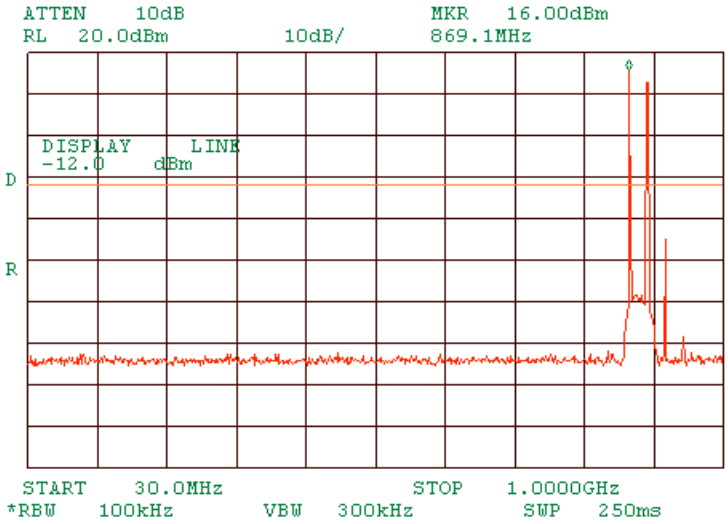
Plot 1.7.12 Spurious emission measurements in 30 - 1000 MHz range at mid carrier frequency DSSS



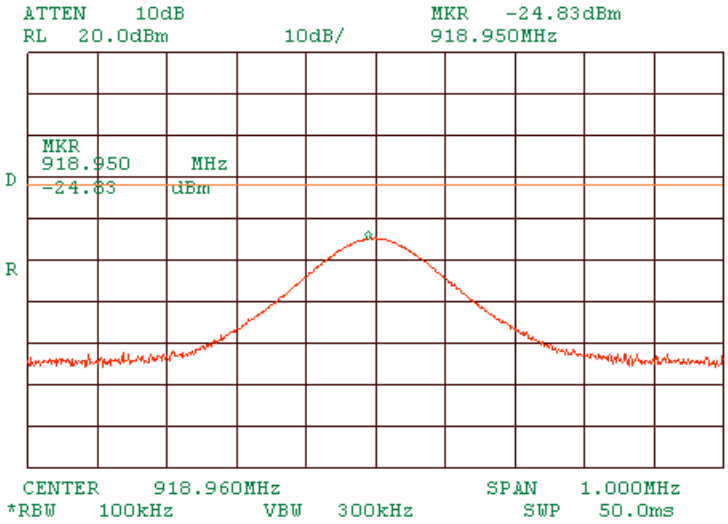
Plot 1.7.13 Zoom into spurious at mid carrier frequency DSSS



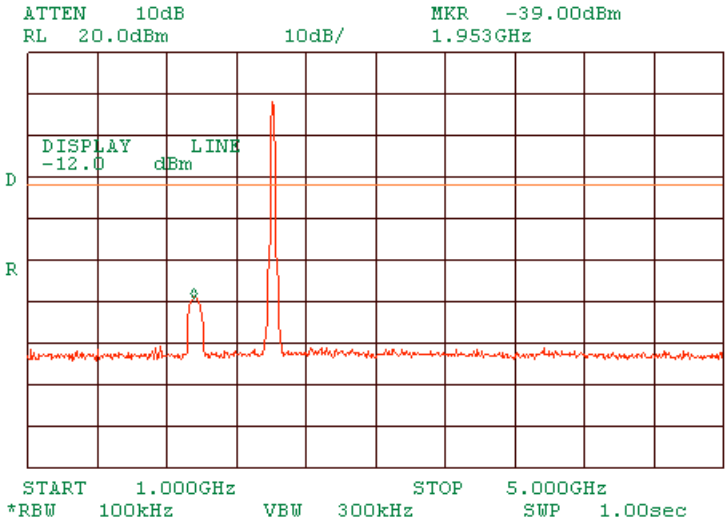
Plot 1.7.14 Spurious emission measurements in 30 - 1000 MHz range at high carrier frequency DSSS



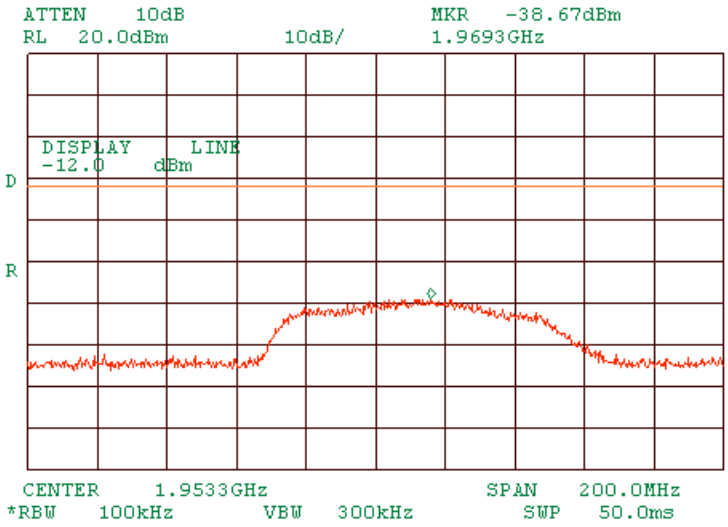
Plot 1.7.15 Zoom into spurious at mid carrier frequency DSSS



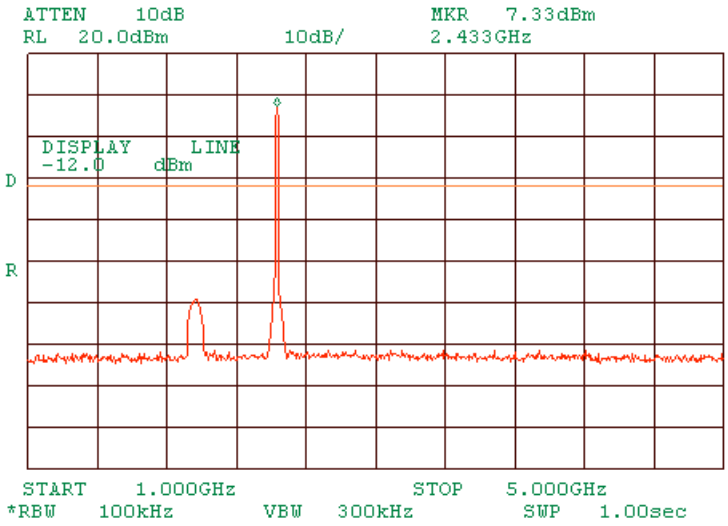
Plot 1.7.16 Spurious emission measurements in 1000 - 5000 MHz range at low carrier frequency DSSS



