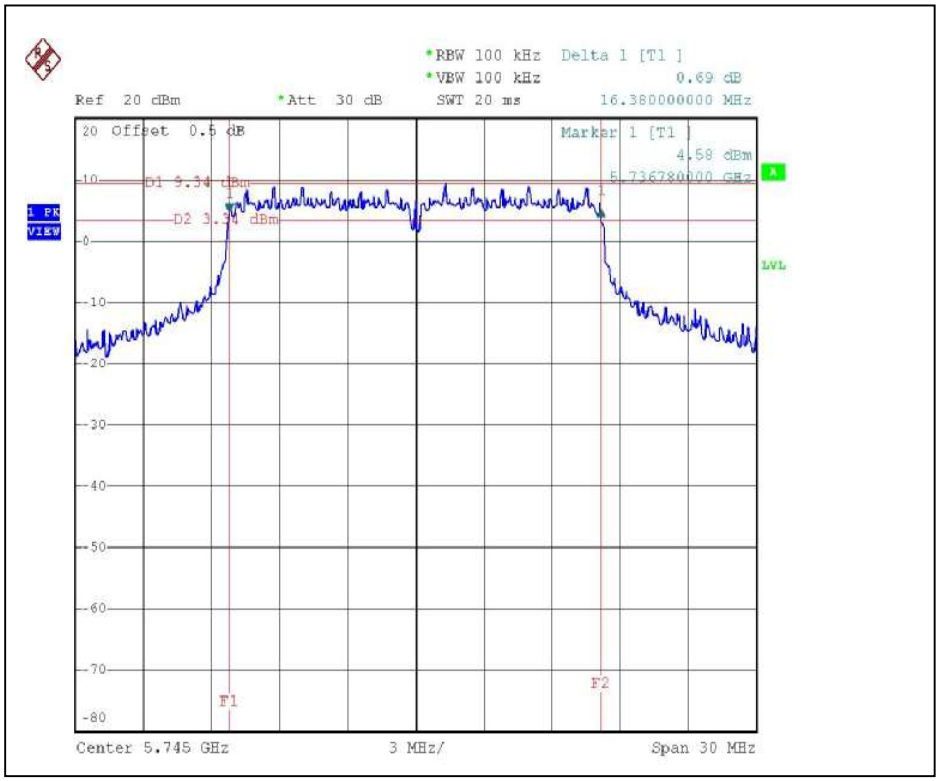
5.3.10 TEST RESULTS (ANTENNA 4)

802.11a OFDM modulation

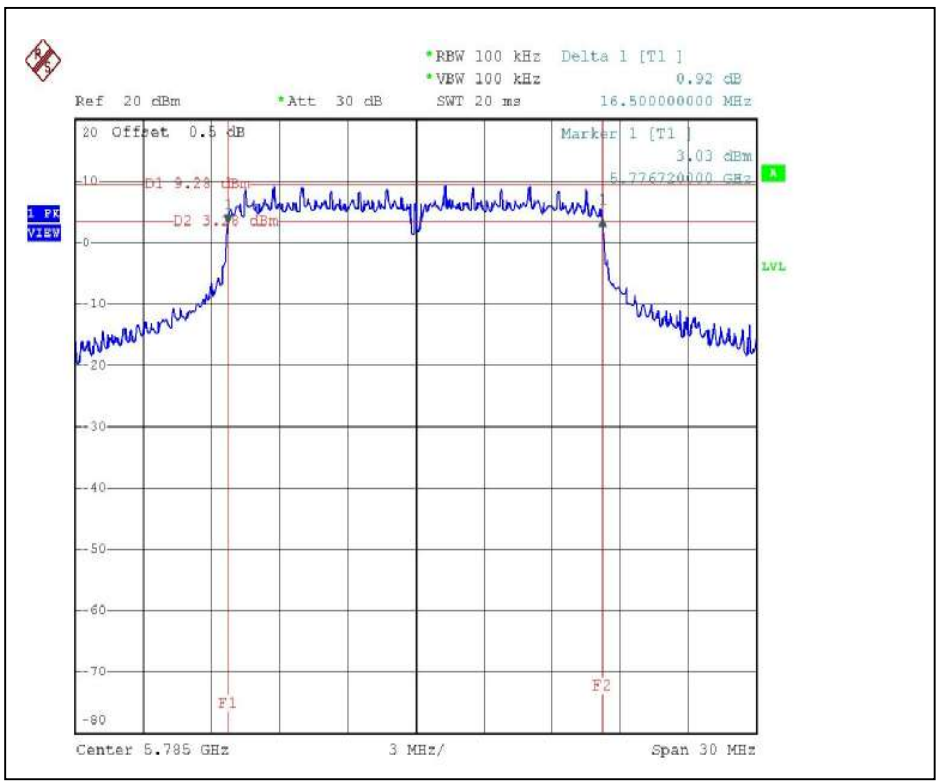
EUT	Aruba 80 a+b/g Outdoor Stand-alone Access Point / WDS Bridge Master		
MODULATION TYPE	BPSK	**MODEL**	AP-80MB
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TRANSFER RATE**	6Mbps
TESTED BY	Rex Huang	**ENVIRONMENTAL CONDITIONS**	27deg. C, 53%RH, 961hPa

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	5745	16.38	0.5	PASS
3	5785	16.5	0.5	PASS
5	5825	16.5	0.5	PASS

