LS Research Inc.

Recognition Source IRL

Report number 301261-IRL-Appendix D

Part 15.247 Type Acceptance, Conducted Measurements

Prepared for

Recognition Source

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Recognition Source IRL

I. Project Information

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Report Date: 6/6/01
Revision: 1.0
Proposal #: 150-RS
Proposal File:
Job Number: 150-RS

Signatures:

Technical Approval

II. FCC Conducted Tests

A. Part 15.247

1. 15.247 (a) (2) Emission 6 dB Bandwidth

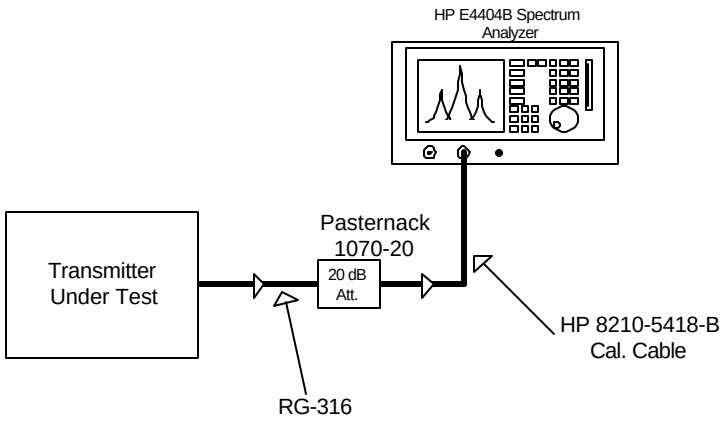
a) Test Requirement

The 6 dB bandwidth of the Equipment emission must be greater than 500 kHz.

$$B_{-6\,dB} > 500\ kHz$$

b) Test Configuration

The test configuration is presented below:



c) Test Conditions: Equipment Under Test

The equipment under test is tunable and is set to 3 different channels, one representing the minimum tunable frequency, one representing a midband frequency and one representing the maximum tunable frequency. The frequencies and their channel designators are presented below for reference.

Channel 1: 903.50 MHz

Channel 8: 915.00 MHz

Channel 15: 925.75 MHz

Test indications under these three frequency conditions are presented.

The output power is fixed.

d) Test Conditions: Instrumentation Conditions

The readings indicated on the spectrum analyzer are a result of a marker search function which searches for the 6 dB bandwidth of the indicated spectrum. The spectrum analyzer display indicates its conditions as follows:

Center: Center Frequency

Span: Frequency Span

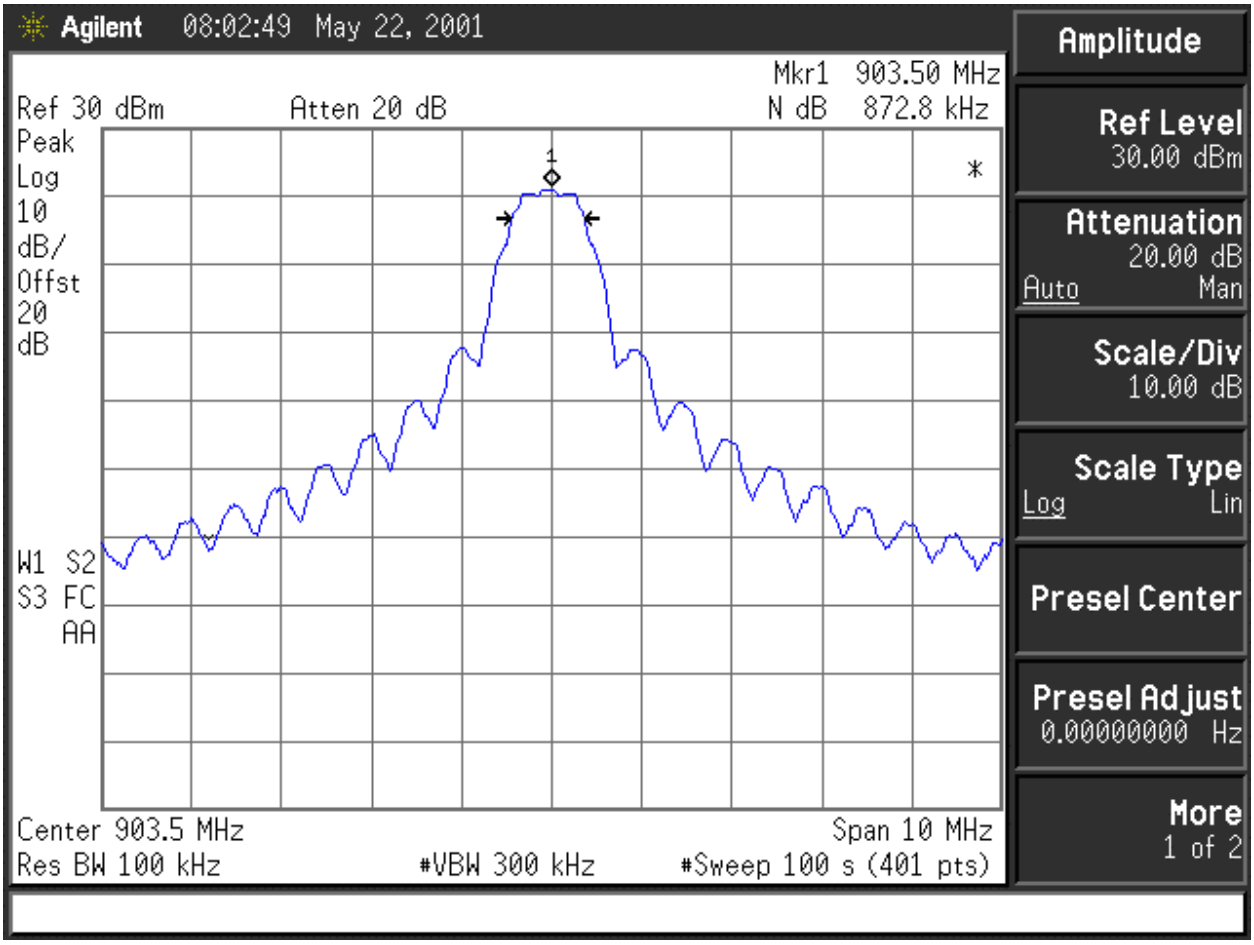
Res BW: Resolution Bandwidth

VBW: Video (averaging) Bandwidth

Sweep: Frequency Sweep time over indicated frequency Span.

Offst: Amplitude Offset, Entered by User to correct for external attenuator and cable losses. Value determined by Vector Network Analyzer transmission measurement of cable/attenuator assembly.

e) Test Indications

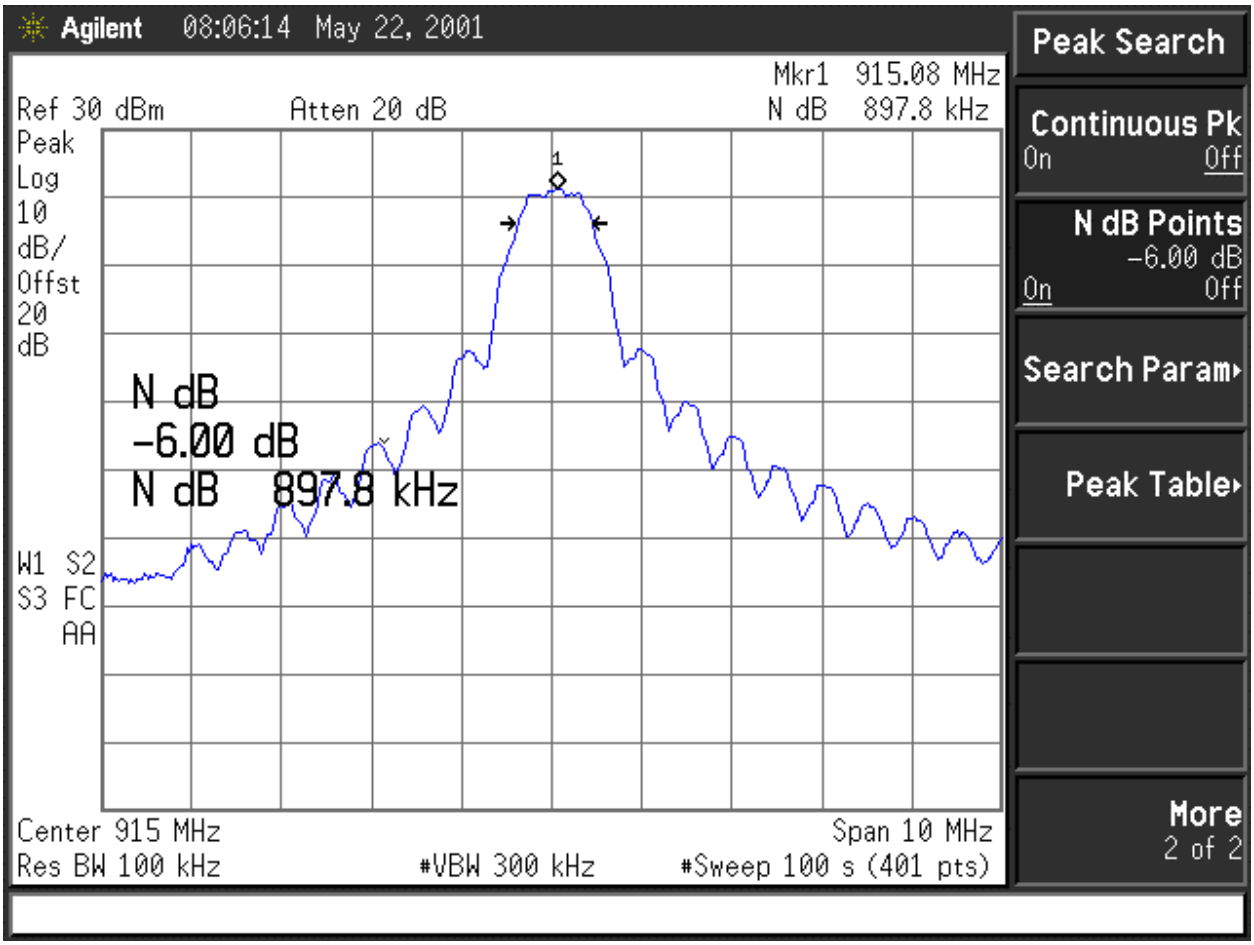


Test Condition: Channel 1: 903.50 MHz

Test Limit: 500 kHz, minimum.

Test Indication: 872.8 kHz

Test Outcome: 872.8 kHz > 500 kHz → PASS

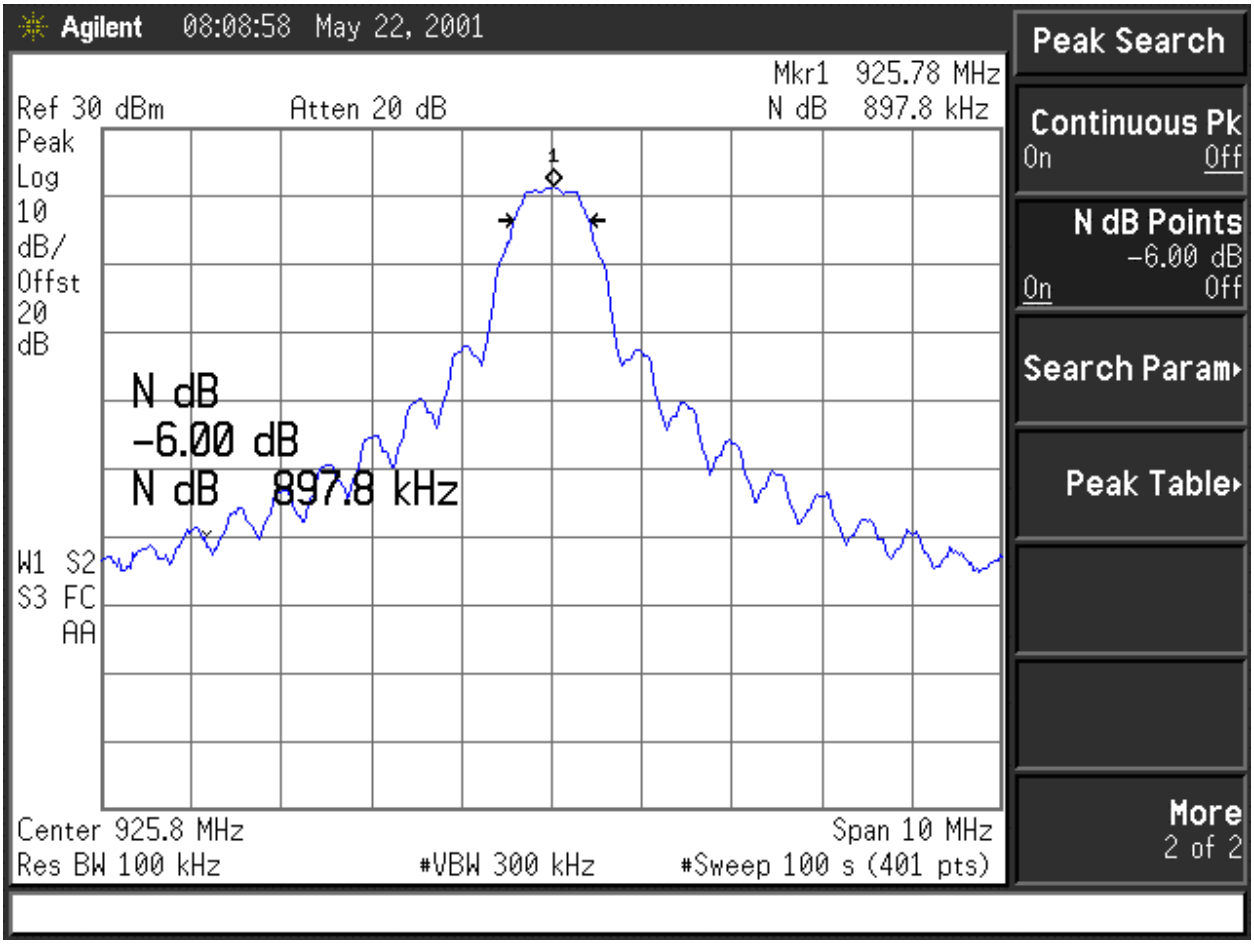


Test Condition: Channel 8: 915.00 MHz

Test Limit: 500 kHz, minimum.

Test Indication: 897.8 kHz

Test Outcome: 897.8 kHz > 500 kHz → PASS



Test Condition: Channel 15: 925.75 MHz

Test Limit: 500 kHz, minimum.