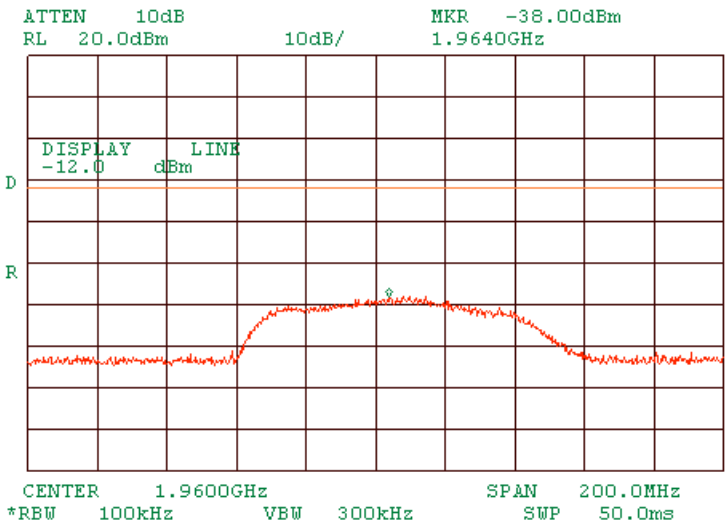
Plot 1.7.17 Zoom into spurious at mid carrier frequency DSSS



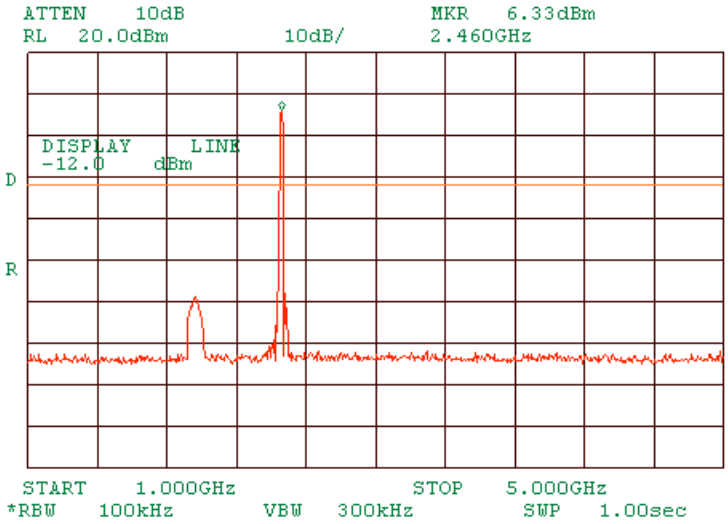
Plot 1.7.18 Spurious emission measurements in 1000 - 5000 MHz range at mid carrier frequency DSSS



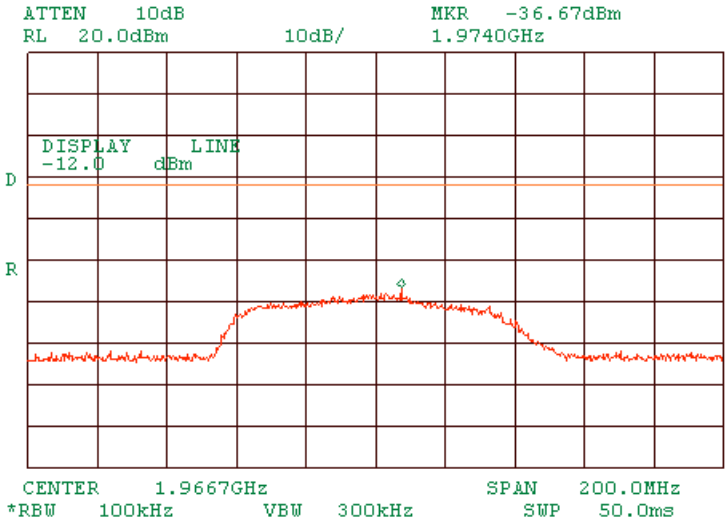
Plot 1.7.19 Zoom into spurious at mid carrier frequency DSSS



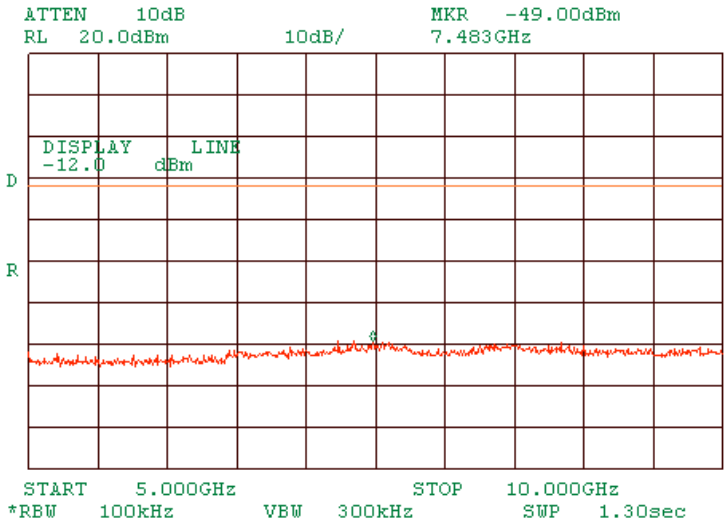
Plot 1.7.20 Spurious emission measurements in 1000 - 5000 MHz range at high carrier frequency DSSS



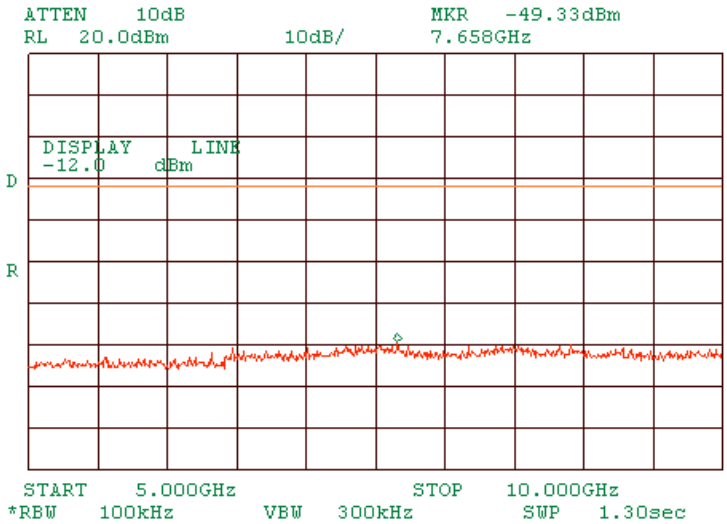
Plot 1.7.21 Zoom into spurious at high carrier frequency DSSS