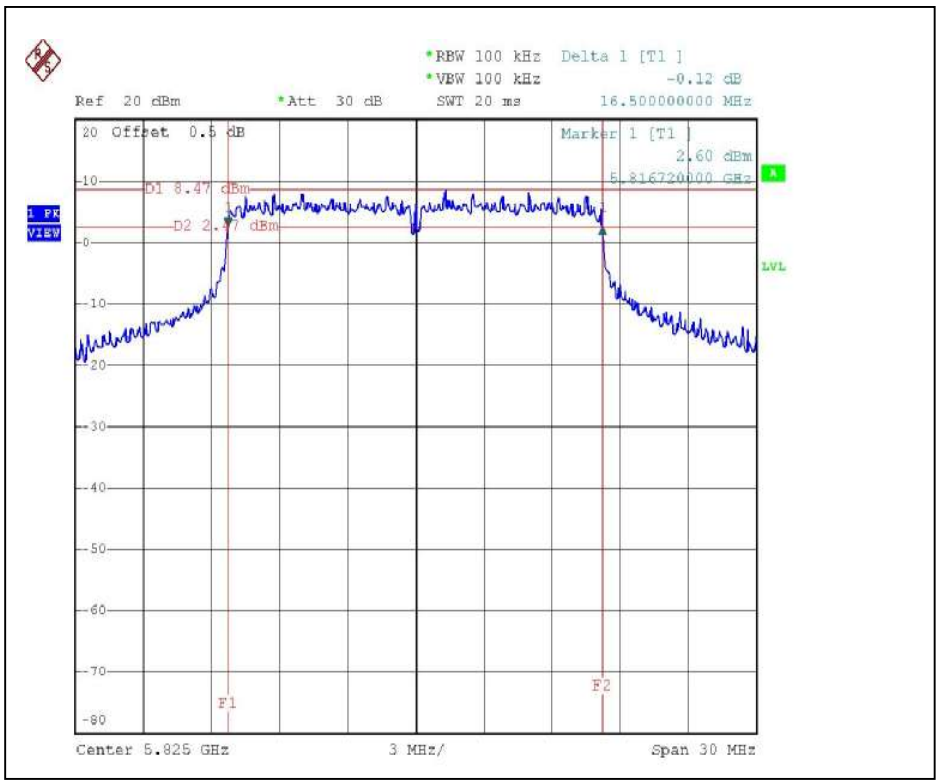
CH1


*RBW 100 kHz
Delta 1 [T1]
*VBW 100 kHz
0.69 dB
Ref 20 dBm
*Att 30 dB
SWT 20 ms
16.380000000 MHz
20 Offset 0.5 dB
Marker 1 [T1]
4.58 dBm
5.736780000 GHz
D1 9.34 dBm
D2 3.34 dBm
1 PK VIEW
LVL
F1
F2
Center 5.745 GHz
3 MHz/
Span 30 MHz

CH3


*RBW 100 kHz
Delta 1 [T1]
*VBW 100 kHz
0.92 dB
Ref 20 dBm
*Att 30 dB
SWT 20 ms
16.500000000 MHz
20 Offset 0.5 dB
Marker 1 [T1]
3.03 dBm
5.776720000 GHz
D1 9.28 dBm
D2 3.28 dBm
1 PK VIEW
LVL
F1
F2
Center 5.785 GHz
3 MHz/
Span 30 MHz

CH5

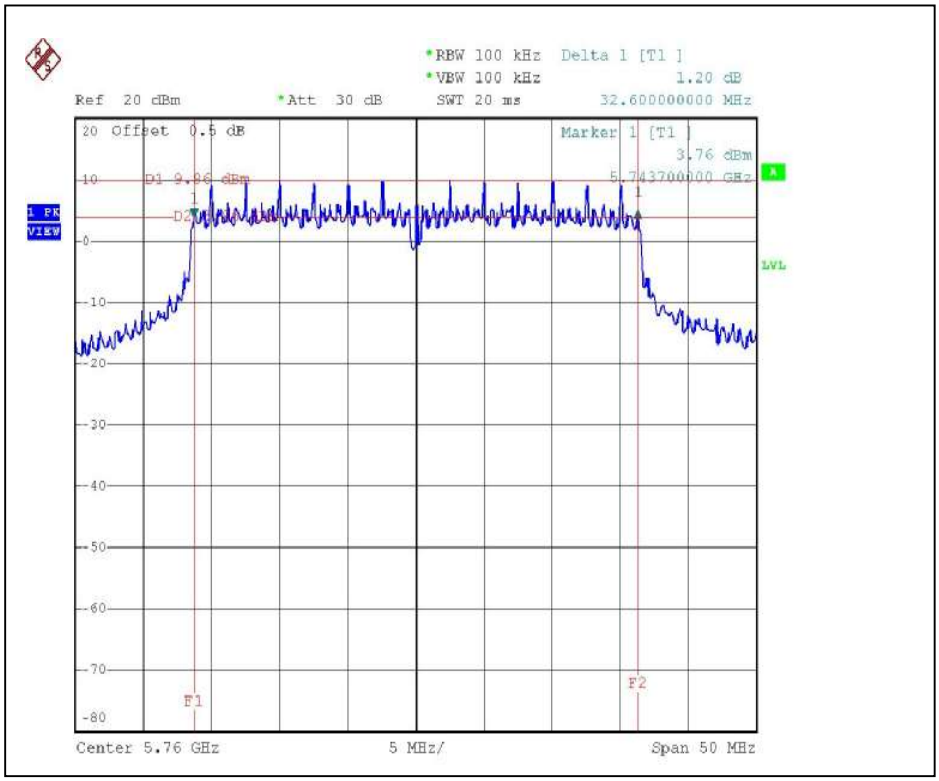

*RBW 100 kHz
Delta 1 [T1]
*VBW 100 kHz
-0.12 dB
Ref 20 dBm
*Att 30 dB
SWT 20 ms
16.500000000 MHz
20 Offset 0.5 dB
Marker 1 [T1]
2.60 dBm
5.816720000 GHz
D1 8.47 dBm
D2 2.47 dBm
LVL
F1
F2
Center 5.825 GHz
3 MHz/
Span 30 MHz

802.11a Turbo OFDM modulation

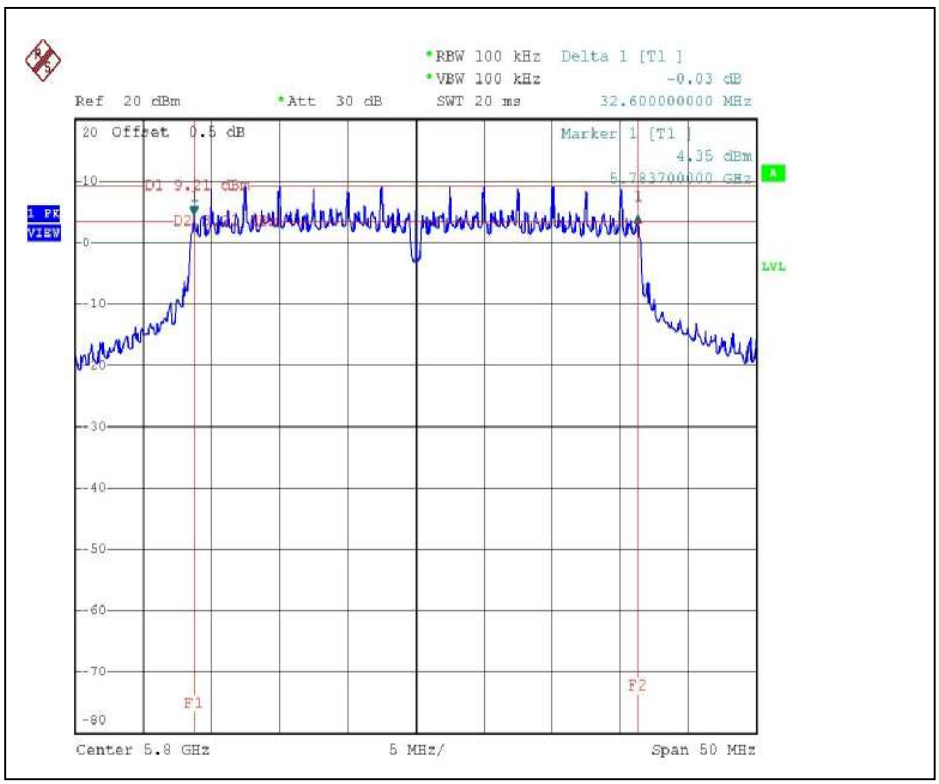
EUT	Aruba 80 a+b/g Outdoor Stand-alone Access Point / WDS Bridge Master		
MODULATION TYPE	BPSK	**MODEL**	AP-80MB
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TRANSFER RATE**	12Mbps
TESTED BY	Rex Huang	**ENVIRONMENTAL CONDITIONS**	27deg. C, 53%RH, 961hPa