Test Indication: 897.8 kHz

Test Outcome: 897.8 kHz > 500 kHz → PASS

2. 15.247 (b) (1) Output Power

a) Test Requirement

The conducted output power of the Equipment emission must be less than 1 W (30 dBm).

$$P_O < 30\ dBm$$

b) Test Configuration

The test configuration is presented in section II-A-1b.

c) Test Conditions: Equipment Under Test

The equipment under test is tunable and is set to 3 different channels, one representing the minimum tunable frequency, one representing a mid-band frequency and one representing the maximum tunable frequency. The frequencies and their channel designators are presented below for reference.

Channel 1: 903.50 MHz

Channel 8: 915.00 MHz

Channel 15: 925.75 MHz

Test indications under these three frequency conditions are presented.

d) Test Conditions: Instrumentation Conditions

The power readings indicated on the spectrum analyzer are a result of a spectrum analyzer function which measures the integrated channel power (rms) between the indicated frequency limits.

Center: Center Frequency

Span: Frequency Span

Res BW: Resolution Bandwidth

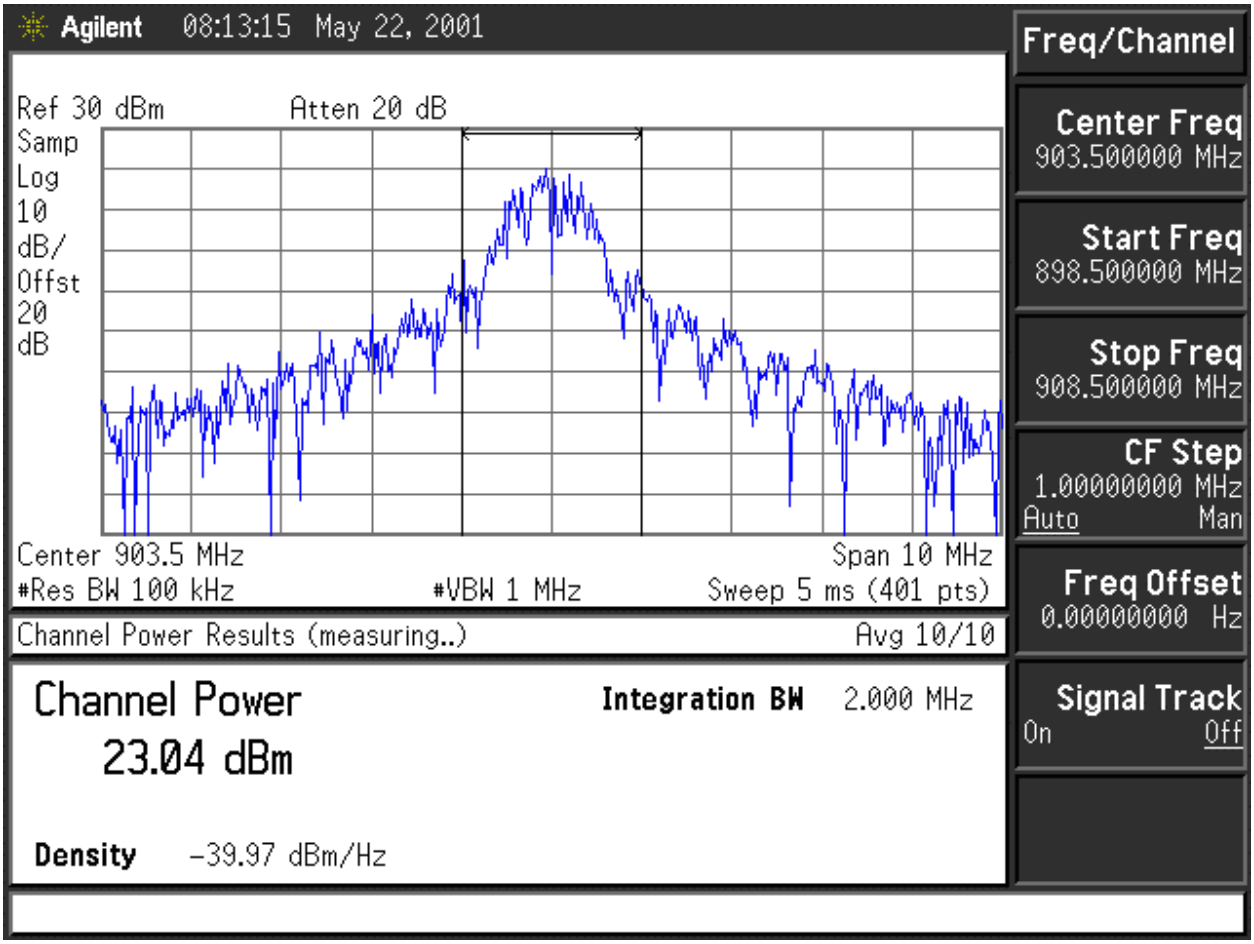
VBW: Video (averaging) Bandwidth

Sweep: Frequency Sweep time over indicated frequency Span.

Integration BW: Bandwidth over which power spectral density is integrated to determine integrated channel power.

Offst: Amplitude Offset, Entered by User to correct for external attenuator and cable losses. Value determined by Vector Network Analyzer transmission measurement of cable/attenuator assembly.

e) Test Indications

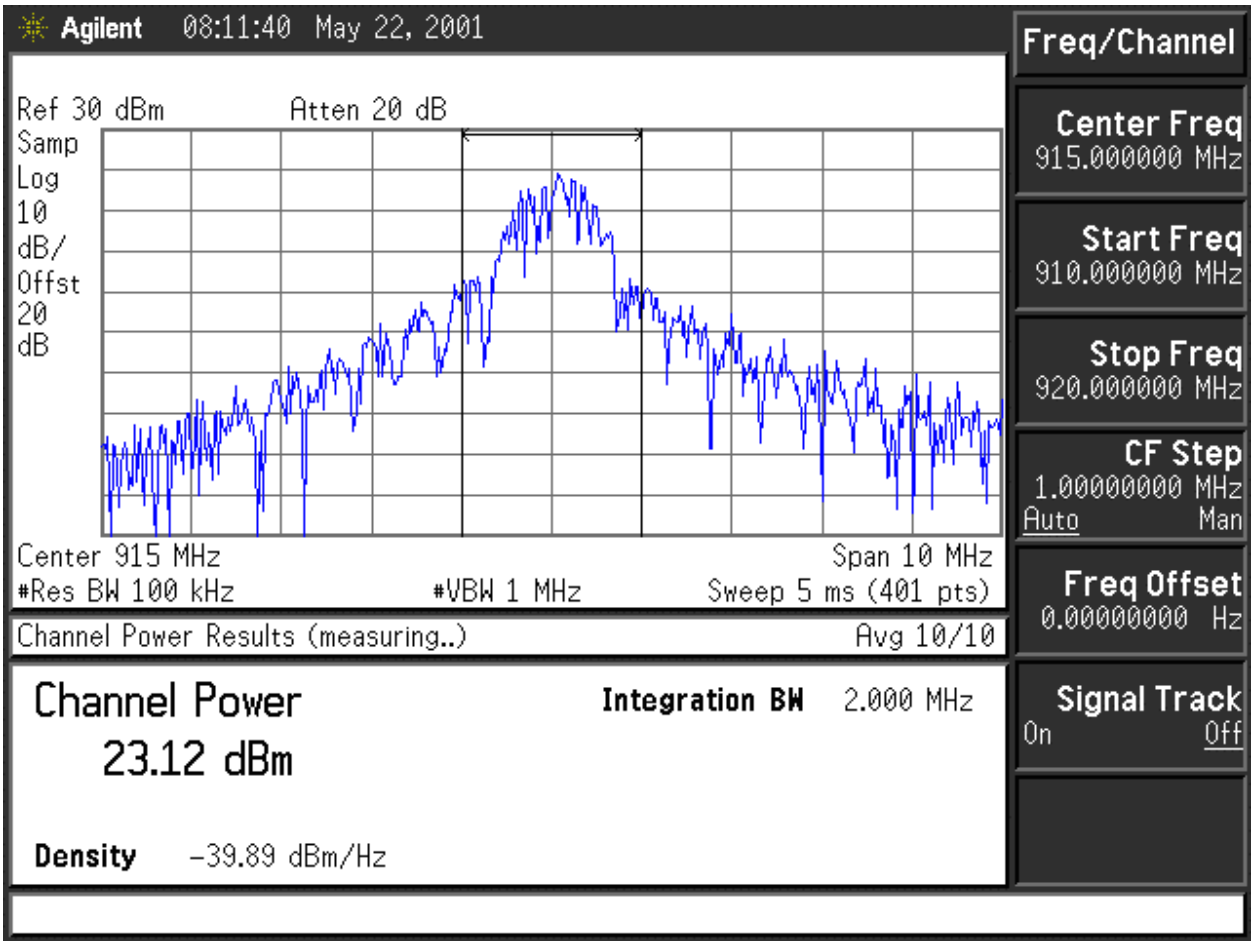


Test Condition: Channel 1: 903.5 MHz, Integrated Power

Test Limit: 30 dBm, Maximum.

Test Indication: 23.0 dBm

Test Outcome: 23.0 dBm < 30 dBm → PASS

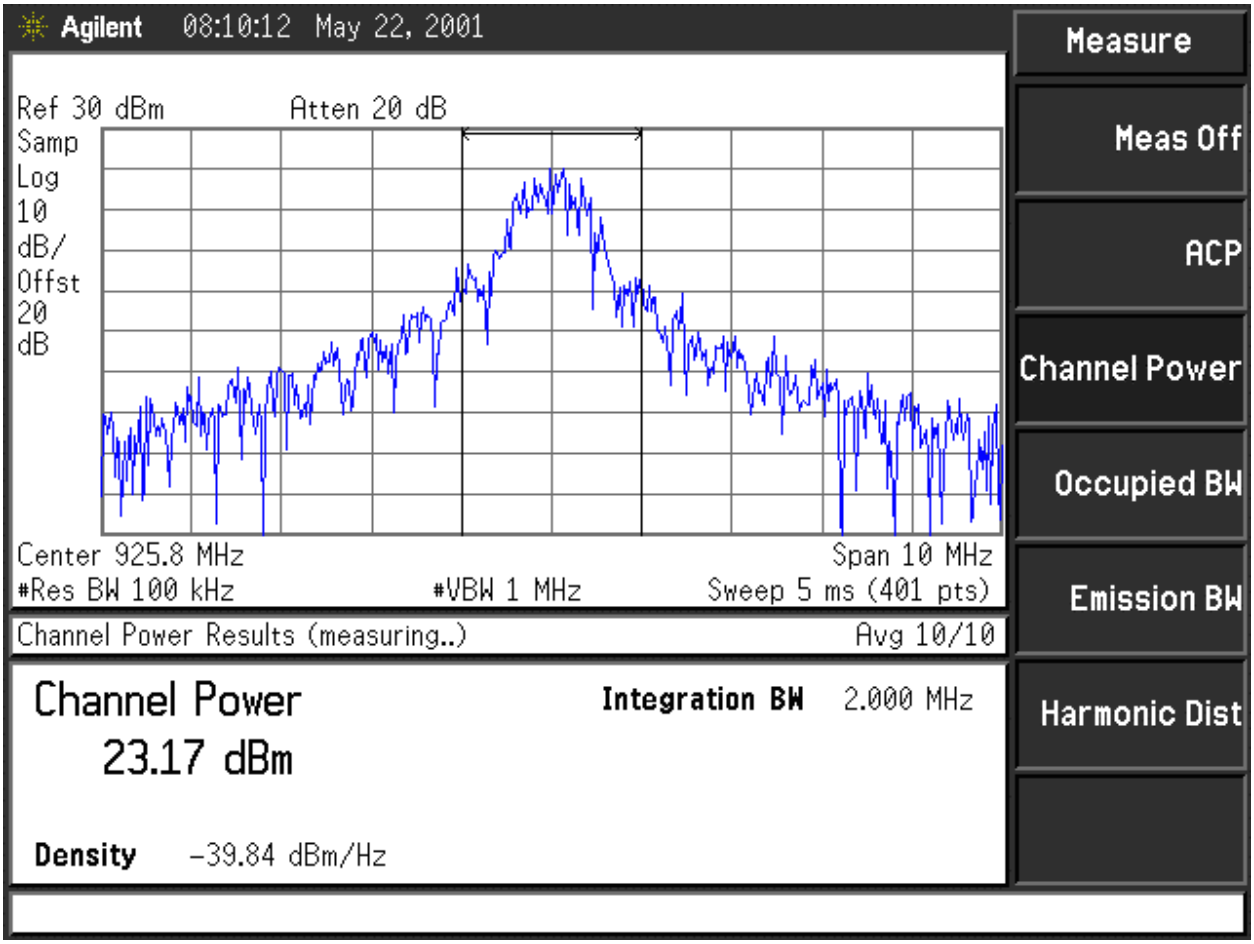


Test Condition: Channel 8: 915.00 MHz, Integrated Power

Test Limit: 30 dBm, Maximum.

Test Indication: 23.1 dBm

Test Outcome: 23.1 dBm < 30 dBm → PASS



Test Condition: Channel 15: 925.75 MHz, Integrated Power

Test Limit: 30 dBm, Maximum.

Test Indication: 23.2 dBm

Test Outcome: 23.2 dBm < 30 dBm → PASS

3. 15.247 (b) (3) Effective Radiated Power

The indicated conducted power is connected to a Planar Inverted-F antenna which exhibits a maximum antenna gain of 0 dBi. Based on this application, the maximum ERP of the system is 23.2 dBm and will not exceed the limit of 36 dBm.

4. 15.247 (c) Spurious Modulation Products

a) Test Requirement

The conducted spurious modulation products outside of the authorized band measured within a 100 kHz bandwidth shall be 20 dB below the authorized band peak emission measured within a 100 kHz bandwidth.

$$10 \log_{10}\left(\frac{P_{Authorized}/100\,kHz}{P_{spurious}/100kHz}\right) > 20\ dBc$$

b) Test Configuration

The test configuration is presented in section II-A-1b.

c) Test Conditions: Equipment Under Test

The equipment under test is tunable and is set to 3 different channels, one representing the minimum tunable frequency, one representing a midband frequency and one representing the maximum tunable frequency. The frequencies and their channel designators are presented below for reference.

Channel 1: 903.50 MHz

Channel 8: 914.75 MHz

Channel 15: 925.75 MHz

Test indications under these three frequency conditions are presented.

d) Test Conditions: Instrumentation Conditions

The following conducted spurious emissions are measured for each channel setting:

Wide-band Scan of Emissions with peak emission table, 9 kHz to 10 GHz in continuous transmission and in packet mode transmission. Peak Hold Mode.

In-band Scan of Emissions showing band-edge compliance continuous transmission in Peak Hold Mode.