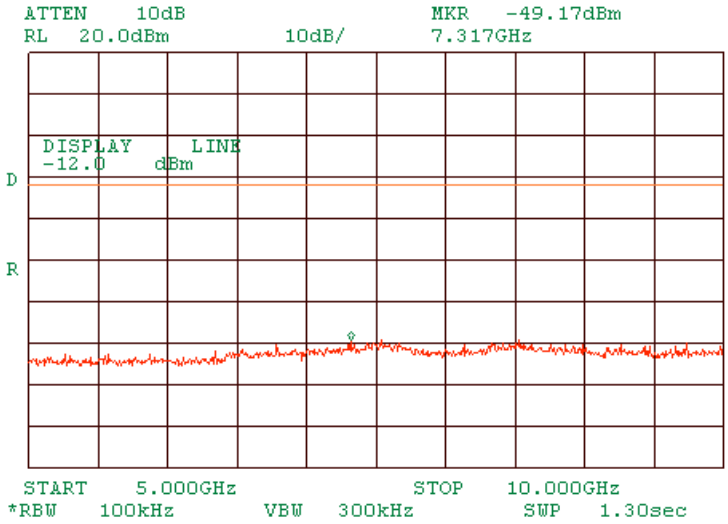
Plot 1.7.22 Spurious emission measurements in 5000 - 10000 MHz range at low carrier frequency DSSS



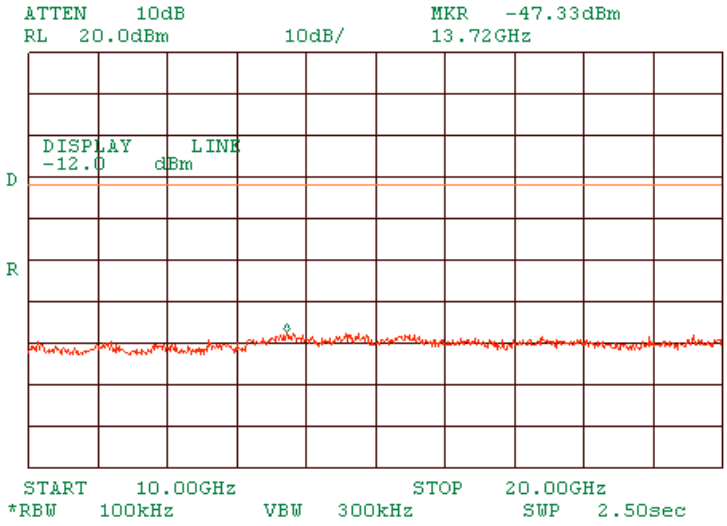
Plot 1.7.23 Spurious emission measurements in 5000 - 10000 MHz range at mid carrier frequency DSSS



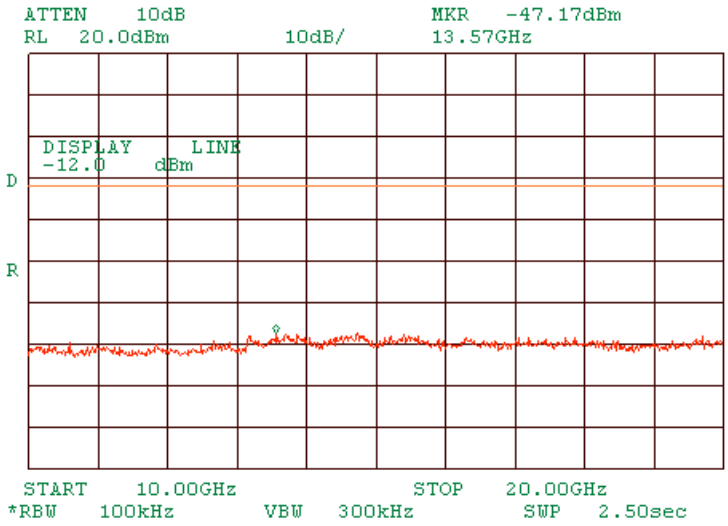
Plot 1.7.24 Spurious emission measurements in 5000 - 10000 MHz range at high carrier frequency DSSS



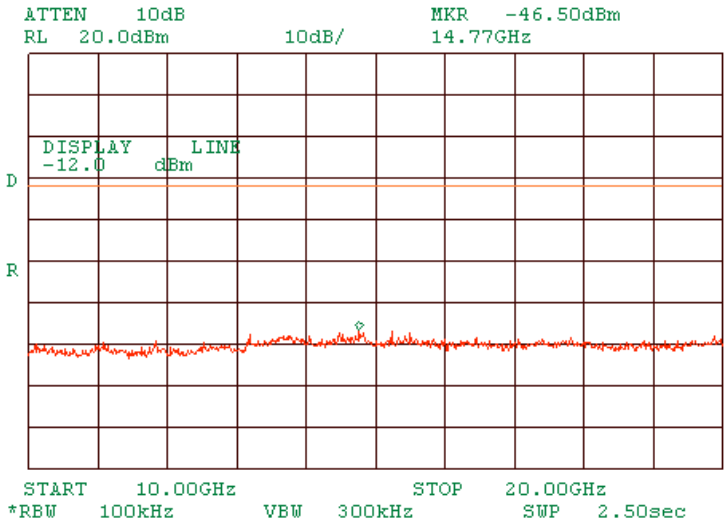
Plot 1.7.25 Spurious emission measurements in 10000 - 20000 MHz range at low carrier frequency DSSS



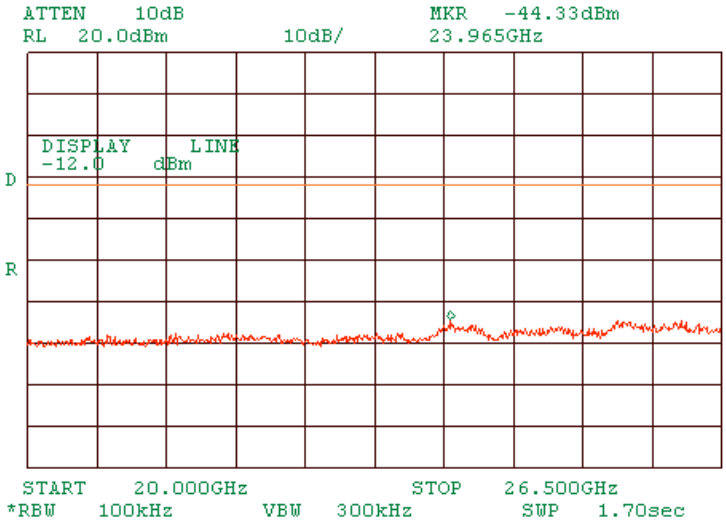
Plot 1.7.26 Spurious emission measurements in 10000 - 20000 MHz range at mid carrier frequency DSSS