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	5760	32.6	0.5	PASS
2	5800	32.6	0.5	PASS

CH1


*RBW 100 kHz
Delta 1 [T1]
*VBW 100 kHz
1.20 dB
Ref 20 dBm
*Att 30 dB
SWT 20 ms
32.600000000 MHz
20 Offset 0.5 dB
Marker 1 [T1]
3.76 dBm
D1 9.86 dBm
5.743700000 GHz
1 PK VIEW
LVL
F1
F2
Center 5.76 GHz
5 MHz/
Span 50 MHz

CH2


*RBW 100 kHz
Delta 1 [T1]
*VBW 100 kHz
-0.03 dB
Ref 20 dBm
*Att 30 dB
SWT 20 ms
32.600000000 MHz
20 Offset 0.5 dB
Marker 1 [T1]
4.35 dBm
D1 9.21 dBm
5.783700000 GHz
1 PK VIEW
LVL
F1
F2
Center 5.8 GHz
5 MHz/
Span 50 MHz

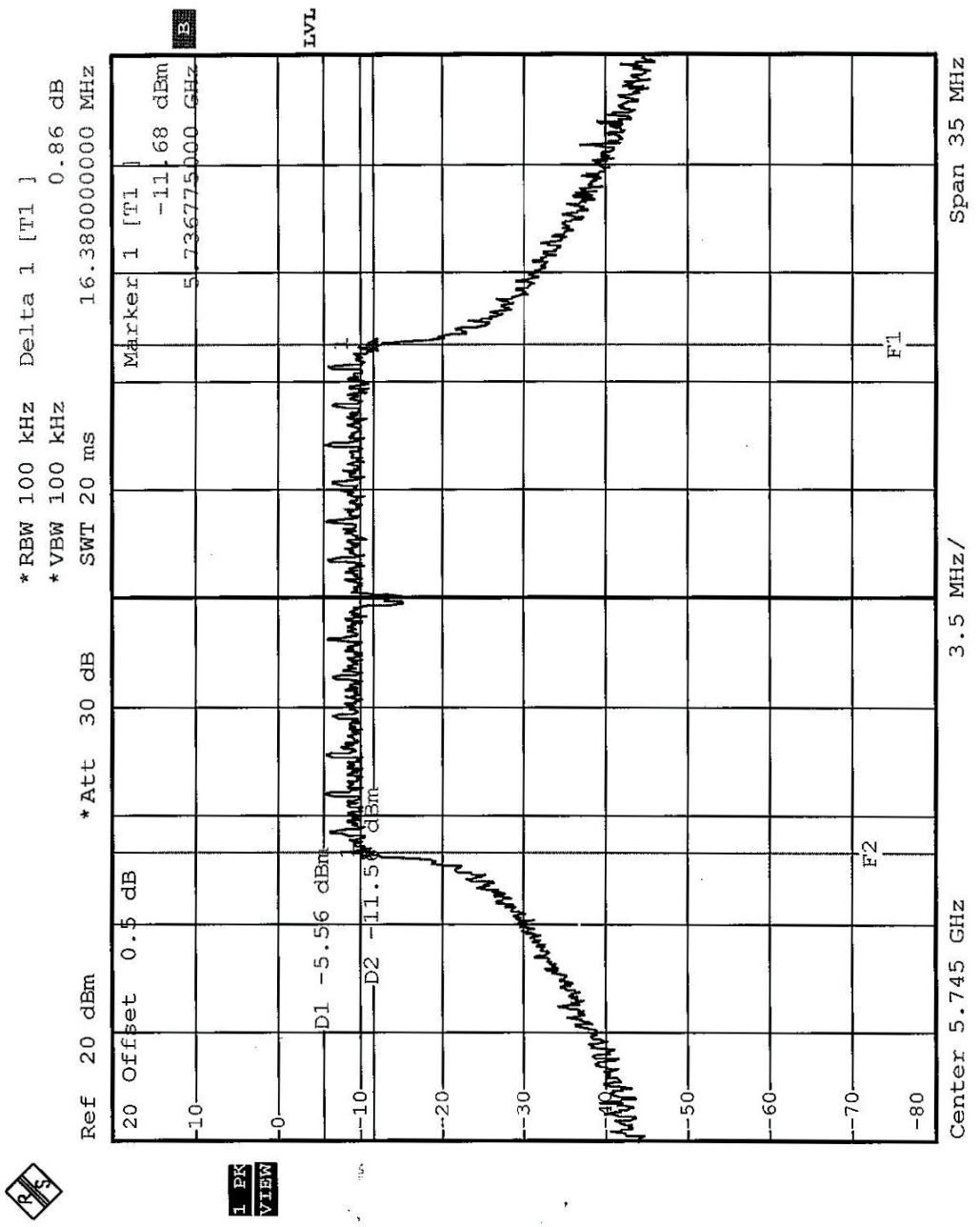
5.3.11 TEST RESULTS (ANTENNA 5)