Center: Center Frequency

Span: Frequency Span

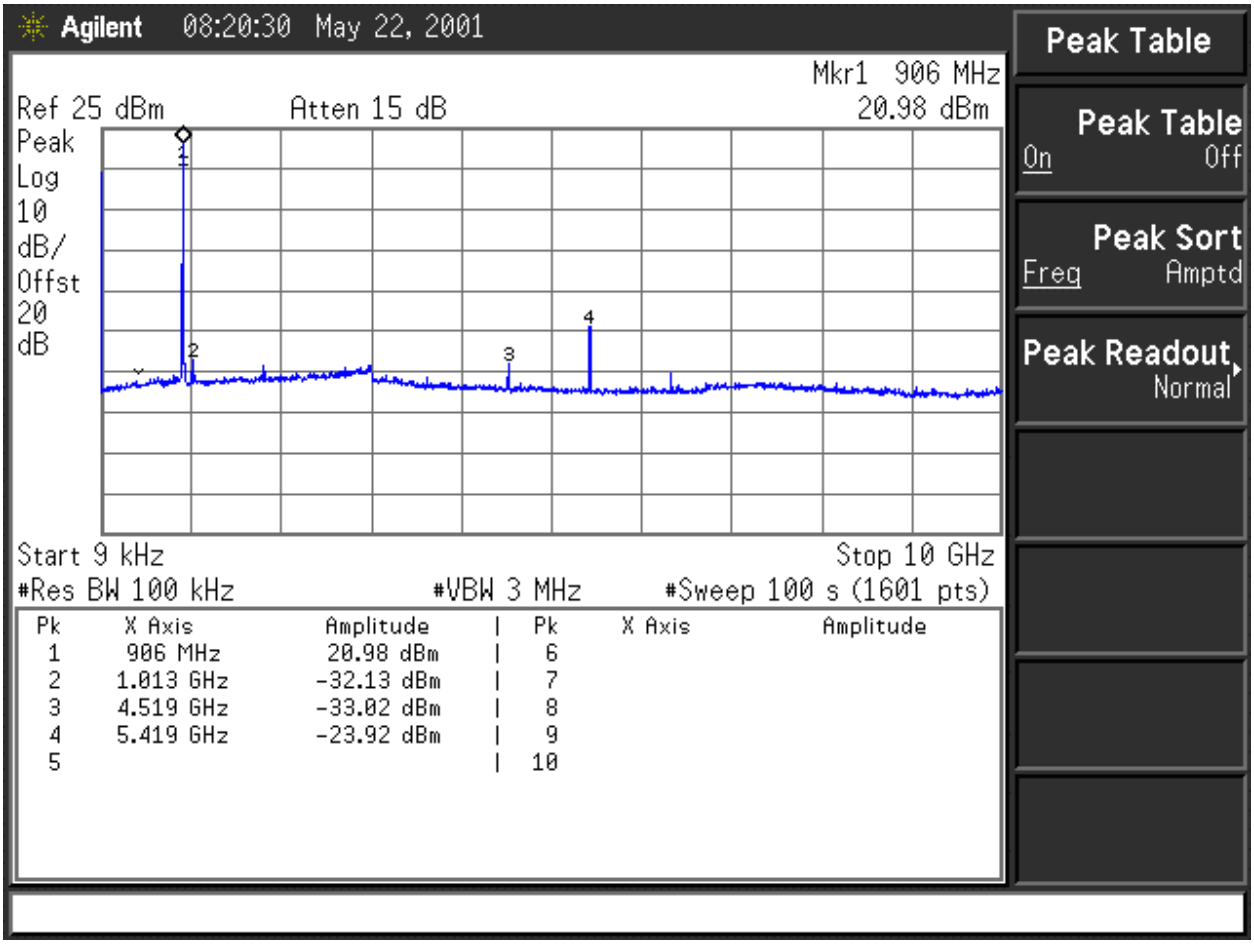
Res BW: Resolution Bandwidth

VBW: Video (averaging) Bandwidth

Sweep: Frequency Sweep time over indicated frequency Span.

Offst: Amplitude Offset, Entered by User to correct for external attenuator and cable losses. Value determined by Vector Network Analyzer transmission measurement of cable/attenuator assembly.

e) Test Indications:

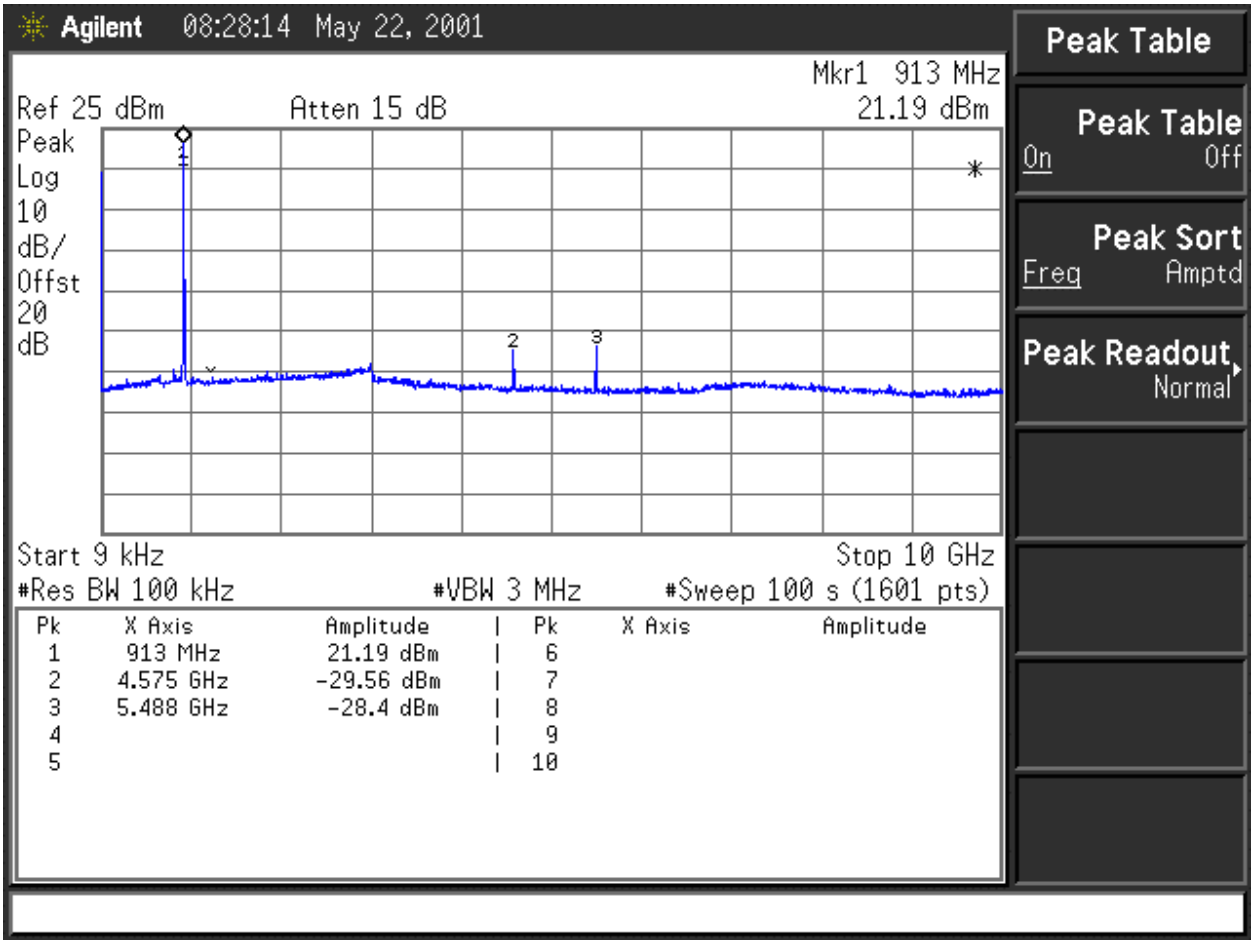


Test Condition: Channel 1: 903.50 MHz

Test Limit: 20 dBc, Minimum.

Test Indication: 20.98 dBm-(-23.92 dBm)= 44.9 dBc

Test Outcome: 44.9 dBc > 20 dBc → PASS

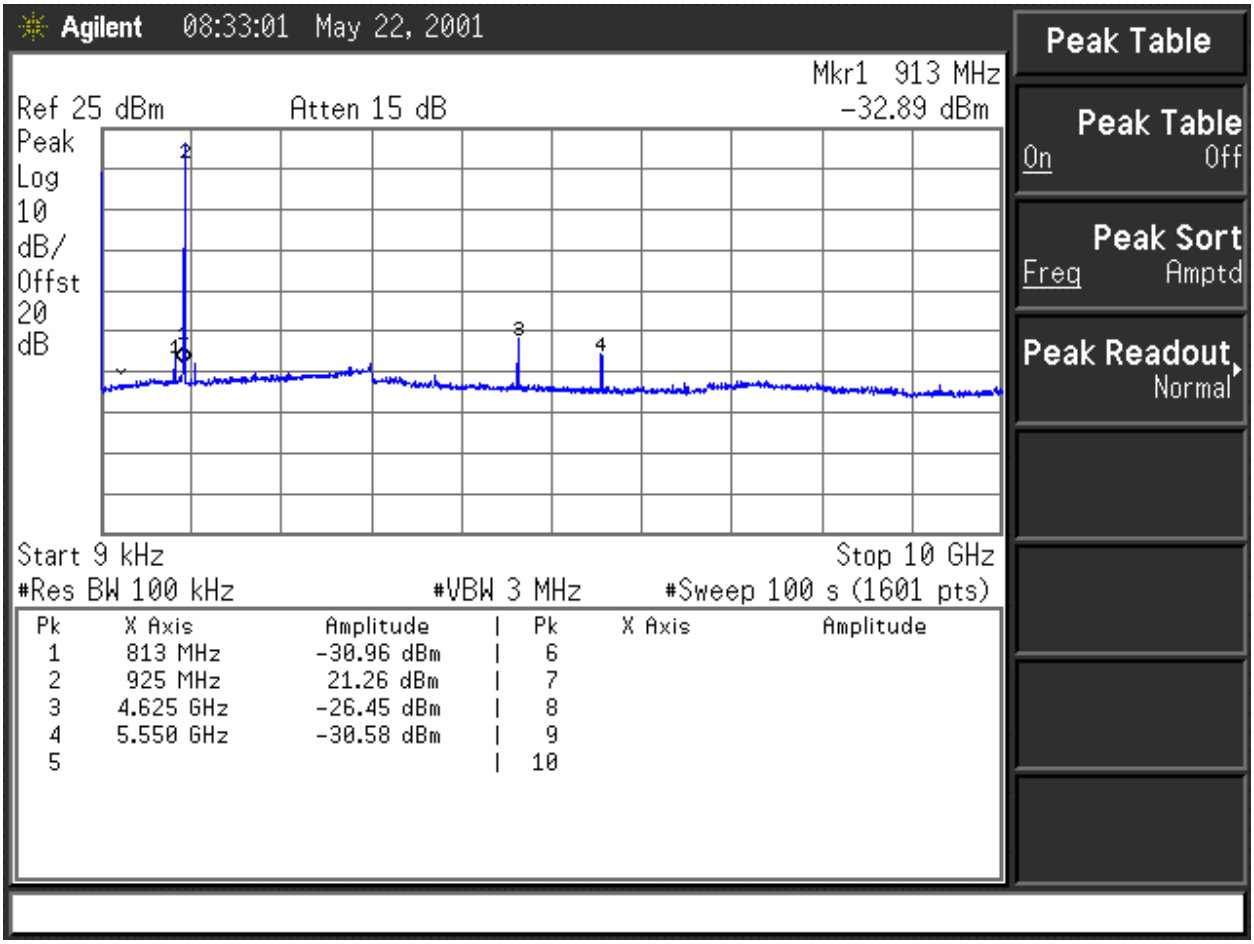


Test Condition: Channel 8: 915.00 MHz

Test Limit: 20 dBc, Minimum.

Test Indication: 21.19 dBm-(-28.4 dBm)= 49.6 dBc

Test Outcome: 49.6 dBc > 20 dBc → PASS

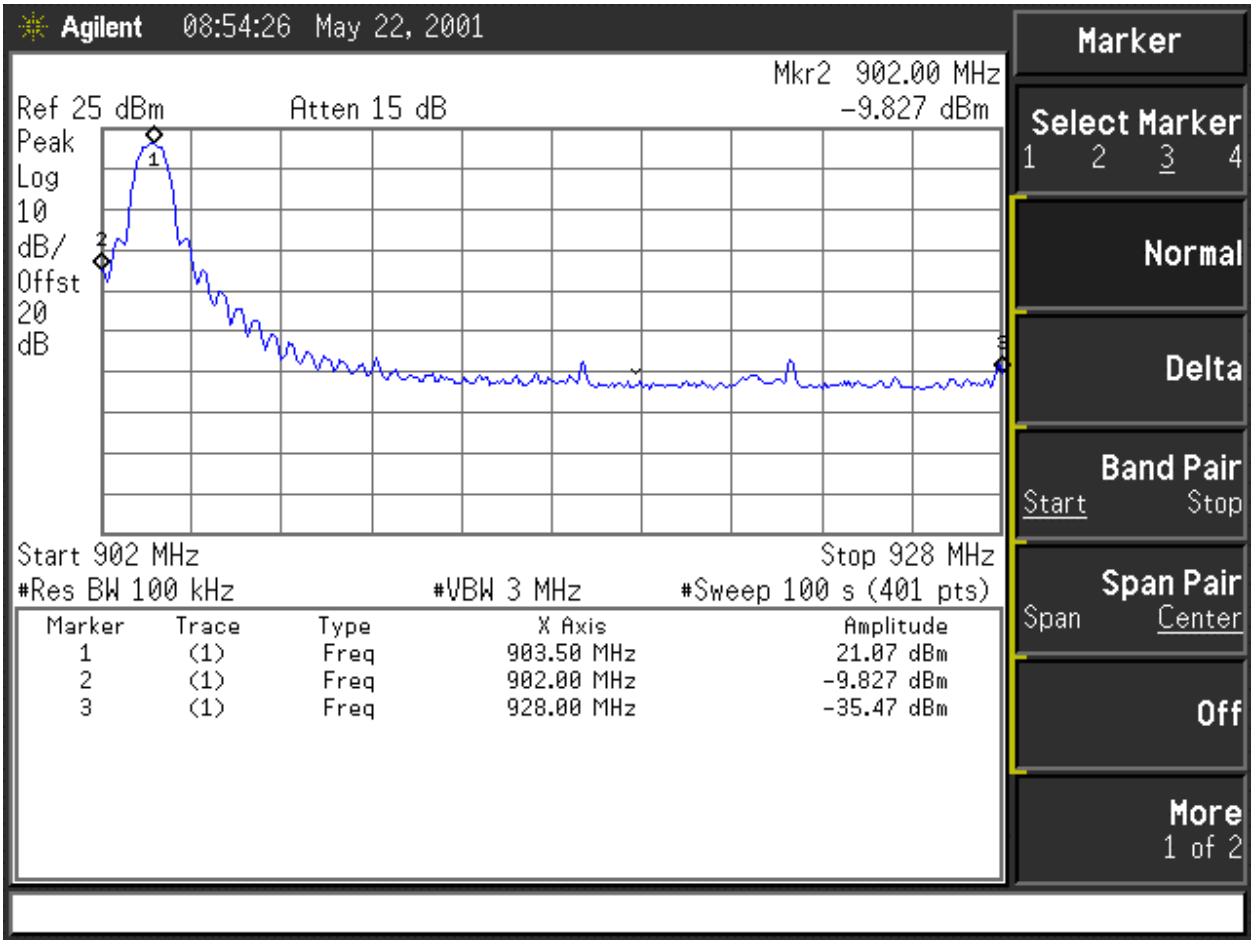


Test Condition: Channel 15: 925.75 MHz

Test Limit: 20 dBc, Minimum.