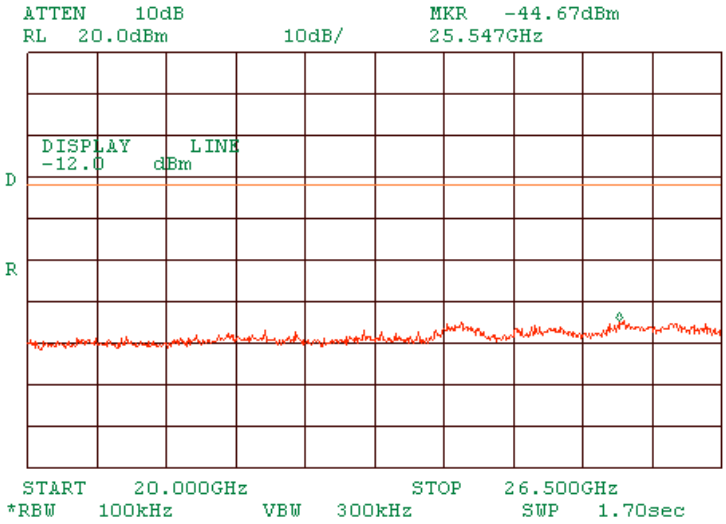
Plot 1.7.27 Spurious emission measurements in 10000 - 20000 MHz range at high carrier frequency DSSS



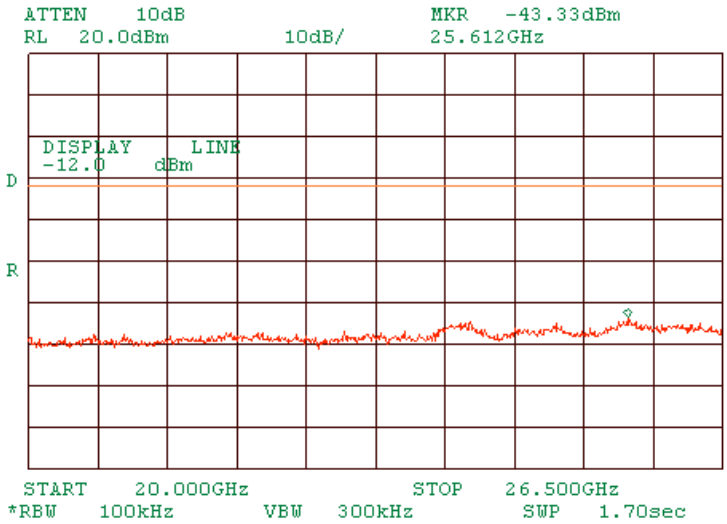
Plot 1.7.28 Spurious emission measurements in 20000 - 26500 MHz range at low carrier frequency DSSS



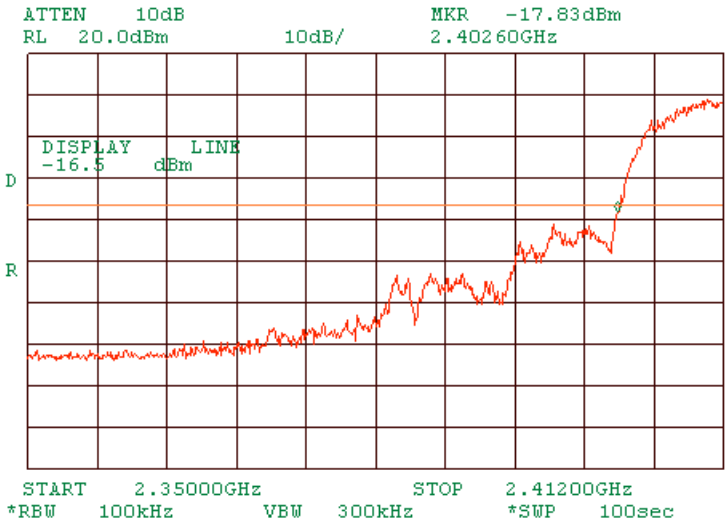
Plot 1.7.29 Spurious emission measurements in 20000 - 26500 MHz range at mid carrier frequency DSSS



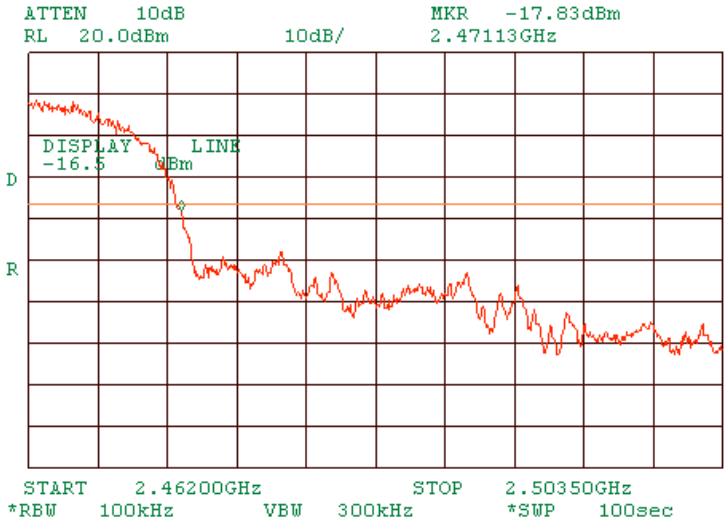
Plot 1.7.30 Spurious emission measurements in 20000 - 26500 MHz range at high carrier frequency DSSS



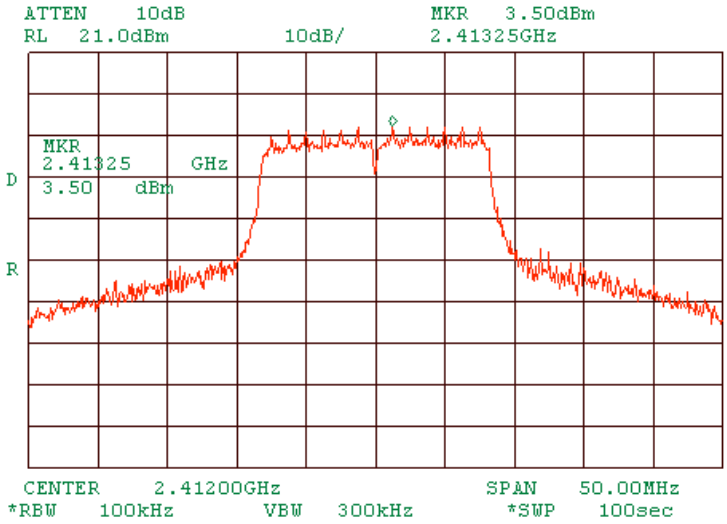
Plot 1.7.31 Band edge measurements at low carrier frequency DSSS