802.11a OFDM modulation

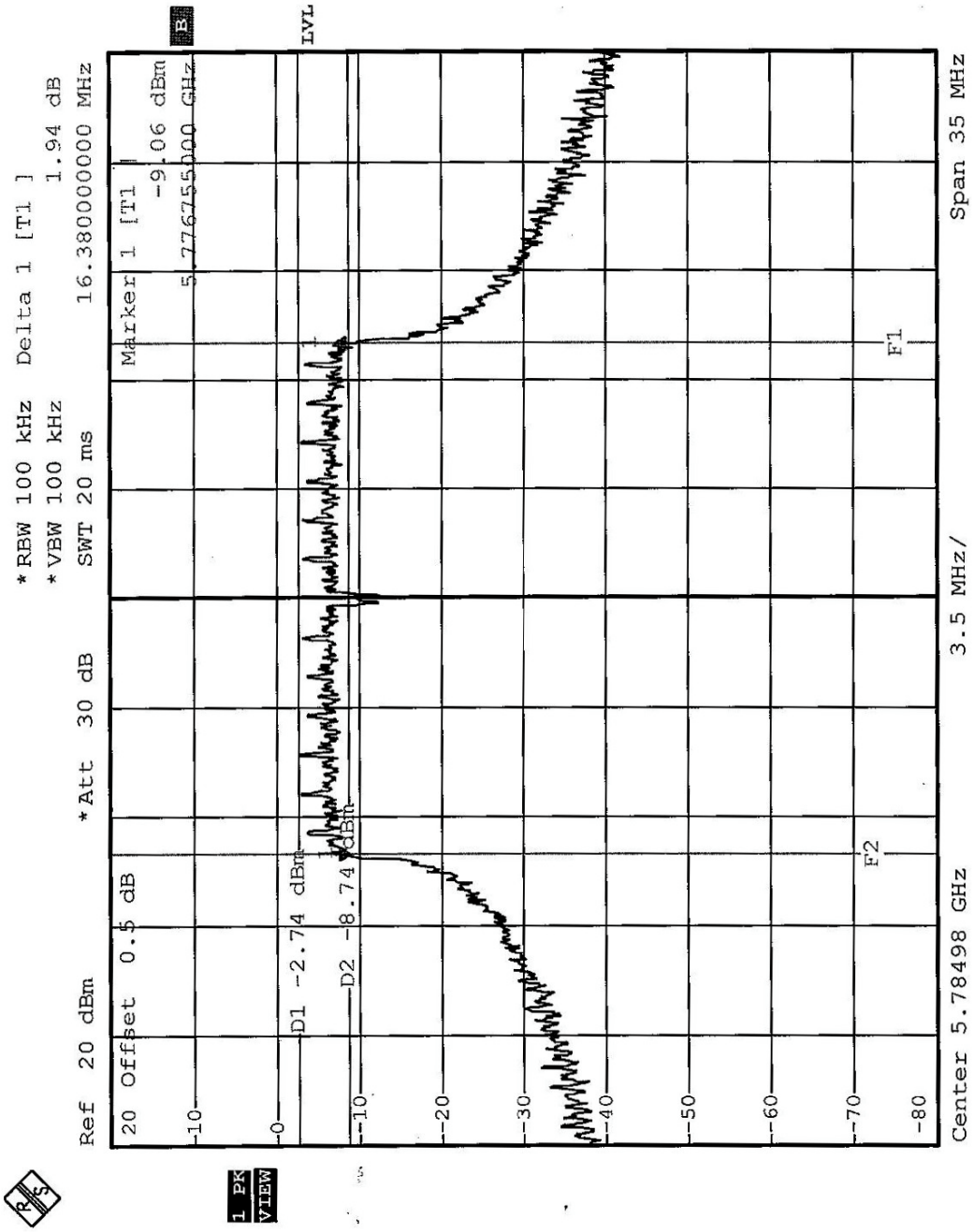
EUT	Aruba 80 a+b/g Outdoor Stand-alone Access Point / WDS Bridge Slave		
MODULATION TYPE	BPSK	**MODEL**	AP-80SB
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TRANSFER RATE**	6Mbps
TESTED BY	Rex Huang	**ENVIRONMENTAL CONDITIONS**	27deg. C, 53%RH, 961hPa

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	5745	16.38	0.5	PASS
3	5785	16.38	0.5	PASS
5	5825	16.45	0.5	PASS

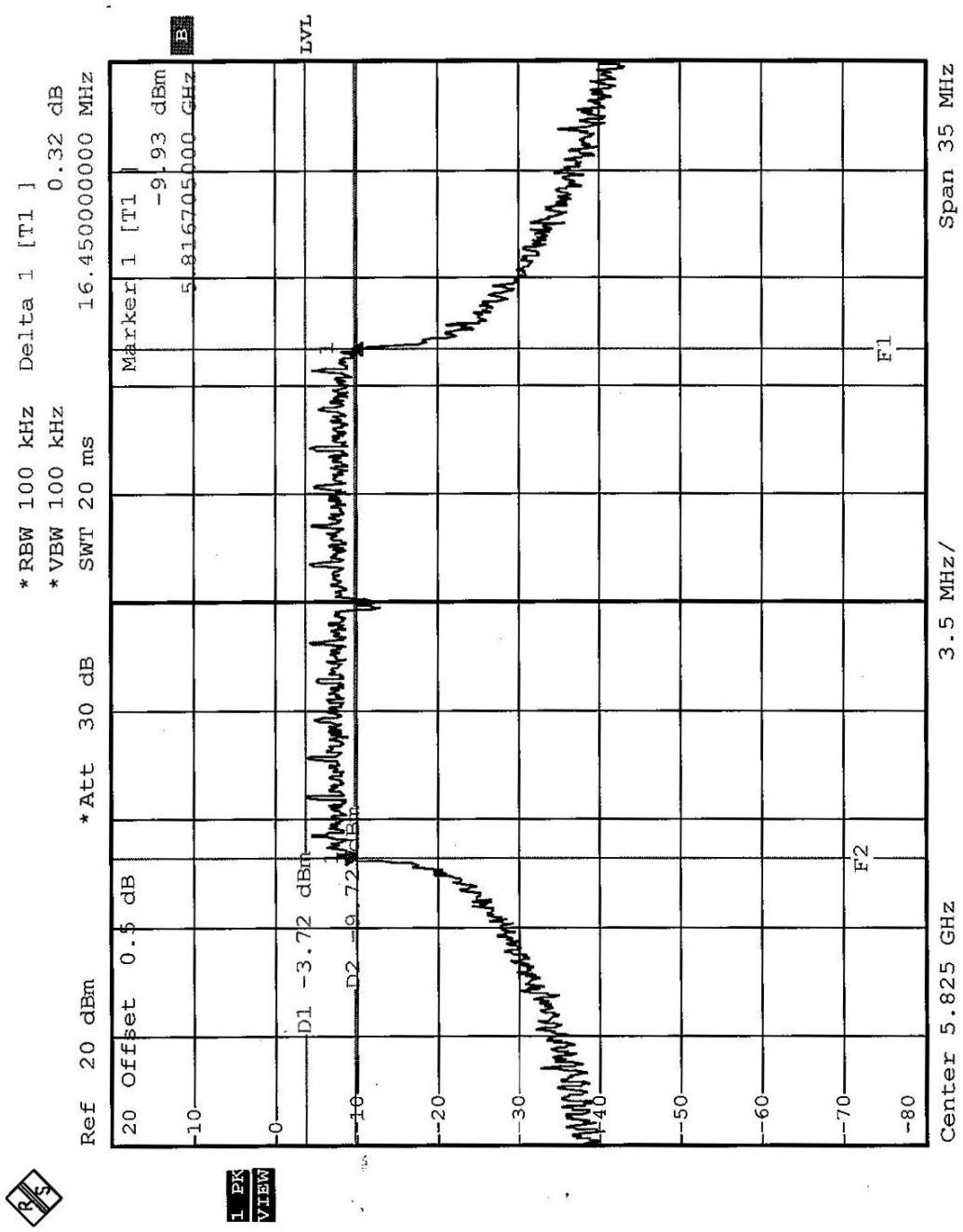
CH1


RBW 100 kHz
VBW 100 kHz
SWT 20 ms
Delta 1 [T1]
0.86 dB
16.38000000 MHz
Marker 1 [T1]
-11.68 dBm
5.73675000 GHz
Ref 20 dBm
20 Offset 0.5 dB
Att 30 dB
D1 -5.56 dBm
D2 -11.5 dBm
F1
F2
Center 5.745 GHz
3.5 MHz/
Span 35 MHz
1 PK
VIEW