Test Indication: 21.26 dBm-(-26.45 dBm)= 47.7 dBc

Test Outcome: 47.7 dBc > 20 dBc → PASS

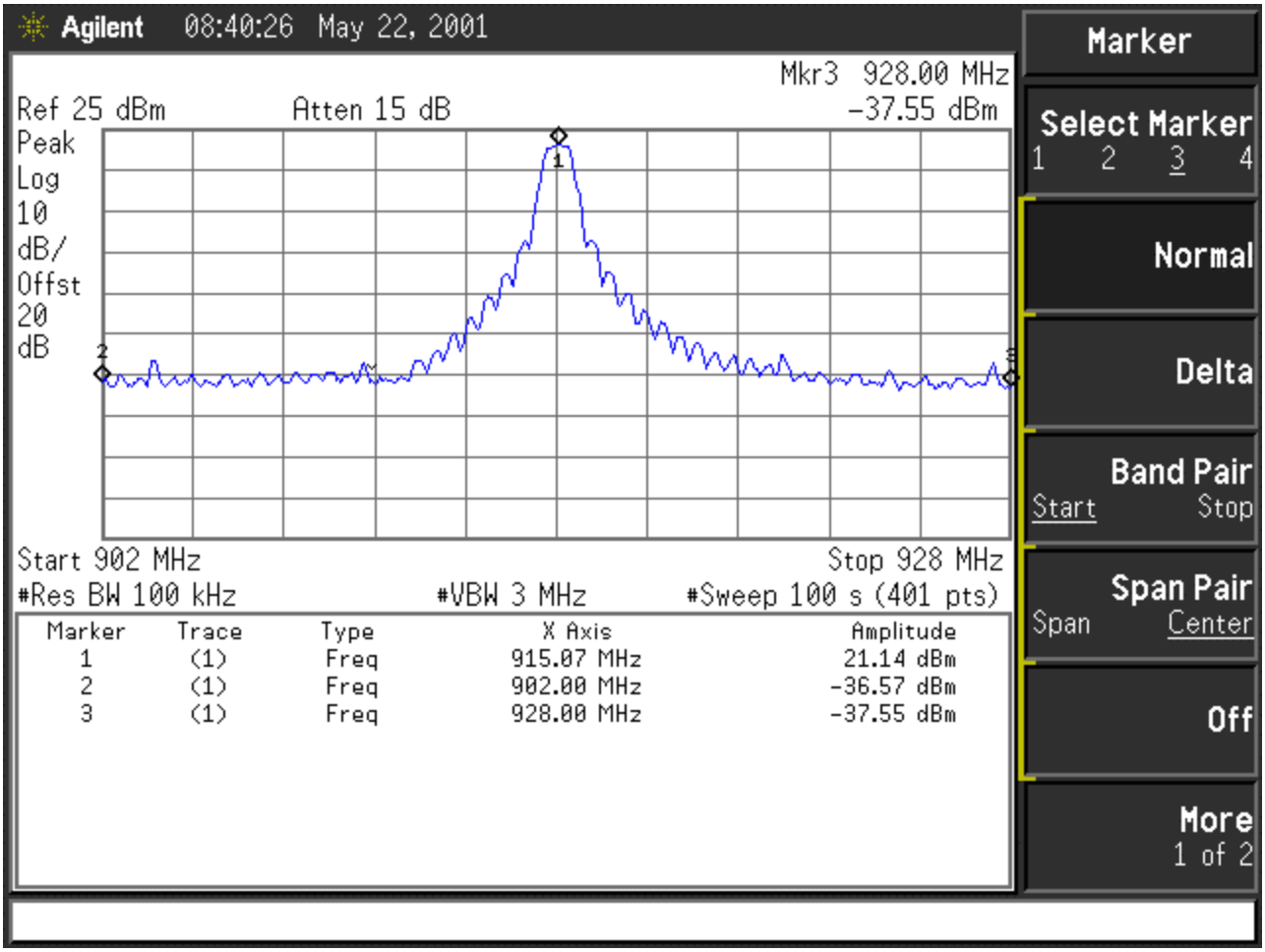


Test Condition: Channel 1: 903.50 MHz

Test Limit: 20 dBc, Minimum.

Test Indication: 21.07 dBm-(-9.83 dBm)= 30.9 dBc

Test Outcome: 30.9 dBc > 20 dBc → PASS

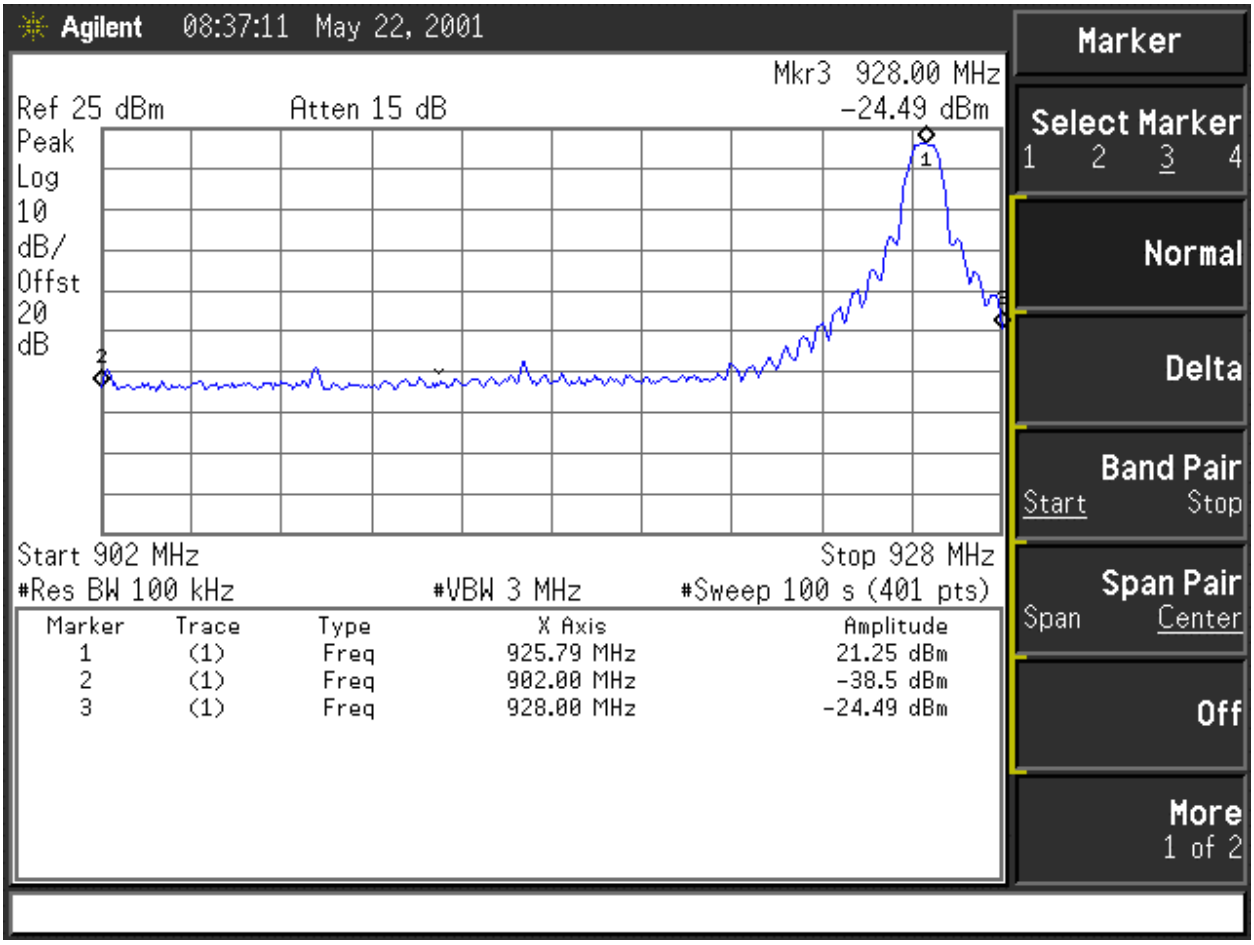


Test Condition: Channel 8: 915.00 MHz, CW

Test Limit: 20 dBc, Minimum.

Test Indication: 21.14 dBm-(-36.57 dBm)= 57.7 dBc

Test Outcome: 57.7 dBc > 20 dBc → PASS



Test Condition: Channel 15: 925.75 MHz

Test Limit: 20 dBc, Minimum.

Test Indication: 21.25 dBm-(-24.49 dBm)= 45.74 dBc

Test Outcome: 45.74 dBc > 20 dBc → PASS

5. 15.247 (d) Power Spectral Density

a) Test Requirement

The maximum power spectral density allowed in the authorized band is 8 dBm/3kHz.

$$P_{authorized}/3kHz < 8\ dBm/3kHz$$

b) Test Configuration

The test configuration is presented in section II-A-1b.

c) Test Conditions: Equipment Under Test

The equipment under test is tunable and is set to 3 different channels, one representing the minimum tunable frequency, one representing a mid-band frequency and one representing the maximum tunable frequency. The frequencies and their channel designators are presented below for reference.

Channel 1: 903.50 MHz

Channel 6: 915.00 MHz

Channel 15: 925.75 MHz

Test indications under these three frequency conditions are presented.

The following conducted power spectral densities are measured for each channel setting:

d) Test Conditions: Instrumentation

The localized peak in the emission spectrum is examined using the noise marker function implemented by the spectrum analyzer. The noise marker method is chosen, since the spectral lines of the emission are not resolvable and have noise-like properties. The power spectral density as indicated is measured in a 1 Hz bandwidth and is corrected for measurement artifacts such as noise bandwidth, and logarithmic amplification weighting. The test indication is then re-normalized to a 3 kHz bandwidth by adding the following correction factor:

$$10 \log_{10}\left(\frac{3\ kHz}{1\ Hz}\right) = 34.8\ dB$$

Center: Center Frequency

Span: Frequency Span

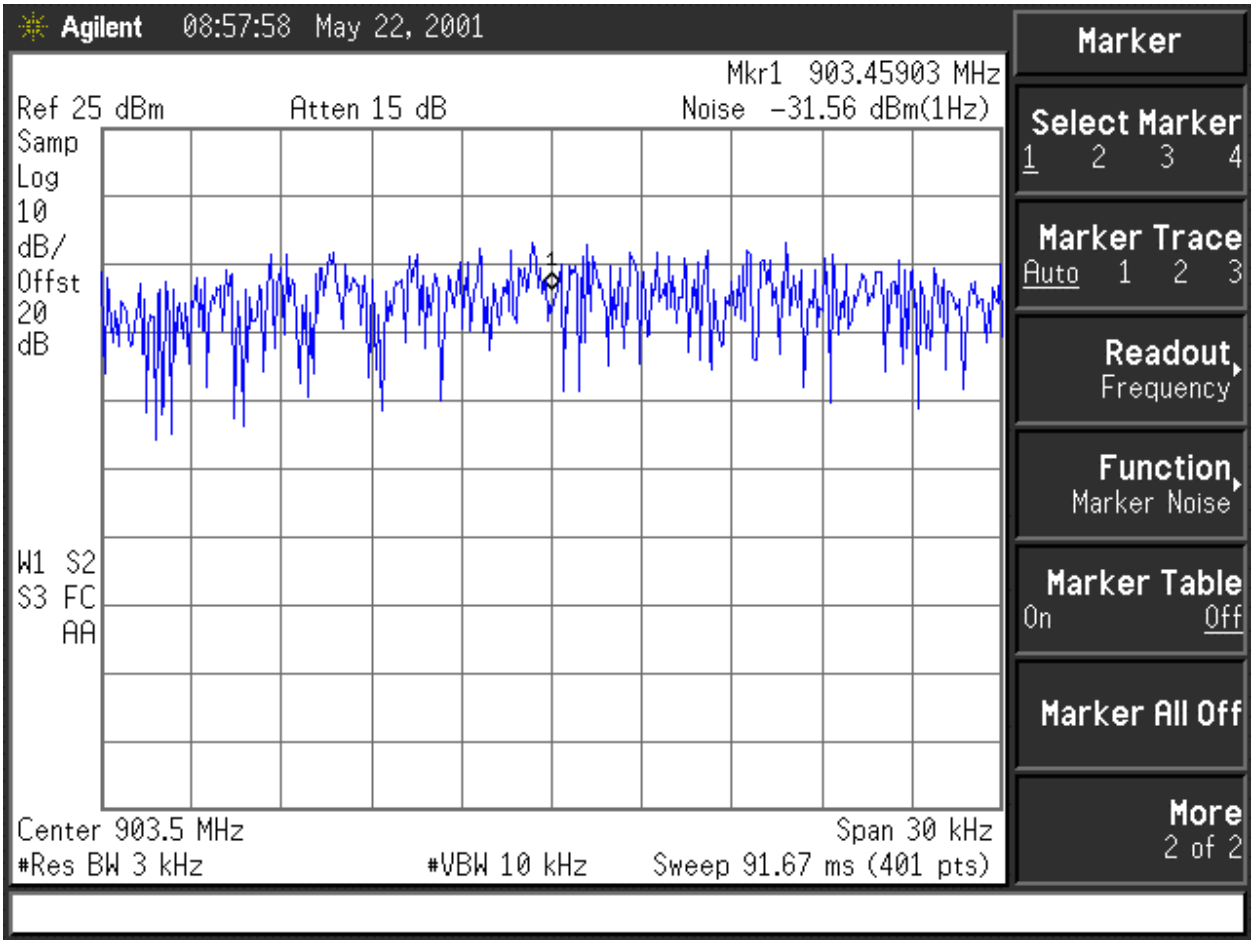
Res BW: Resolution Bandwidth

VBW: Video (averaging) Bandwidth

Sweep: Frequency Sweep time over indicated frequency Span.