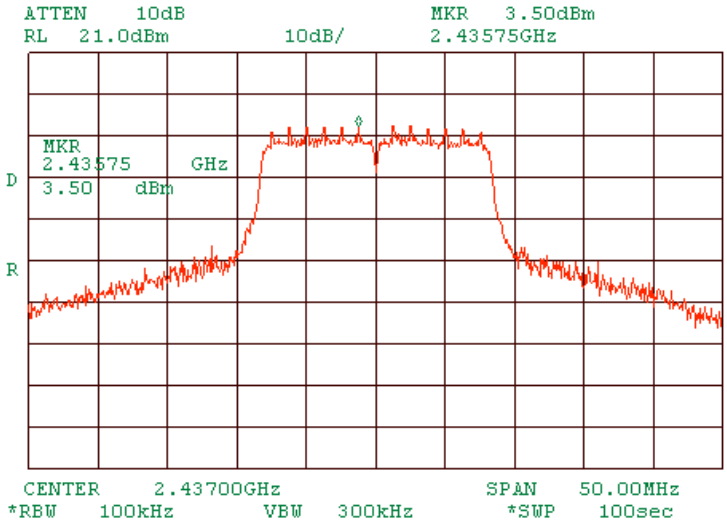
Plot 1.7.32 Band edge measurements at high carrier frequency DSSS



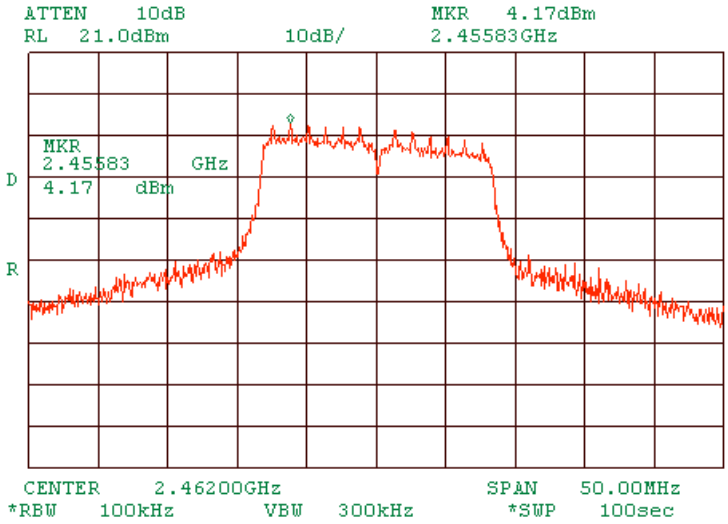
Plot 1.7.33 The highest emission level within the assigned band at low carrier frequency OFDM



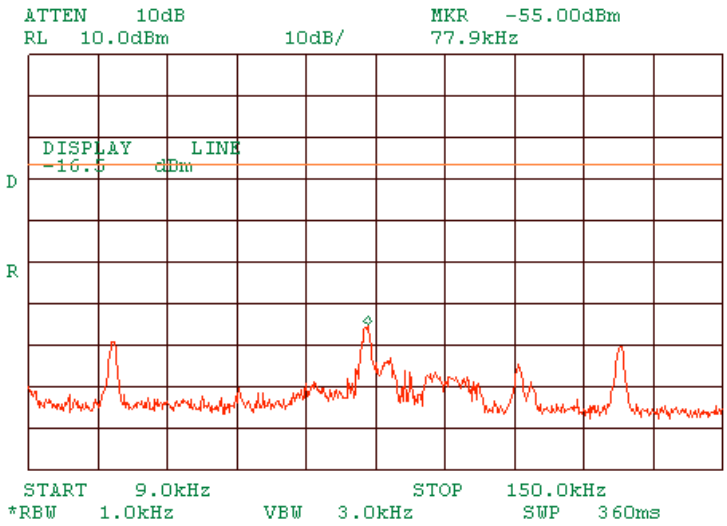
Plot 1.7.34 The highest emission level within the assigned band at mid carrier frequency OFDM



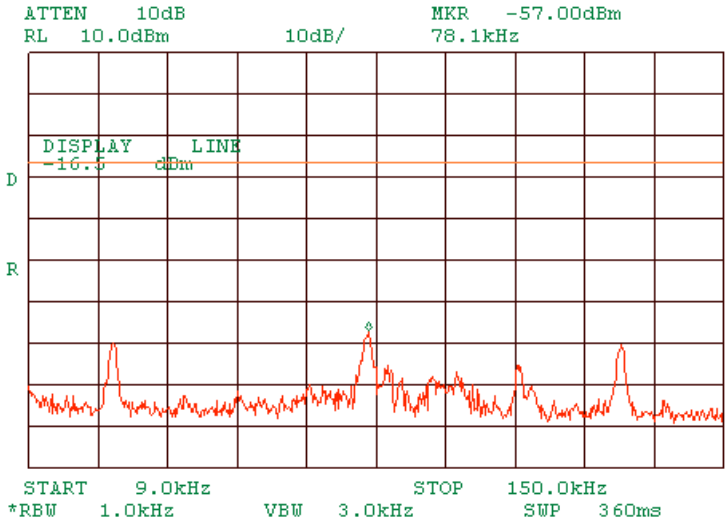
Plot 1.7.35 The highest emission level within the assigned band at high carrier frequency OFDM