CH3


Ref 20 dBm
20 Offset 0.5 dB
*Att 30 dB
*RBW 100 kHz
*VBW 100 kHz
SWT 20 ms
Delta 1 [T1]
1.94 dB
16.380000000 MHz
Marker 1 [T1]
-9.06 dBm
5.776755000 GHz
D1 -2.74 dBm
D2 -8.74 dBm
F1
F2
Center 5.78498 GHz
3.5 MHz/
Span 35 MHz
1 PK VIEW
LVL

CH5

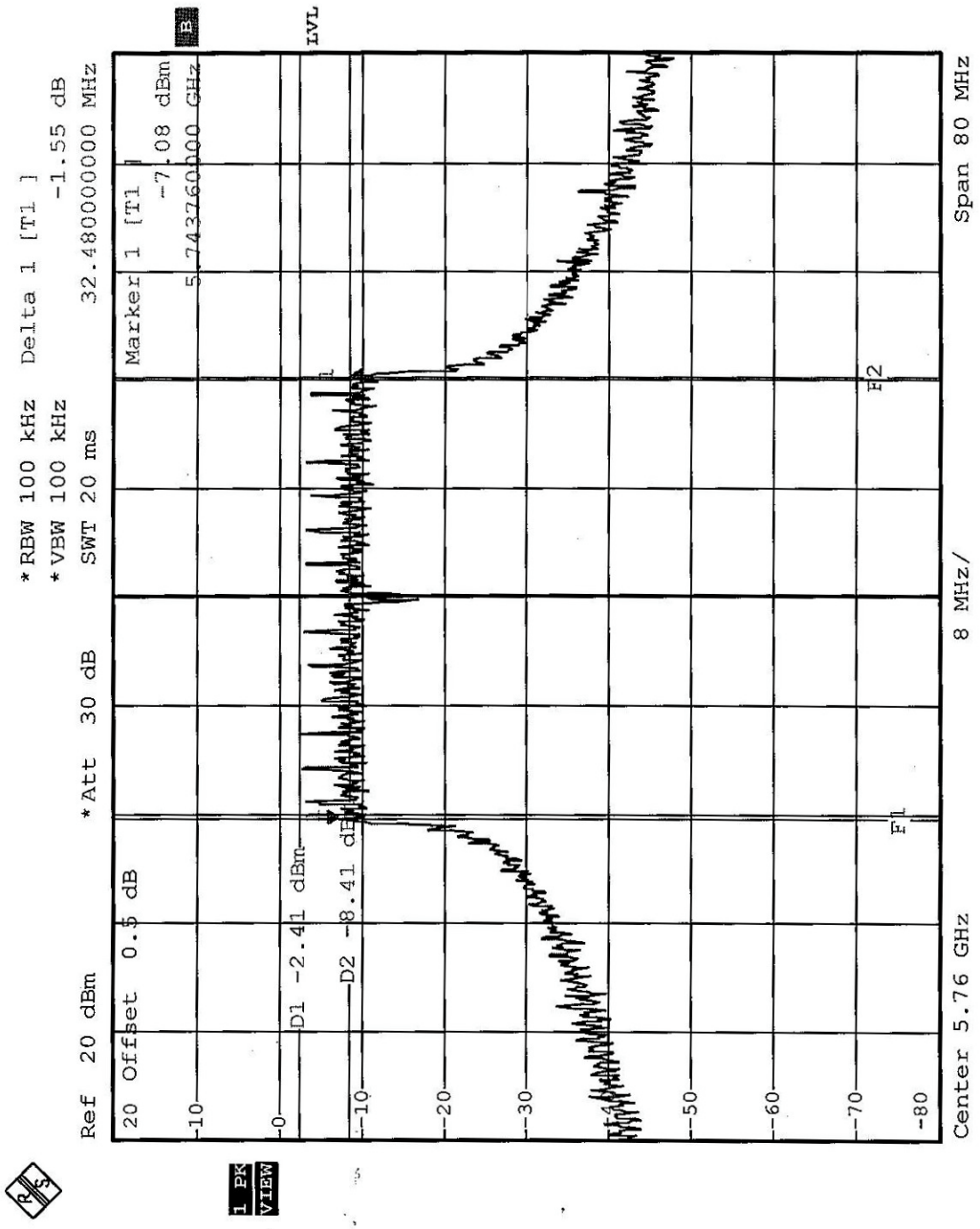

RBW 100 kHz
VBW 100 kHz
SWT 20 ms
Att 30 dB
Ref 20 dBm
Offset 0.5 dB
Delta 1 [T1]
0.32 dB
16.45000000 MHz
Marker 1 [T1]
-9.93 dBm
5.81670500 GHz
LVL
D1 -3.72 dBm
D2 -9.72 dBm
F1
F2
Center 5.825 GHz
3.5 MHz/
Span 35 MHz
1 PK VIEW