Offst: Amplitude Offset, Entered by User to correct for external attenuator and cable losses. Value determined by Vector Network Analyzer transmission measurement of cable/attenuator assembly.

e) Test Indications

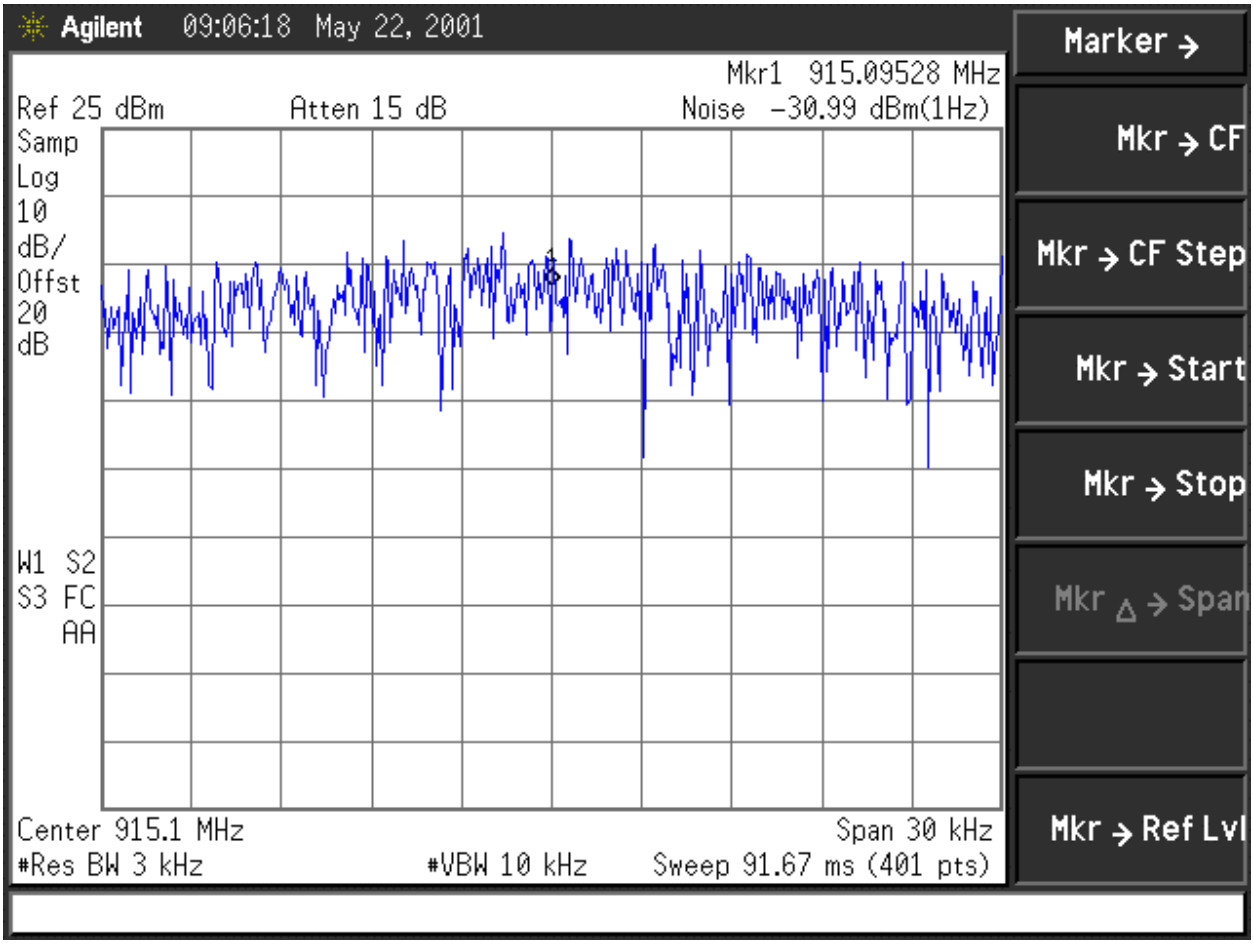


Test Condition: Channel 1: 903.5 MHz

Test Limit: 8 dBm/3 kHz, Maximum.

Test Indication: -31.56 dBm/Hz + 34.8 dB = 3.2 dBm/3kHz

Test Outcome: 3.2 dBm/3kHz < 8 dBm/3kHz → PASS

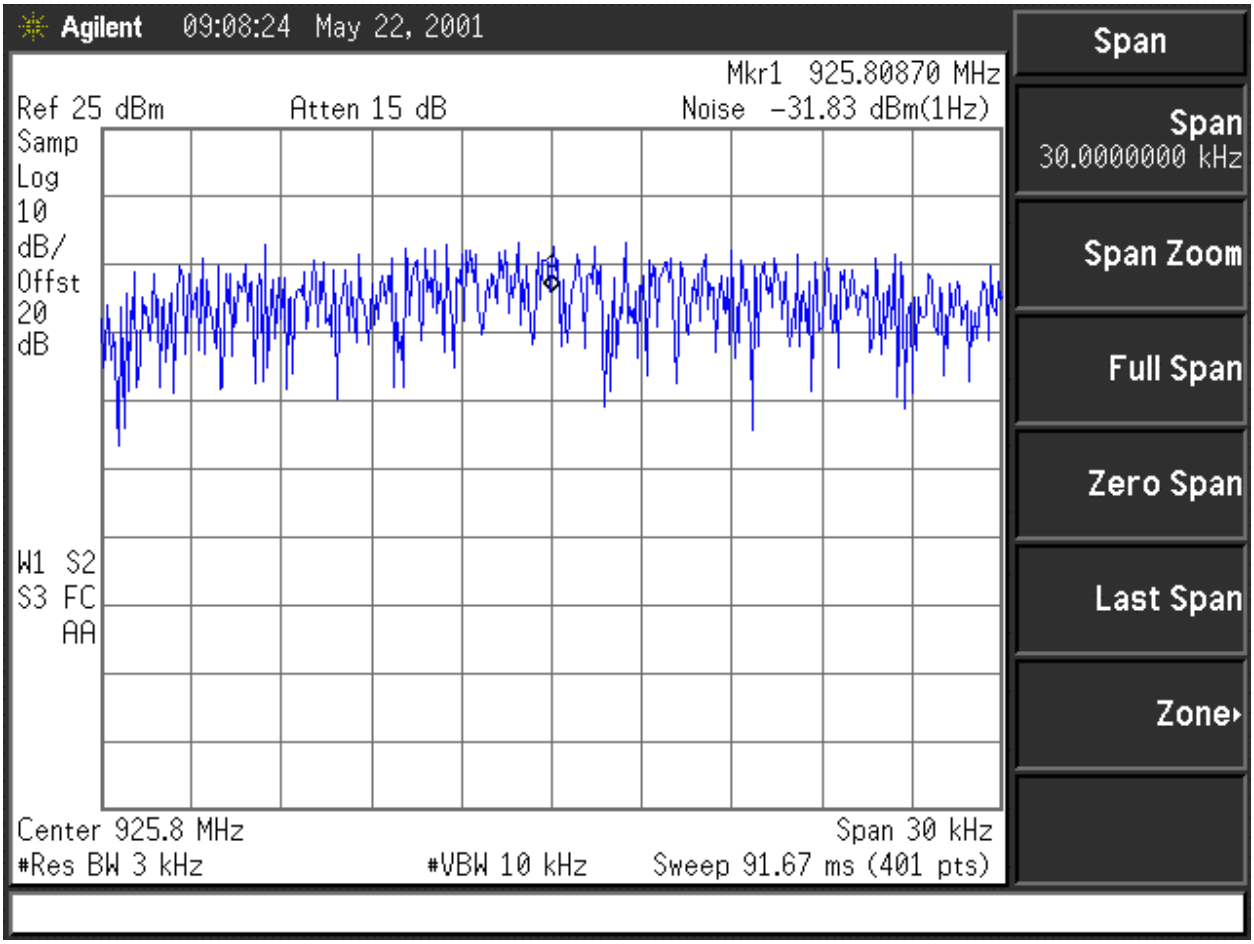


Test Condition: Channel 8: 915.00 MHz

Test Limit: 8 dBm/3 kHz, Maximum.

Test Indication: -30.99 dBm/Hz + 34.8 dB = 3.8 dBm/3kHz

Test Outcome: 3.8 dBm/3kHz < 8 dBm/3kHz → PASS



Test Condition: Channel 15: 925.75 MHz

Test Limit: 8 dBm/3 kHz, Maximum.

Test Indication: -31.83 dBm/Hz + 34.8 dB = 3.0dBm/3kHz

Test Outcome: 3.0 dBm/3kHz < 8 dBm/3kHz → PASS

6. 15.247 (e) Processing Gain

a) Test Requirement

The minimum processing gain exhibited by the system must be at least 10 dB. The processing gain will be determined by measuring the jamming margin across the receiver pass-band in 50 kHz increments. The worst 20% of the jamming margin points are discarded for the determination of the processing gain. The worst case point elimination process is equivalent to the determination of the 20th percentile value for the processing gain data set.

The processing gain is related to the jamming margin as follows:

$$G_p = \frac{J}{S} + \left(\frac{S}{N}\right)_{BER\_REF} + 2\ dB(system\ loss)$$

$$G_p = \frac{J}{S} + \left(\frac{S}{N}\right)_{BER=1\times10^{-4}} + 2\ dB(system\ loss)$$

The demodulation process is non-coherent FSK and its bit error ratio (BER) versus signal to noise ratio (S/N) performance characteritic is described by:

$$BER = \frac{1}{2} e^{-\frac{1}{2}\left(\frac{S}{N}\right)}$$

The signal to noise ratio associated with the reference BER of $1X10^{-5}$ is:

$$10\log_{10}\left(\frac{S}{N}\right) = 10\log_{10}\left(-2\ln\left(2\cdot1\times10^{-5}\right)\right) = 13.35\ dB$$

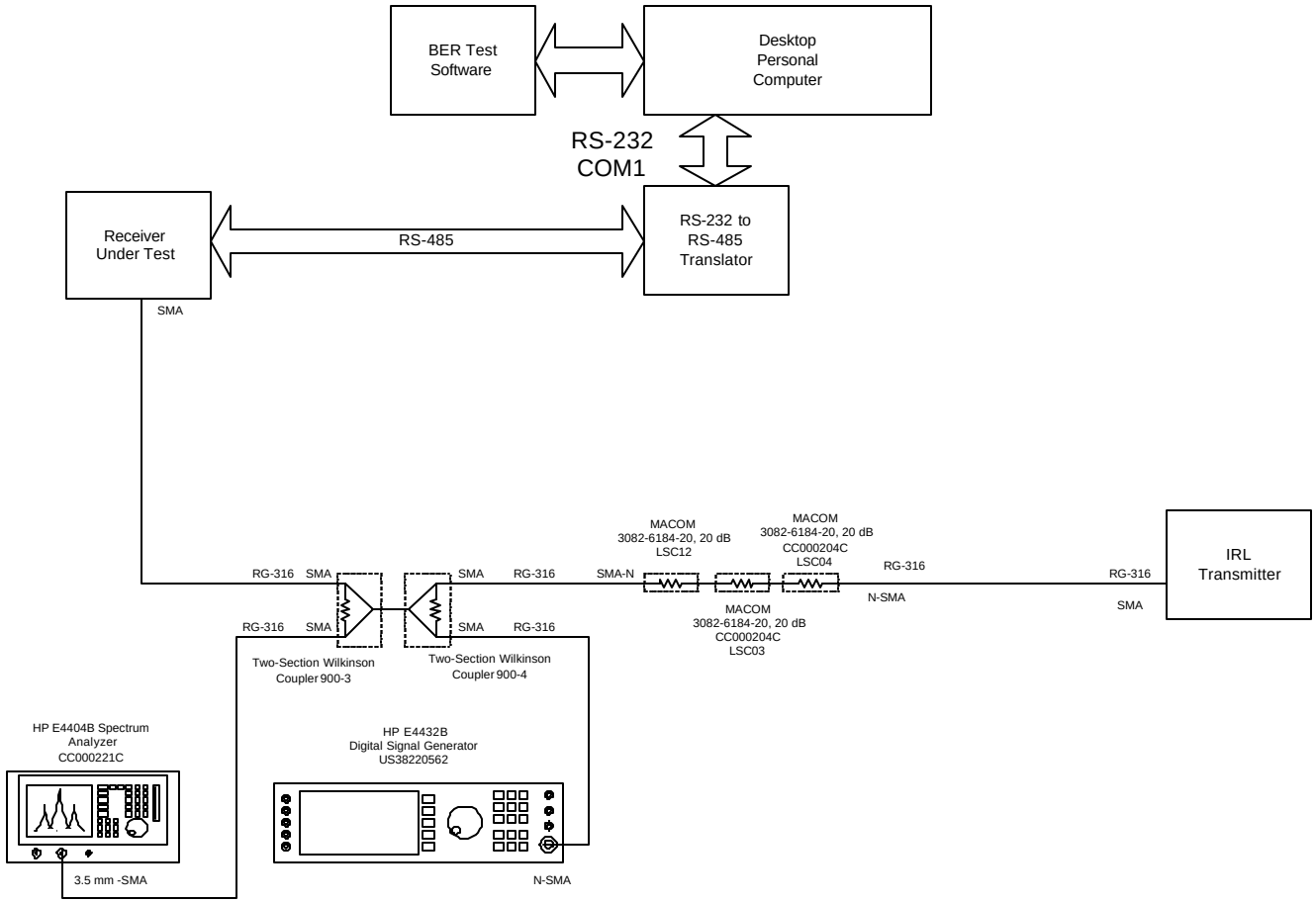
If a reference BER other than exactly $1X10^{-5}$ is indicated an effective reference signal noise ratio can be computed for any BER level to correct for this reference level shift.

$$10\log_{10}\left(\frac{S}{N}\right) = 10\log_{10}\left(-2\ln\left(2\cdot BER\right)\right)$$

Therefore, the nominal procesing gain and jamming margin are related by:

$$G_p = \frac{J}{S} + 15.35\ dB$$

b) Test Configuration



c) Test Conditions: Equipment Under Test

The equipment under test is tunable and is set to 3 different channels, one representing the minimum tunable frequency, one representing a midband frequency and one representing the maximum tunable frequency. The frequencies and their channel designators are presented below for reference.

Channel 1: 903.50 MHz

Channel 8: 915.00 MHz

Channel 15: 925.75 MHz

Test indications under these three frequency conditions are presented.

The following processing gain tests are measured for each channel setting:

d) Test Conditions: Instrumentation

The bit error ratio (BER) software is embedded in the radio firmware to emulate the base-band packet protocol to be used over the radio link. A standard BER test set (FIREBERD 6000A) could not be used due to the fact that the asynchronous data rate of 57.6 kbps exceeded its asynchronous measurement capability.