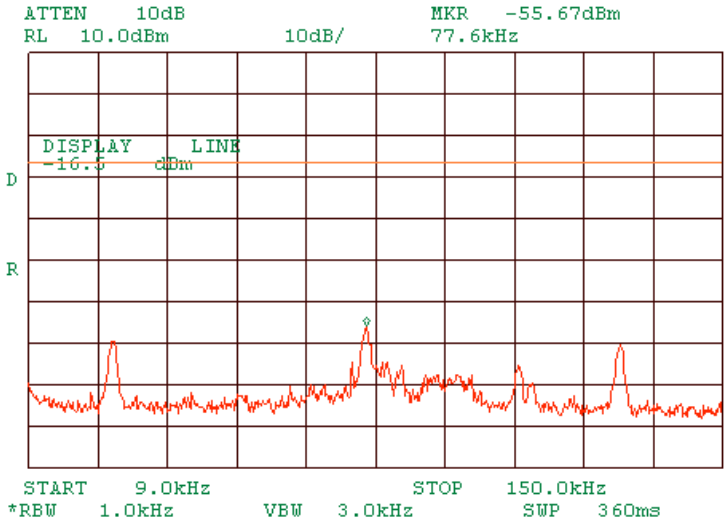
Plot 1.7.36 Spurious emission measurements in 9 - 150 kHz range at low carrier frequency OFDM



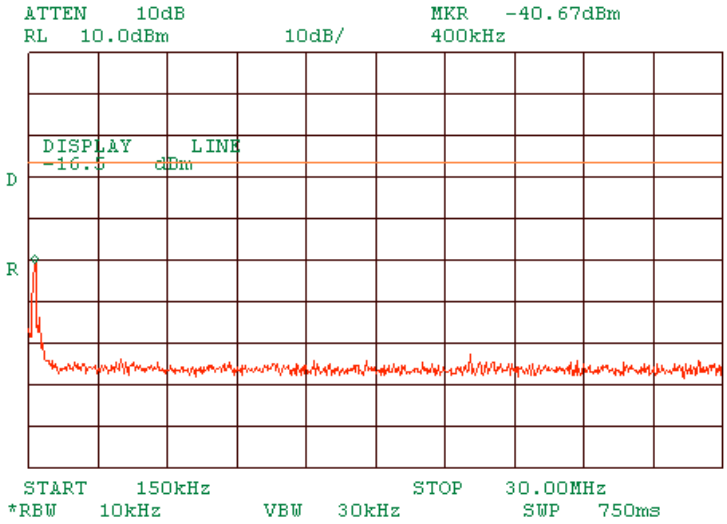
Plot 1.7.37 Spurious emission measurements in 9 - 150 kHz range at mid carrier frequency OFDM



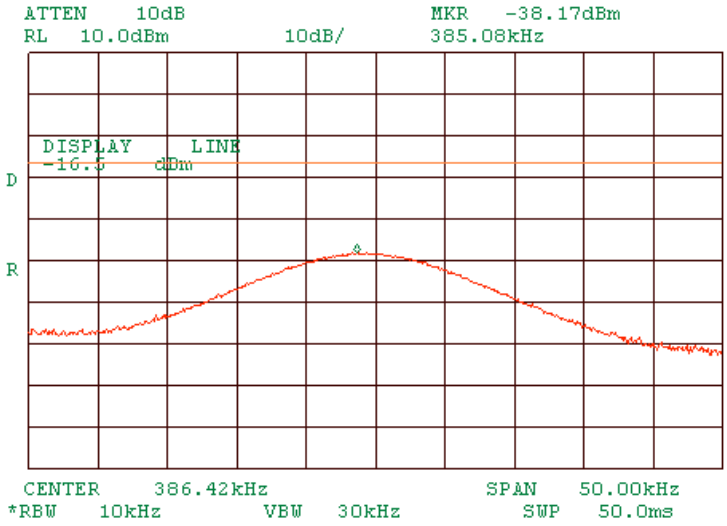
Plot 1.7.38 Spurious emission measurements in 9 - 150 kHz range at high carrier frequency OFDM



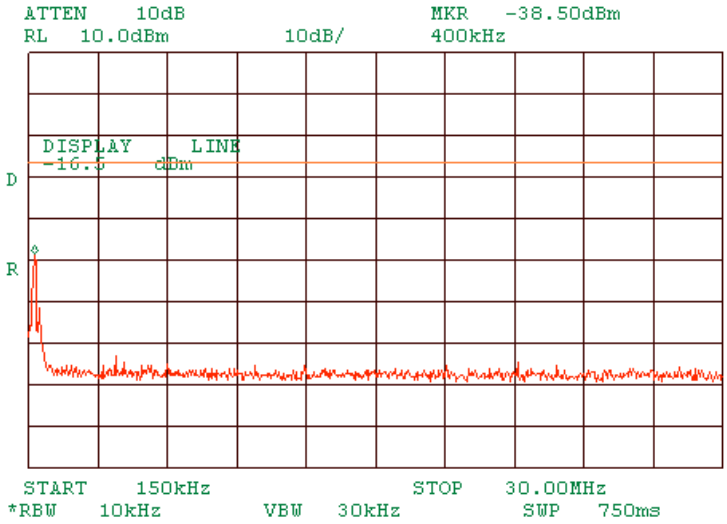
Plot 1.7.39 Spurious emission measurements in 0.15 - 30 MHz range at low carrier frequency OFDM



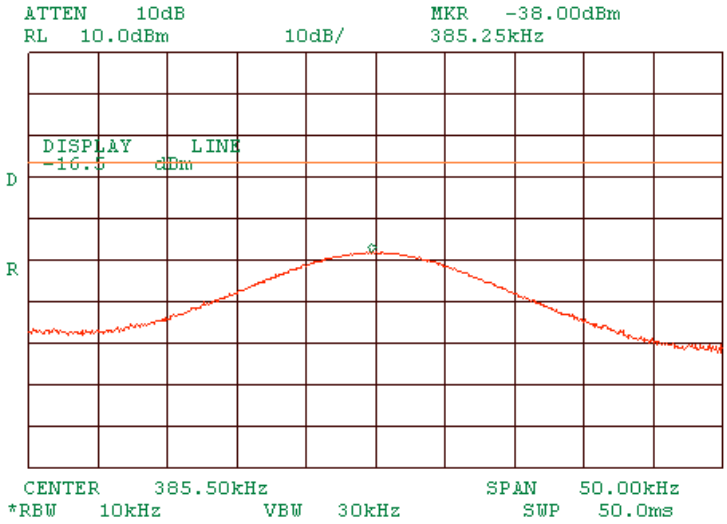
Plot 1.7.40 Zoom into spurious at low carrier frequency OFDM