802.11a Turbo OFDM modulation

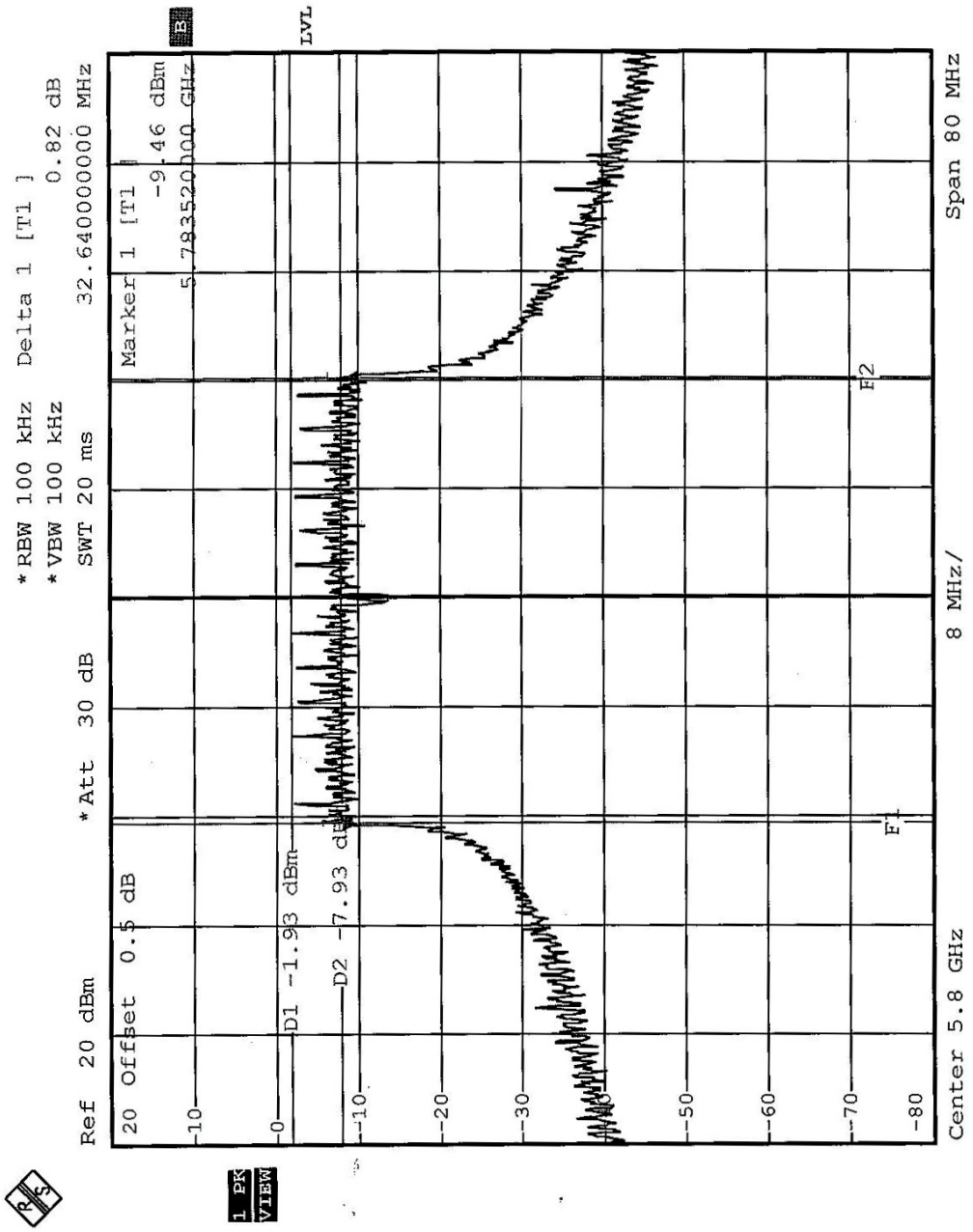
EUT	Aruba 80 a+b/g Outdoor Stand-alone Access Point / WDS Bridge Slave		
MODULATION TYPE	BPSK	**MODEL**	AP-80SB
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TRANSFER RATE**	12Mbps
TESTED BY	Rex Huang	**ENVIRONMENTAL CONDITIONS**	27deg. C, 53%RH, 961hPa

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	5760	32.48	0.5	PASS
2	5800	32.64	0.5	PASS

CH1


Ref 20 dBm
20 Offset 0.5 dB
*Att 30 dB
*RBW 100 kHz
*VBW 100 kHz
SWT 20 ms
Delta 1 [T1]
-1.55 dB
32.48000000 MHz
Marker 1 [T1
-7.08 dBm
5.74376000 GHz
D1 -2.41 dBm
D2 -8.41 dB
Center 5.76 GHz
8 MHz/
Span 80 MHz
1 PK
VIEW

CH2


RBW 100 kHz
VBW 100 kHz
SWT 20 ms
Delta 1 [T1]
0.82 dB
32.640000000 MHz
Marker 1 [T1]
-9.46 dBm
5.783520000 GHz
Ref 20 dBm
Offset 0.5 dB
Att 30 dB
D1 -1.93 dBm
D2 -7.93 dB
Center 5.8 GHz
8 MHz/
Span 80 MHz
1 PK VIEW

5.4 MAXIMUM PEAK OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

5.4.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2005
Agilent SIGNAL GENERATOR	E8257C	MY43320668	Dec. 07, 2005
TEKTRONIX OSCILLOSCOPE	TDS380	B016335	Jun. 22, 2006
NARDA DETECTOR	4503A	FSCM99899	NA

NOTE:
The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

5.4.3 TEST PROCEDURES

1. A detector was used on the output port of the EUT. An oscilloscope was used to read the response of the detector.
2. Replaced the EUT by the signal generator. The center frequency of the S.G was adjusted to the center frequency of the measured channel.
3. Adjusted the power to have the same reading on oscilloscope. Record the power level.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP

5.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

5.4.7 TEST RESULTS

802.11a OFDM modulation

EUT	Aruba 80 a+b/g Outdoor Stand-alone Access Point / WDS Bridge Master Aruba 80 a+b/g Outdoor Stand-alone Access Point / WDS Bridge Slave		
MODULATION TYPE	BPSK	**MODEL**	AP-80MB AP-80SB
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TRANSFER RATE**	6Mbps
TESTED BY	Eric Lee	**ENVIRONMENTAL CONDITIONS**	27deg. C, 53%RH, 961hPa

Antenna 1 (Gain : 9.0 dBi) + Antenna Cable (1.36dB loss)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	5745	24.98	28.36	PASS
3	5785	24.84	28.36	PASS
5	5825	24.38	28.36	PASS

Antenna 2 (Gain : 7.0 dBi) + Antenna Cable (1.36dB loss)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	5745	24.98	30	PASS
3	5785	24.84	30	PASS
5	5825	24.38	30	PASS

Antenna 3 (Gain : 10.0 dBi) + Antenna Cable (1.36dB loss)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	5745	24.98	27.36	PASS
3	5785	24.84	27.36	PASS
5	5825	24.38	27.36	PASS

Antenna 4 (Gain : 14.0 dBi) + Antenna Cable (1.36dB loss)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	5745	24.98	30	PASS
3	5785	24.84	30	PASS
5	5825	24.38	30	PASS

Antenna 5 (Gain : 17.0 dBi)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	5745	10.5	19	PASS
3	5785	12.76	19	PASS
5	5825	12.07	19	PASS

802.11a Turbo OFDM modulation

EUT	Aruba 80 a+b/g Outdoor Stand-alone Access Point / WDS Bridge Master Aruba 80 a+b/g Outdoor Stand-alone Access Point / WDS Bridge Slave		
MODULATION TYPE	BPSK	**MODEL**	AP-80MB AP-80SB
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TRANSFER RATE**	12Mbps
TESTED BY	Eric Lee	**ENVIRONMENTAL CONDITIONS**	27deg. C, 53%RH, 961hPa