The BER software generates a packet data stream and the receiver receives the data and the data comparison is performed by the receiver firmware. The results of the bit-error-ratio test are sent out of the receiver on an RS-485 line to a ANSI terminal emulator running on a personal computer.

The firmware performs a bit-by-bit comparison of the received packets and calculates the instantaneous bit-error-rate for the incoming packet and also calculates the cumulative BER over all the packets transmitted in the test interval.

The cumulative BER is used as a set-point in the adjustment of the jamming signal level (and consequently the J/S ratio). The set-point or reference BER is $1X10^{-5}$. If a slightly different BER is indicated, its value is noted such that the reference signal to noise ratio can be corrected for offsets from the reference BER.

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e) Procedure

1. Referring to the test set-up presented in part b of this sub-section, note that there are two Wilkinson couplers. These couplers have a maximum amplitude imbalance of 0.1 dB and maximum phase imbalance of 1 degree over the test frequency band (s-parameters on record).

2. The first coupler is used to combine the desired signal and the tone-jamming signal.

3. The second coupler is used to sample the composite input signal to the receiver. A spectrum analyzer samples the signal. The cable lengths on the output of the sampling coupler are of the same type (RG-316) and of similar length. However due to the amplitude balance of the coupler, the J/S ratio in each arm of the coupler will correlate to within 0.1 dB.

4. Using the integrated channel power measurement function, the desired signal power is set to about –50 dBm at the sampled port. The level at the receiver will be very close to this sampled level.. The desired signal is adjusted by means of the two step attenuators. The transmitter is placed in the CW mode during this step. Ensure that the jamming signal generator is disabled.

5. The transmitter is disabled and the jamming signal generator is enabled and set to the transmitter carrier frequency and is measured by the spectrum analyzer using the integrated channel power function. The jamming power is set to the exact level (to within 0.1 dB) of the previous reading of the desired signal. Since the desired and the jamming signal levels were measured under the same conditions, the J/S ratio at receiver given these settings is at 0 dB.

6. Given the jamming signal generator absolute amplitude reference setting established in step 5. The signal generator amplitude setting is normalized to this absolute level using the amplitude reference function on the signal generator. Therefore, the generators indicated setting is relative to the 0 dB J/S setting. Further settings are recorded as a test indications of the J/S ratio. With every set of test indication, the absolute reference indications are also presented to ensure the confidence of the 0 dB J/S setting.

7. With the jamming signal attenuated substantially (-30 dB J/S), enable transmission and reception of the packet data, the BER should indicate 0 (error free operation) over a short test interval of 30 seconds.

8. While monitoring the BER, increase the jamming signal level until the BER indicates close to 1×10^{-5}. Record the relative amplitude level setting on the jamming signal generator, this is the J/S ratio per the normalization method presented earlier. Record the BER level for possible reference signal to noise ratio corrections.

9. Repeat across the pass-band of the receiver in 50 kHz increments, recording the J/S ratio at every frequency. Repeat for minimum, mid-band, and maximum channel frequencies.

f) Test Indication Organization

For each channel setting, the test indications presented will be as follows:

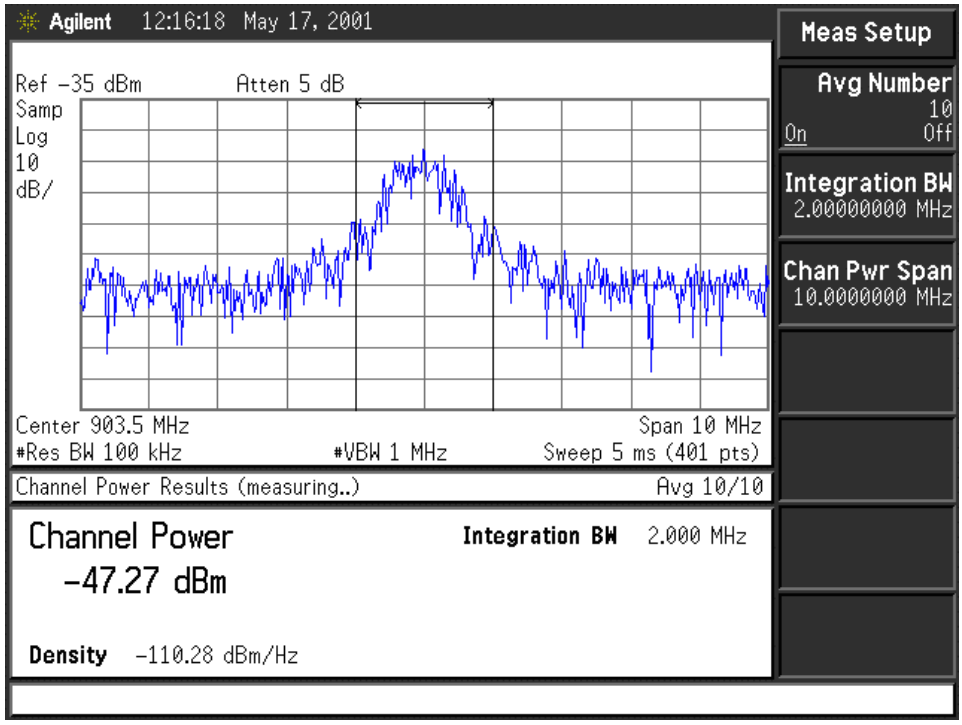
1. Reference desired signal and jamming signal levels at 0 dB J/S.

2. Numerical J/S data and conversion to processing gain. The values are for nominal reference levels and BER-corrected reference levels.

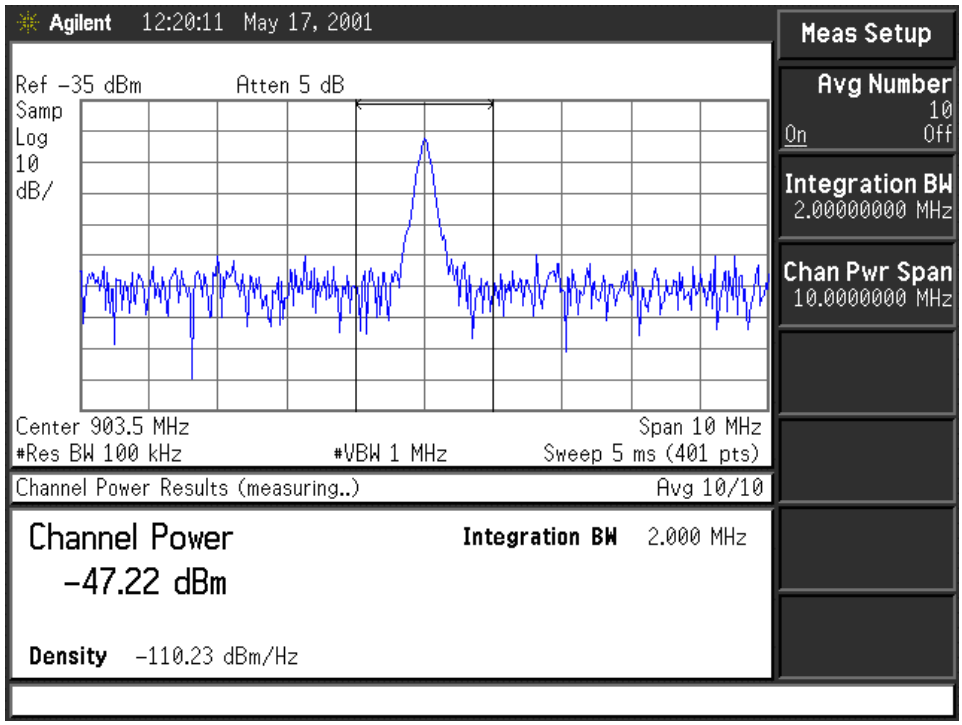
3. 20^{th} percentile value for the processing gain data set for indication of processing gain for 20% of worst indications removed. The test indications are shown for both corrected and uncorrected data.

4. Plot of processing gain over pass-band of receiver. The test indications are shown for both corrected and uncorrected data.

g) Test Indications Channel 1 (908.50 MHz)



Test Indication: Channel 1: 903.5 MHz, Desired Signal Reference Level Setting



Test Indication: Channel 1: 903.5 MHz, Jamming Signal Reference Level Setting

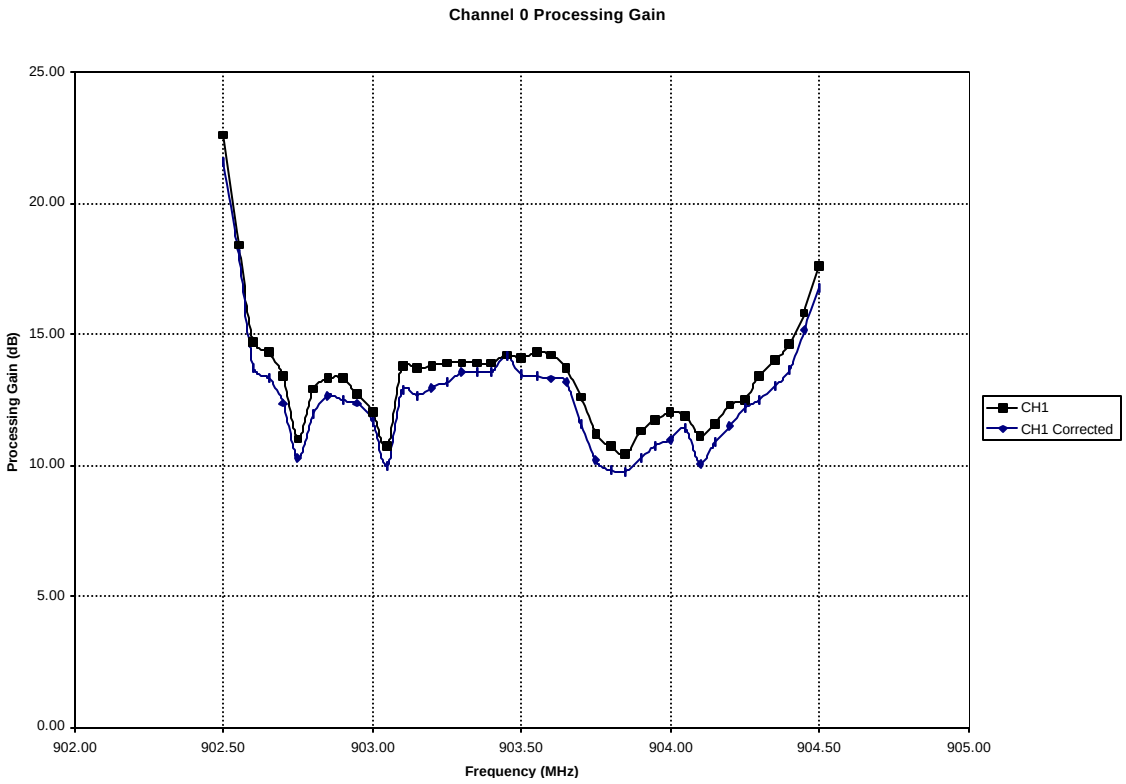
Frequency	J/S	Gp	BER	S/N Corrected	Gp'
902.50	7.2	22.60	9.00E-05	12.37	21.57
902.55	3	18.40	2.00E-05	13.06	18.06
902.60	-0.7	14.70	8.00E-05	12.43	13.73
902.65	-1.1	14.30	8.00E-05	12.43	13.33
902.70	-2	13.40	9.00E-05	12.37	12.37
902.75	-4.4	11.00	5.00E-05	12.65	10.25
902.80	-2.5	12.90	8.00E-05	12.43	11.93
902.85	-2.1	13.30	4.00E-05	12.76	12.66
902.90	-2.1	13.30	6.00E-05	12.57	12.47
902.95	-2.7	12.70	2.00E-05	13.06	12.36
903.00	-3.4	12.00	2.00E-05	13.06	11.66
903.05	-4.7	10.70	5.00E-05	12.65	9.95
903.10	-1.6	13.80	7.00E-05	12.49	12.89
903.15	-1.7	13.70	9.00E-05	12.37	12.67
903.20	-1.6	13.80	6.00E-05	12.57	12.97
903.25	-1.5	13.90	5.00E-05	12.65	13.15
903.30	-1.5	13.90	2.00E-05	13.06	13.56
903.35	-1.5	13.90	2.00E-05	13.06	13.56
903.40	-1.5	13.90	2.00E-05	13.06	13.56
903.45	-1.2	14.20	1.00E-05	13.35	14.15
903.50	-1.3	14.10	4.00E-05	12.76	13.46
903.55	-1.1	14.30	7.00E-05	12.49	13.39
903.60	-1.2	14.20	7.00E-05	12.49	13.29
903.65	-1.7	13.70	3.00E-05	12.89	13.19
903.70	-2.8	12.60	9.00E-05	12.37	11.57
903.75	-4.2	11.20	9.00E-05	12.37	10.17
903.80	-4.7	10.70	7.00E-05	12.49	9.79
903.85	-5	10.40	4.00E-05	12.76	9.76
903.90	-4.1	11.30	9.00E-05	12.37	10.27
903.95	-3.7	11.70	8.00E-05	12.43	10.73
904.00	-3.4	12.00	9.00E-05	12.37	10.97
904.05	-3.5	11.90	3.00E-05	12.89	11.39
904.10	-4.3	11.10	9.00E-05	12.37	10.07
904.15	-3.8	11.60	5.00E-05	12.65	10.85
904.20	-3.1	12.30	6.00E-05	12.57	11.47
904.25	-2.9	12.50	2.00E-05	13.06	12.16
904.30	-2	13.40	7.00E-05	12.49	12.49
904.35	-1.4	14.00	8.00E-05	12.43	13.03
904.40	-0.8	14.60	8.00E-05	12.43	13.63
904.45	0.4	15.80	4.00E-05	12.76	15.16
904.50	2.2	17.60	6.00E-05	12.57	16.77
CHANNEL	1	903.50	MHz		
80% percentile	Gp	11.7	dB	Gp'	10.85

Test Condition: Channel 1: 908.5 MHz, J/S and Processing Gain

Test Limit: 20th Percentile Processing Gain: 10 dB, minimum.

Test Indication: 20th Percentile Processing Gain = 10.85 dB

Test Outcome: 20th Percentile Processing Gain = 10.85 dB > 10 dB → PASS



Test Indication: Channel 1 Processing Gain versus Frequency.