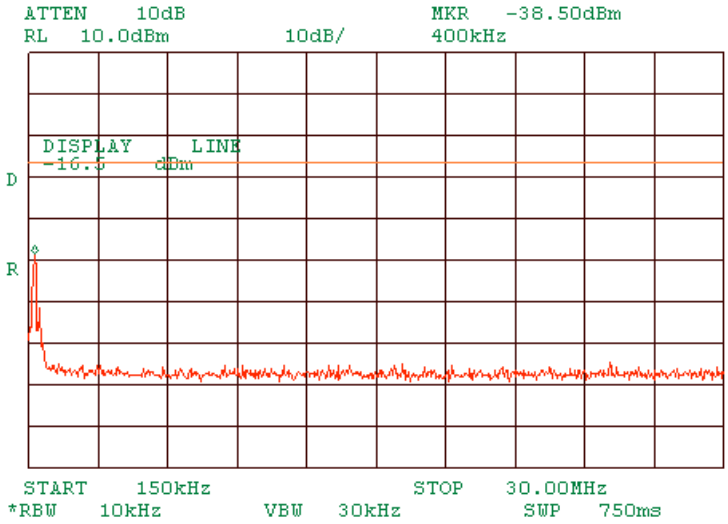
Plot 1.7.41 Spurious emission measurements in 0.15 - 30 MHz range at mid carrier frequency OFDM



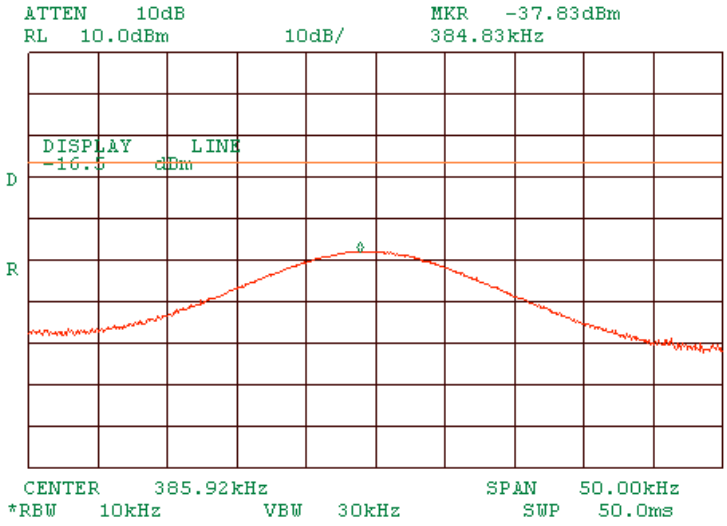
Plot 1.7.42 Zoom into spurious at mid carrier frequency OFDM



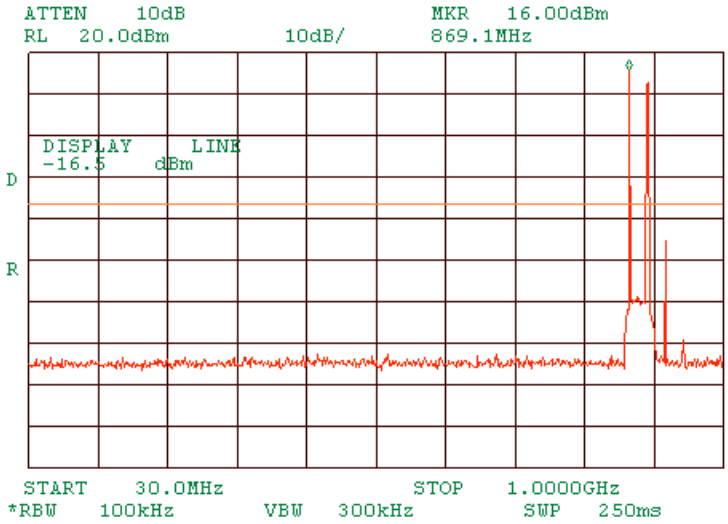
Plot 1.7.43 Spurious emission measurements in 0.15 - 30 MHz range at high carrier frequency OFDM



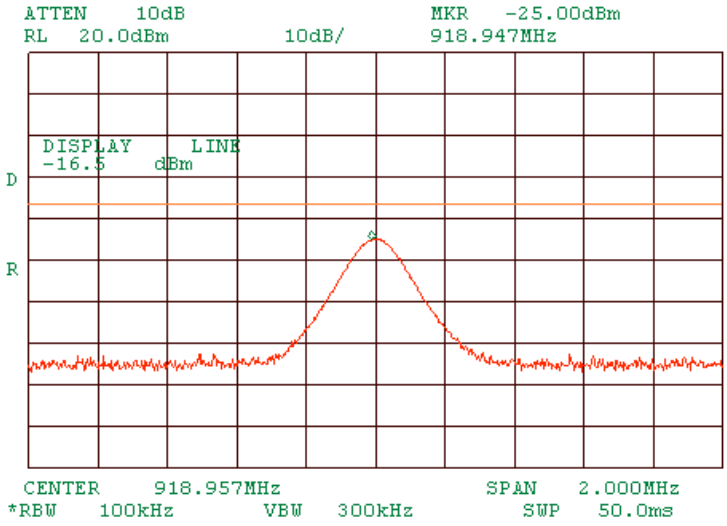
Plot 1.7.44 Zoom into spurious at high carrier frequency OFDM



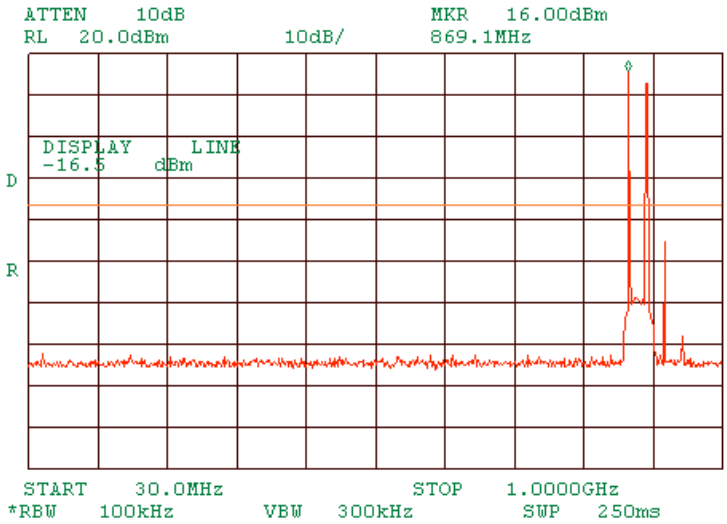
Plot 1.7.45 Spurious emission measurements in 30 - 1000 MHz range at low carrier frequency OFDM