Antenna 1 (Gain : 9.0 dBi) + Antenna Cable (1.36dB loss)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	5760	24.96	28.36	PASS
2	5800	24.46	28.36	PASS

Antenna 2 (Gain : 7.0 dBi) + Antenna Cable (1.36dB loss)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	5760	24.96	30	PASS
2	5800	24.46	30	PASS

Antenna 3 (Gain : 10.0 dBi) + Antenna Cable (1.36dB loss)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	5760	24.96	27.36	PASS
2	5800	24.46	27.36	PASS

Antenna 4 (Gain : 14.0 dBi) + Antenna Cable (1.36dB loss)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	5760	24.96	30	PASS
2	5800	24.46	30	PASS

Antenna 5 (Gain : 17.0 dBi)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	5760	12.5	19	PASS
2	5800	13.5	19	PASS

5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2005

NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

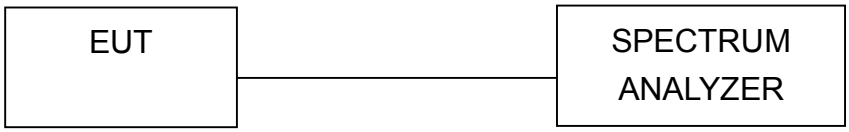
5.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3 kHz RBW and 30 kHz VBW, set sweep time = span/3 kHz. The power spectral density was measured and recorded.
The sweep time is allowed to be longer than span/3 kHz for a full response of the mixer in the spectrum analyzer.

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

5.5.7 TEST RESULTS(ANTENNA 1)

802.11a OFDM modulation

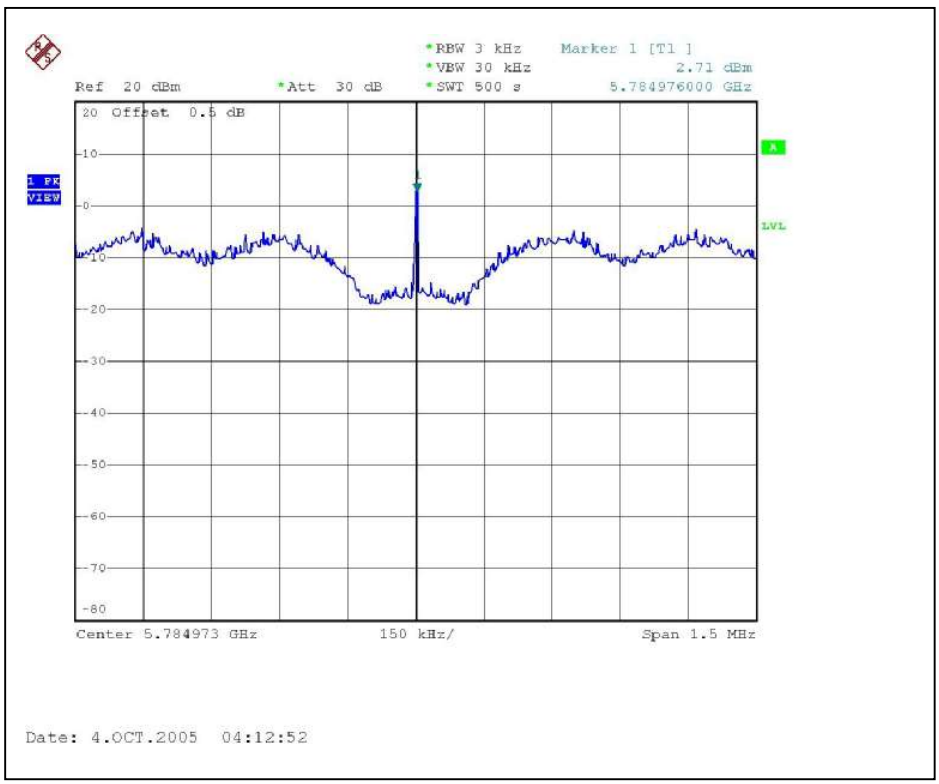
EUT	Aruba 80 a+b/g Outdoor Stand-alone Access Point / WDS Bridge Master		
MODEL	AP-80MB	**TRANSFER RATE**	6Mbps
MODULATION TYPE	BPSK	**ENVIRONMENTAL CONDITIONS**	27deg. C, 53%RH, 961hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Eric Lee

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5745	3.41	8	PASS
3	5785	2.71	8	PASS
5	5825	2.47	8	PASS

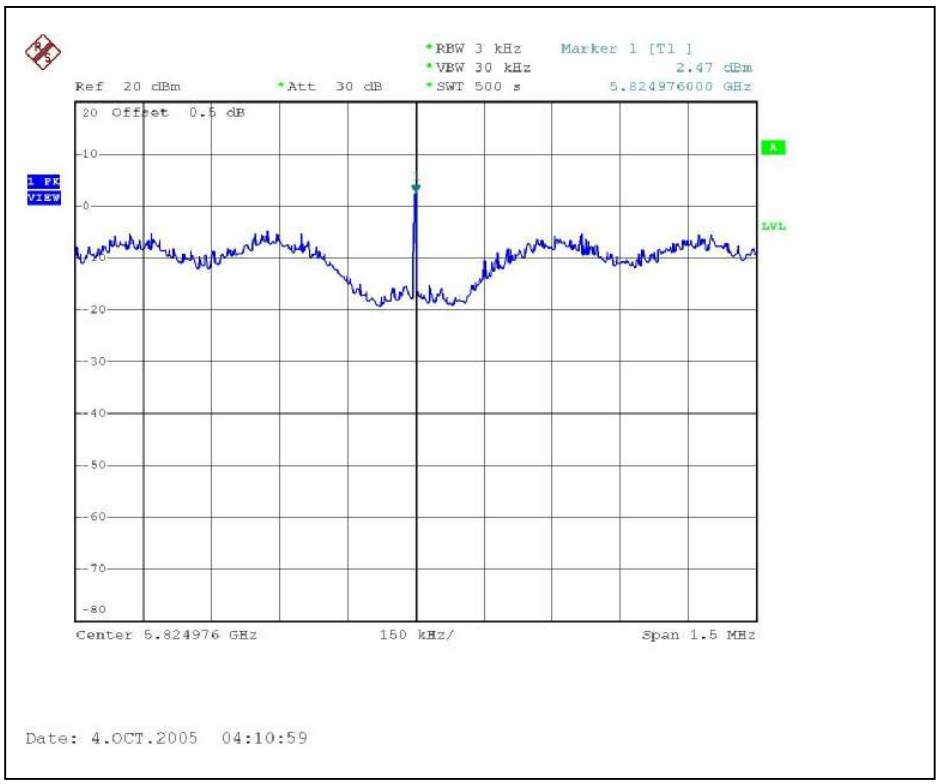
CH1


*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
3.41 dBm
Ref 20 dBm
*Att 30 dB
*SWT 500 s
5.744976000 GHz
20 Offset 0.5 dB
1 PK
VIEW
A
LVL
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 5.744976 GHz
150 kHz/
Span 1.5 MHz