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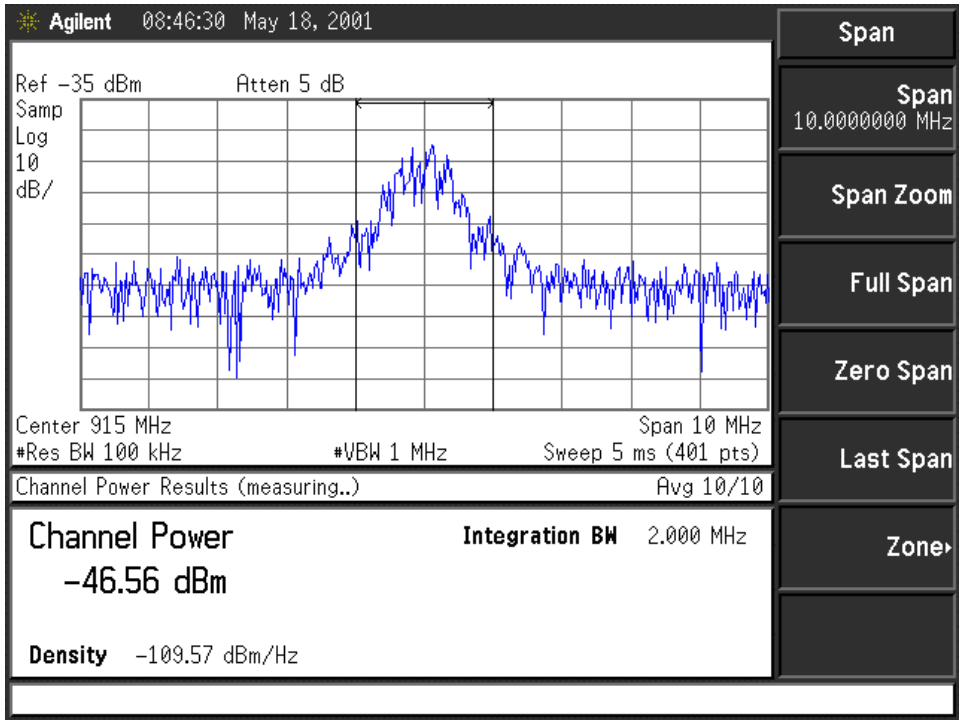
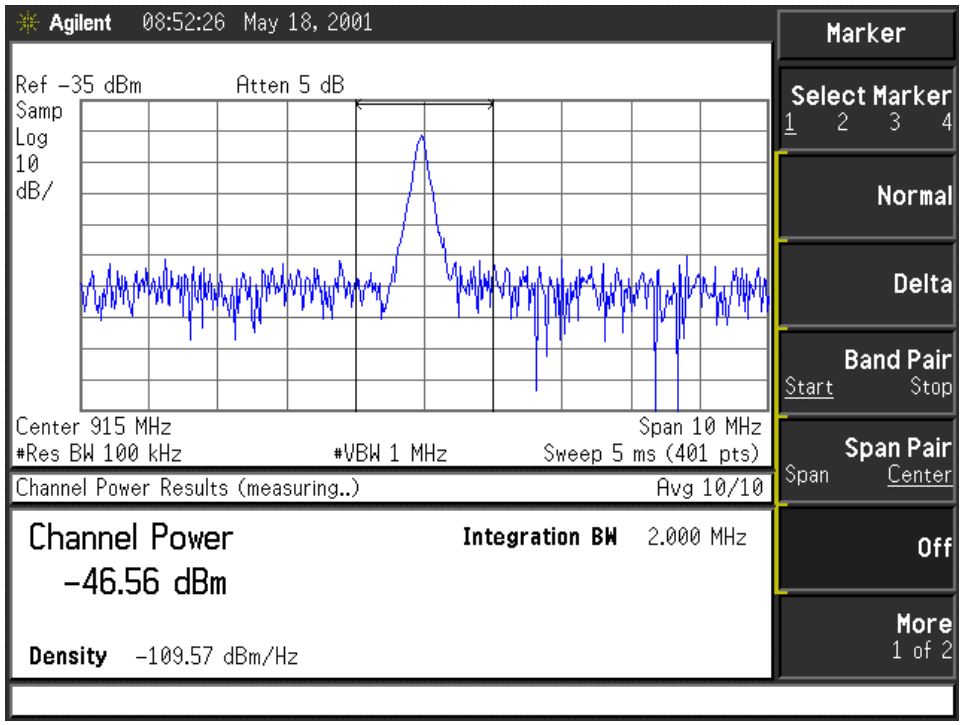
h) Test Indications Channel 8 (915 MHz)



Test Indication: Channel 8: 915 MHz, Desired Signal Reference Level Setting



Test Indication: Channel 8: 915 MHz, Jamming Signal Reference Level Setting

Frequency	J/S	PG	BER	S/N Corrected	Gp'
914.00	12.2	27.60	2.00E-05	13.06	27.26
914.05	8.8	24.20	3.00E-05	12.89	23.69
914.10	5.5	20.90	4.00E-05	12.76	20.26
914.15	3	18.40	9.00E-05	12.37	17.37
914.20	0.2	15.60	7.00E-05	12.49	14.69
914.25	-1.8	13.60	6.00E-05	12.57	12.77
914.30	-2.6	12.80	5.00E-05	12.65	12.05
914.35	-2.7	12.70	1.00E-05	13.35	12.65
914.40	-3.1	12.30	1.00E-05	13.35	12.25
914.45	-3.1	12.30	3.00E-05	12.89	11.79
914.50	-3.1	12.30	5.00E-05	12.65	11.55
914.55	-3.1	12.30	3.00E-05	12.89	11.79
914.60	-3.3	12.10	1.00E-05	13.35	12.05
914.65	-3.8	11.60	4.00E-05	12.76	10.96
914.70	-3.7	11.70	2.00E-05	13.06	11.36
914.75	-2.2	13.20	4.00E-05	12.76	12.56
914.80	-2.3	13.10	3.00E-05	12.89	12.59
914.85	-2.5	12.90	3.00E-05	12.89	12.39
914.90	-1.7	13.70	4.00E-05	12.76	13.06
914.95	-1.7	13.70	3.00E-05	12.89	13.19
915.00	-2	13.40	6.00E-05	12.57	12.57
915.05	-1.8	13.60	5.00E-05	12.65	12.85
915.10	-1.5	13.90	8.00E-05	12.43	12.93
915.15	-1.1	14.30	8.00E-05	12.43	13.33
915.20	-1.7	13.70	4.00E-05	12.76	13.06
915.25	-2	13.40	6.00E-05	12.57	12.57
915.30	-2	13.40	6.00E-05	12.57	12.07
915.35	-2.5	12.90	6.00E-05	12.57	11.87
915.40	-2.7	12.70	9.00E-05	12.37	11.67
915.45	-2.7	12.70	3.00E-05	12.89	12.09
915.50	-2.8	12.60	1.00E-05	13.35	12.45
915.55	-2.9	12.50	2.00E-05	13.06	11.36
915.60	-3.7	11.70	2.00E-05	13.06	12.26
915.65	-2.8	12.60	4.00E-05	12.76	12.16
915.70	-2.6	12.80	7.00E-05	12.49	12.39
915.75	-2.1	13.30	6.00E-05	12.57	13.07
915.80	-1.5	13.90	3.00E-05	12.89	13.99
915.85	-0.9	14.50	7.00E-05	12.49	13.59
915.90	-0.9	14.50	3.00E-05	12.89	14.79
915.95	-0.1	15.30	2.00E-05	13.06	15.36
916.00	0.3	15.70	5.00E-05	12.65	14.65
CHANNEL	9	914.50			
80% percentile	Gp	12.5		Gp'	12.05

Test Condition: Channel 8: 915 MHz, J/S and Processing Gain

Test Limit: 20th Percentile Processing Gain: 10 dB, minimum.

Test Indication: 20th Percentile Processing Gain = 12.05 dB

Test Outcome: 20th Percentile Processing Gain = 12.05 dB > 10 dB → PASS

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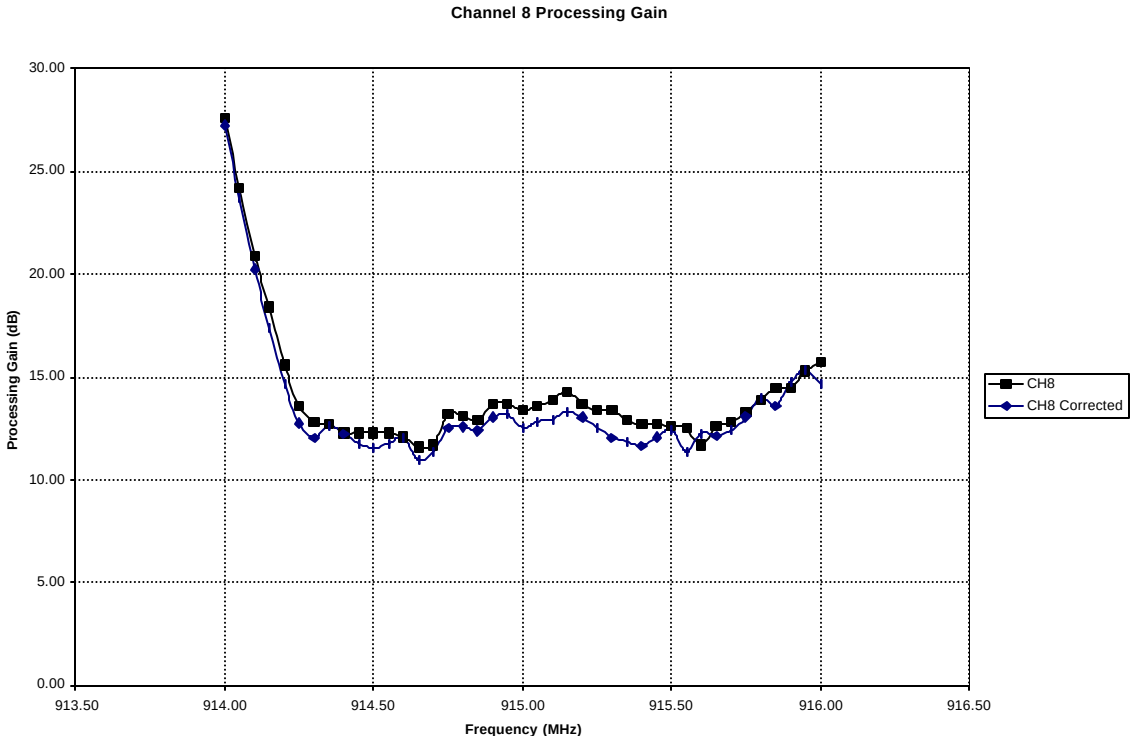

Test Indication: Channel 8 Processing Gain versus Frequency.

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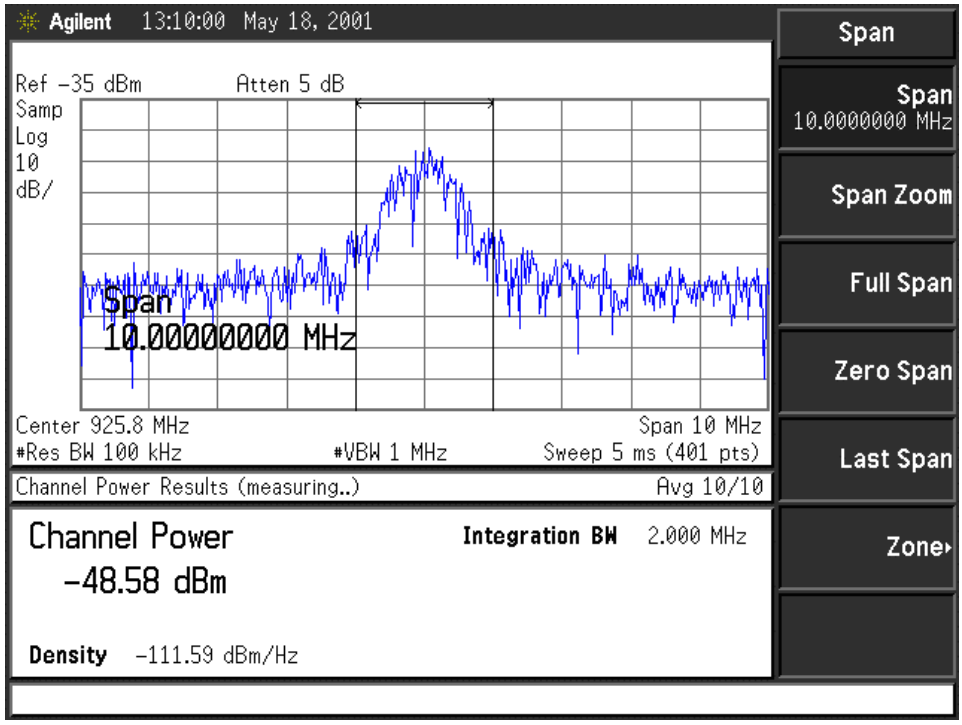
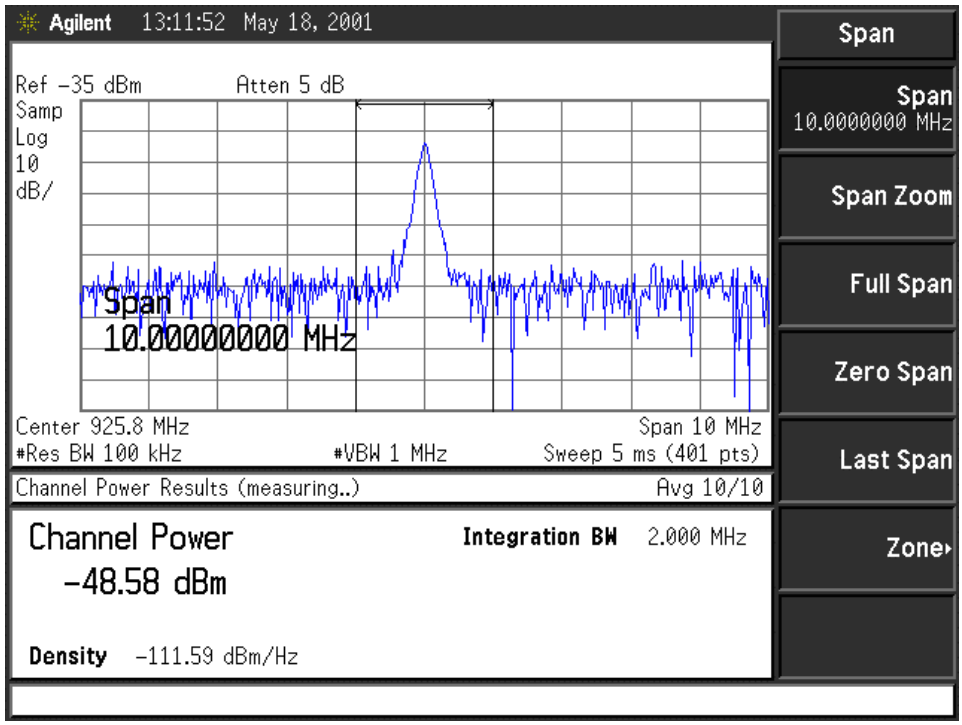
i) Test Indications Channel 15 (925.75 MHz)