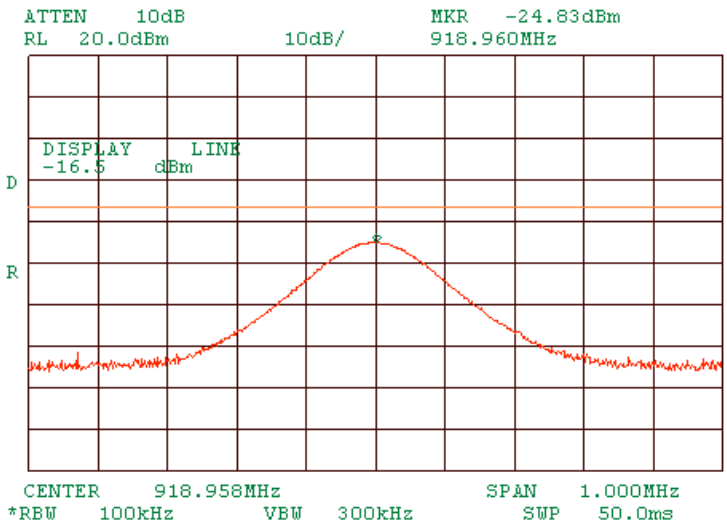
Plot 1.7.46 Zoom into spurious at low carrier frequency OFDM



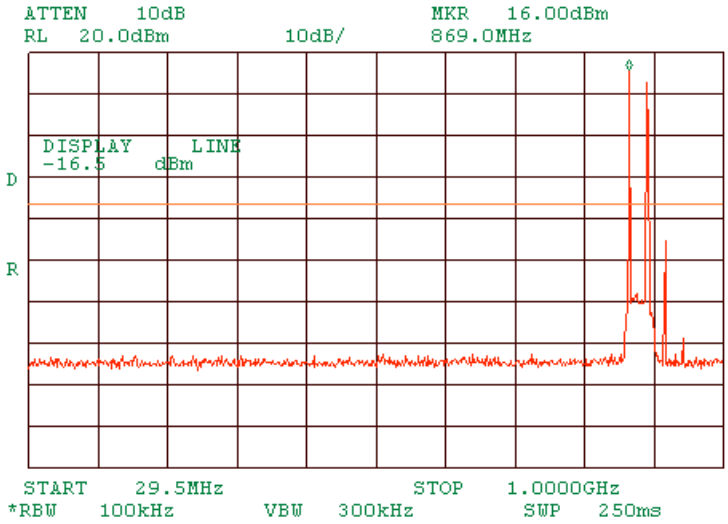
Plot 1.7.47 Spurious emission measurements in 30 - 1000 MHz range at mid carrier frequency OFDM



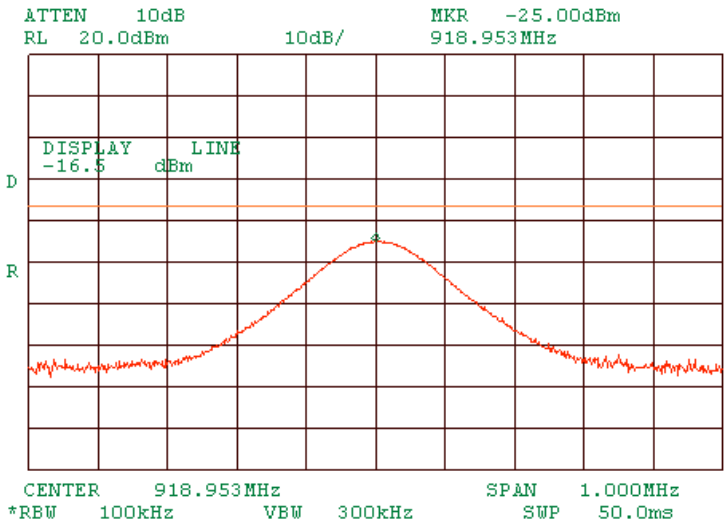
Plot 1.7.48 Zoom into spurious at mid carrier frequency OFDM



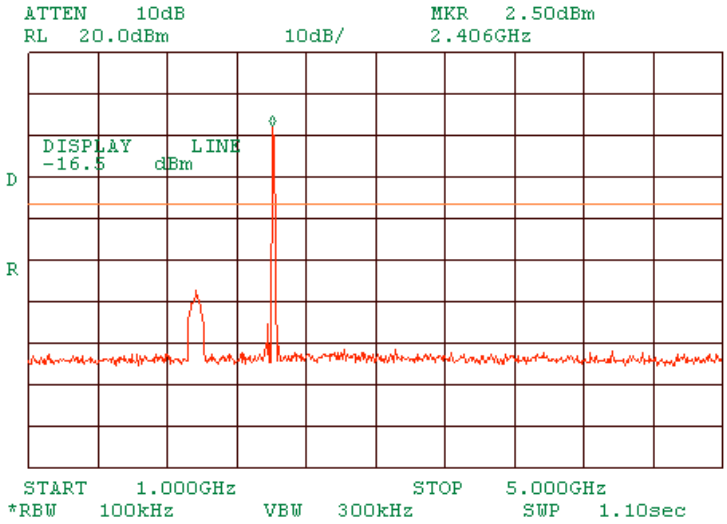
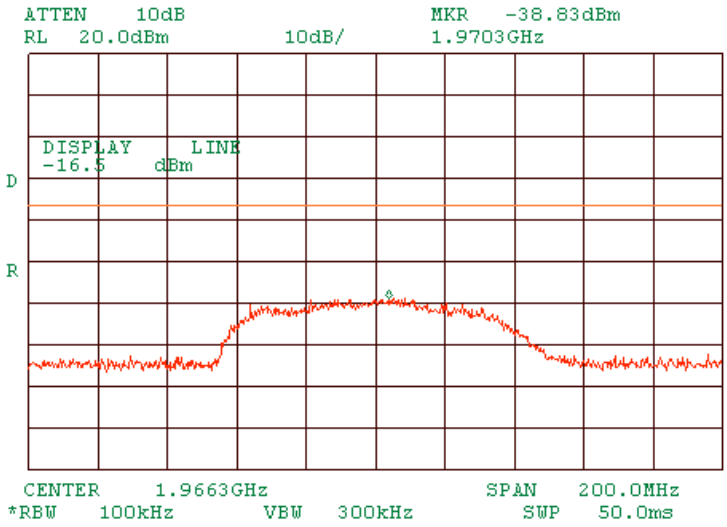
Plot 1.7.49 Spurious emission measurements in 30 - 1000 MHz range at high carrier frequency OFDM



Plot 1.7.50 Zoom into spurious at mid carrier frequency OFDM



Plot 1.7.51 Spurious emission measurements in 1000 - 5000 MHz range at low carrier frequency OFDM



Plot 1.7.52 Zoom into spurious at mid carrier frequency OFDM