Test Indication: Channel 15: 925.75 MHz, Desired Signal Reference Level Setting



Test Indication: Channel 15: 925.75 MHz, Jamming Signal Reference Level Setting

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Frequency	J/S	PG	BER	S/N corrected	Gp'
924.75	10.1	25.50	8.00E-05	12.4	24.53
924.80	7.2	22.60	8.00E-05	12.4	21.63
924.85	2.5	17.90	4.00E-05	12.8	17.26
924.90	1.1	16.50	5.00E-05	12.7	15.75
924.95	-2	13.40	3.00E-05	12.9	12.89
925.00	-2.1	13.30	8.00E-05	12.4	12.33
925.05	-2.6	12.80	4.00E-05	12.8	12.16
925.10	-2.7	12.70	3.00E-05	12.9	12.19
925.15	-3	12.40	9.00E-05	12.4	11.37
925.20	-3.3	12.10	4.00E-05	12.8	11.46
925.25	-3.1	12.30	6.00E-05	12.6	11.47
925.30	-3.5	11.90	4.00E-05	12.8	11.26
925.35	-2.9	12.50	9.00E-05	12.4	11.47
925.40	-1.8	13.60	3.00E-05	12.9	13.09
925.45	-1.8	13.60	9.00E-05	12.4	12.57
925.50	-1.8	13.60	4.00E-05	12.8	12.96
925.55	-1.7	13.70	4.00E-05	12.8	13.06
925.60	-1.7	13.70	3.00E-05	12.9	13.19
925.65	-1.6	13.80	2.00E-05	13.1	13.46
925.70	-1.6	13.80	4.00E-05	12.8	13.16
925.75	-1.5	13.90	2.00E-05	13.1	13.56
925.80	-1.4	14.00	4.00E-05	12.8	13.36
925.85	-1.3	14.10	3.00E-05	12.9	13.59
925.90	-1.7	13.70	8.00E-05	12.4	12.73
925.95	-1.6	13.80	5.00E-05	12.7	13.05
926.00	-2.9	12.50	6.00E-05	12.6	12.37
926.05	-2.2	13.20	4.00E-05	12.8	11.46
926.10	-3.3	12.10	7.00E-05	12.5	11.09
926.15	-3.4	12.00	6.00E-05	12.6	10.87
926.20	-3.7	11.70	4.00E-05	12.8	11.76
926.25	-3	12.40	4.00E-05	12.8	11.96
926.30	-2.8	12.60	4.00E-05	12.8	11.56
926.35	-3.2	12.20	3.00E-05	12.9	12.79
926.40	-2.1	13.30	6.00E-05	12.6	12.57
926.45	-2	13.40	6.00E-05	12.6	12.37
926.50	-2.2	13.20	3.00E-05	12.9	13.09
926.55	-1.8	13.60	7.00E-05	12.5	13.69
926.60	-0.8	14.60	3.00E-05	12.9	14.89
926.65	0	15.40	8.00E-05	12.4	15.33
926.70	0.9	16.30	7.00E-05	12.5	16.09
926.75	1.6	17.00	8.00E-05	12.4	14.43
CHANNEL	15	914.50	MHz		
80% percentile	Gp	12.4	dB	Gp'	11.56

Test Condition: Channel 15: 925.75 MHz, J/S and Processing Gain

Test Limit: 20th Percentile Processing Gain: 10 dB, minimum.

Test Indication: 20th Percentile Processing Gain = 11.56 dB

Test Outcome: 20th Percentile Processing Gain = 11.56 dB > 10 dB → PASS

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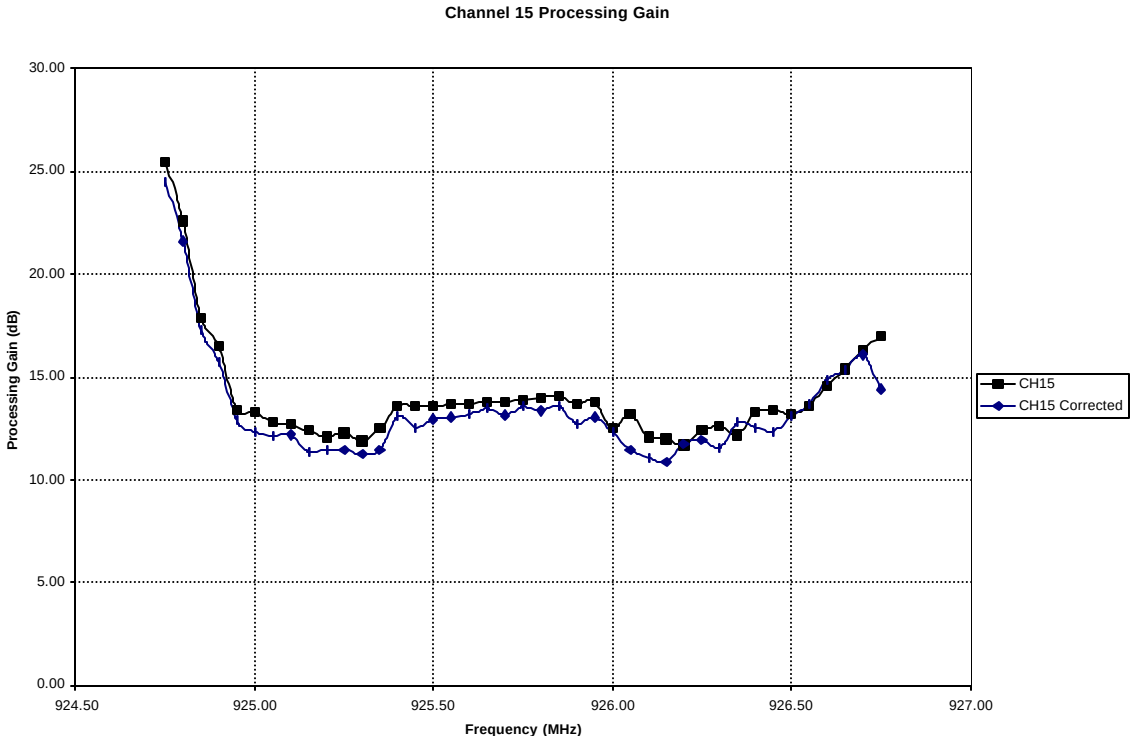

Test Indication: Channel 15 Processing Gain versus Frequency.

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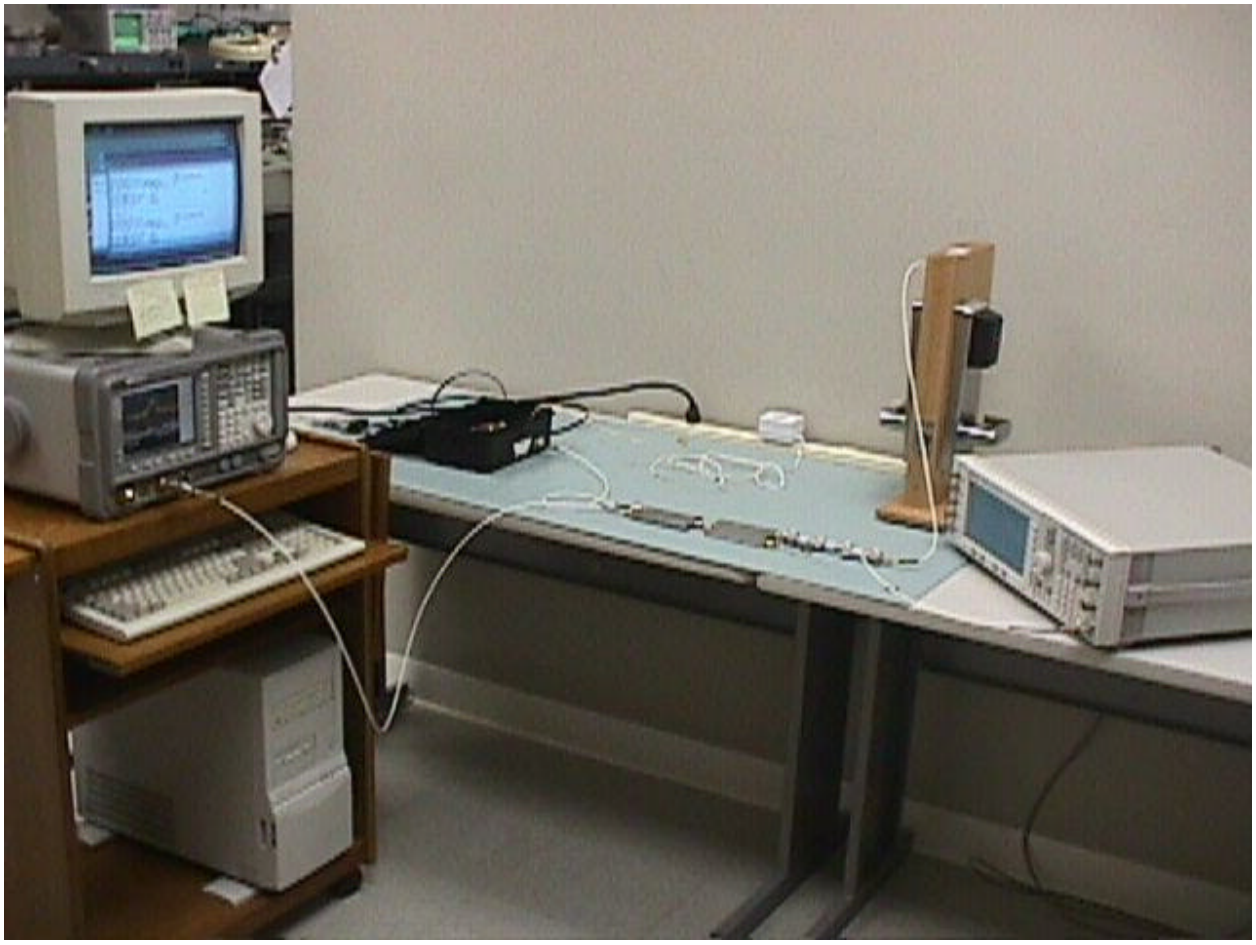
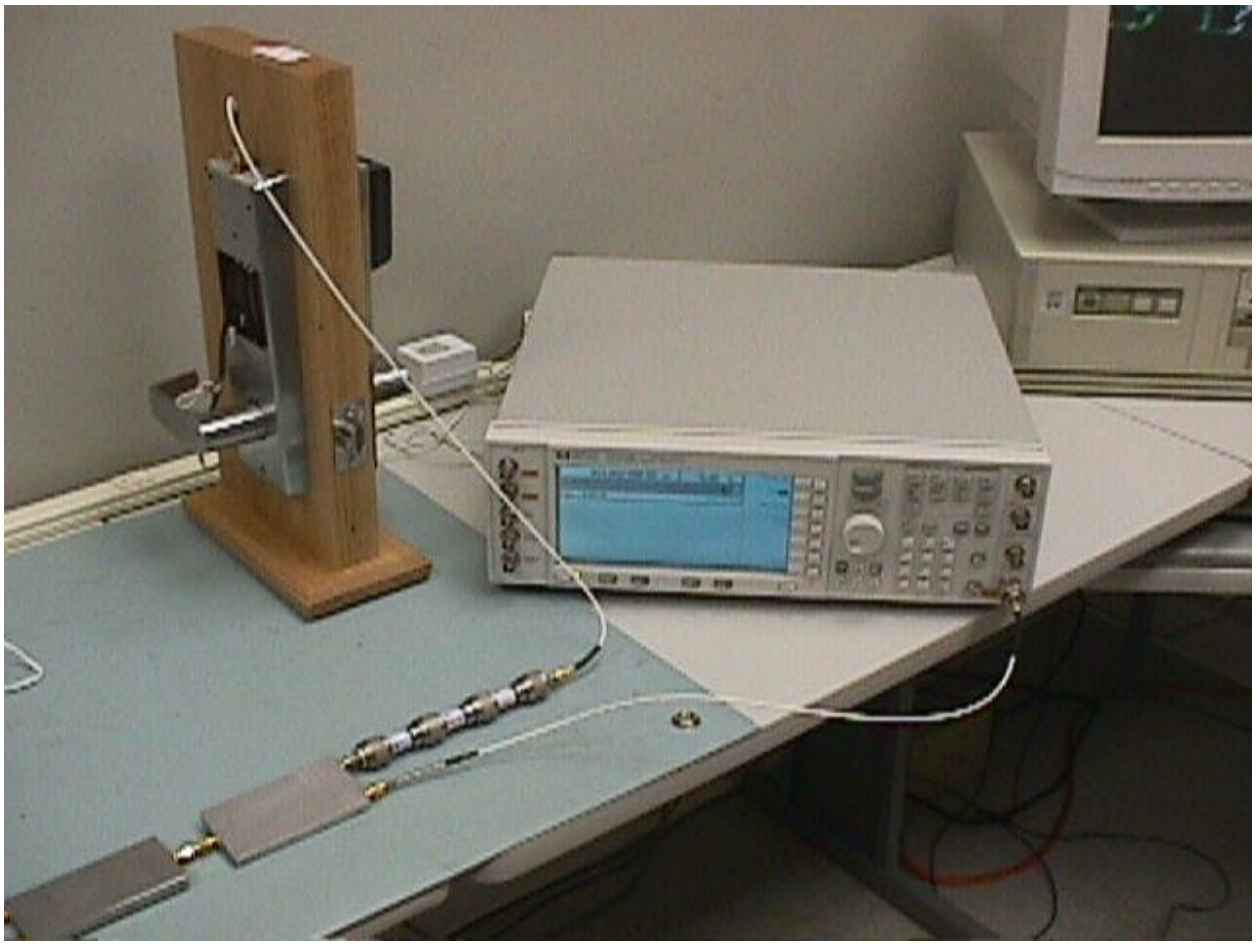
j) Test Set-Up Photographs for Jamming Margin



Test Configuration – Wide View



Test Configuration – Right Hand Side

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Test Configuration – Left Hand Side

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III. Equipment List

EQUIPMENT DESCRIPTION	LSR Serial Number	Serial Number	Calibration
Agilent E4432B Signal Generator	CC000213C	On Record	7/30/1998
Hewlett Packard E4407B Spectrum Analyzer	CC000221C	On Record	8/11/2000

IV. Equipment Uncertainties

Specified Characteristic	Specified Probability Density	Specified Uncertainty
HP EE4404B Spectrum Analyzer		
Total Absolute Amplitude Uncertainty	Uniform	+/-0.35 dB
Wilkinson Power Couplers		
Amplitude Imbalance	Uniform	+/-0.1 dB
Aglinent E4432B		
Absolute Amplitude Accuracy	Uniform	+/- 0.5 dB

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