CH3


*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
2.71 dBm
Ref 20 dBm
*Att 30 dB
*SWT 500 s
5.784976000 GHz
20 Offset 0.5 dB
1 PK
VIEW
A
LVL
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 5.784973 GHz
150 kHz/
Span 1.5 MHz
Date: 4.OCT.2005 04:12:52

CH5

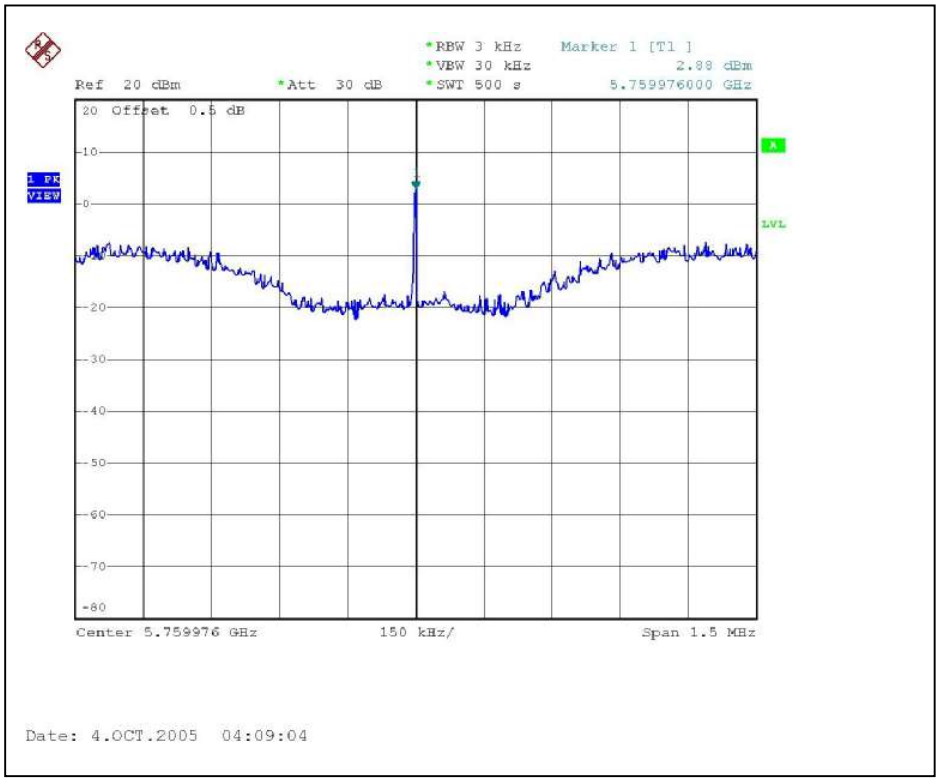

*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
2.47 dBm
Ref 20 dBm
*Att 30 dB
*SWT 500 s
5.824976000 GHz
20 Offset 0.5 dB
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1 PK
VIEW
A
LVL
Center 5.824976 GHz
150 kHz/
Span 1.5 MHz
Date: 4.OCT.2005 04:10:59

802.11a Turbo OFDM modulation

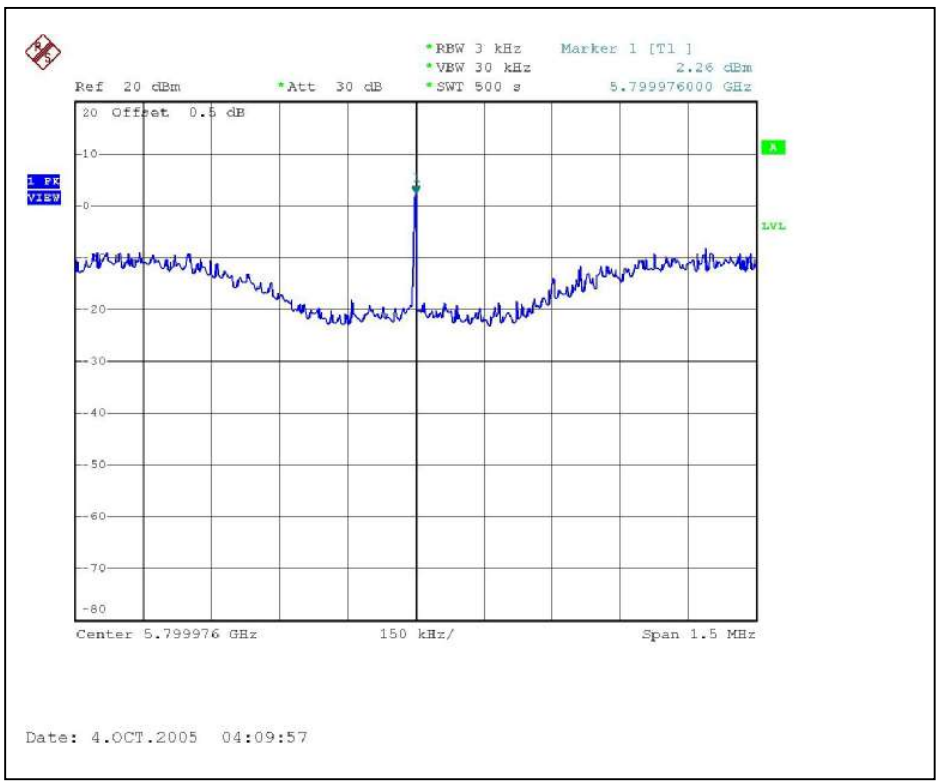
EUT	Aruba 80 a+b/g Outdoor Stand-alone Access Point / WDS Bridge Master		
MODEL	AP-80MB	**TRANSFER RATE**	12Mbps
MODULATION TYPE	BPSK	**ENVIRONMENTAL CONDITIONS**	27deg. C, 53%RH, 961hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Eric Lee

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5760	2.88	8	PASS
2	5800	2.26	8	PASS

CH1


*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
2.88 dBm
Ref 20 dBm
*Att 30 dB
*SWT 500 s
5.759976000 GHz
20 Offset 0.5 dB
1 PK VIEW
A
LVL
Center 5.759976 GHz
150 kHz/
Span 1.5 MHz
Date: 4.OCT.2005 04:09:04

CH2


*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
2.26 dBm
Ref 20 dBm
*Att 30 dB
*SWT 500 s
5.799976000 GHz
20 Offset 0.5 dB
1 PK VIEW
A
LVL
Center 5.799976 GHz
150 kHz/
Span 1.5 MHz
Date: 4.OCT.2005 04:09:57

5.5.8 TEST RESULTS(ANTENNA 2)

802.11a OFDM modulation

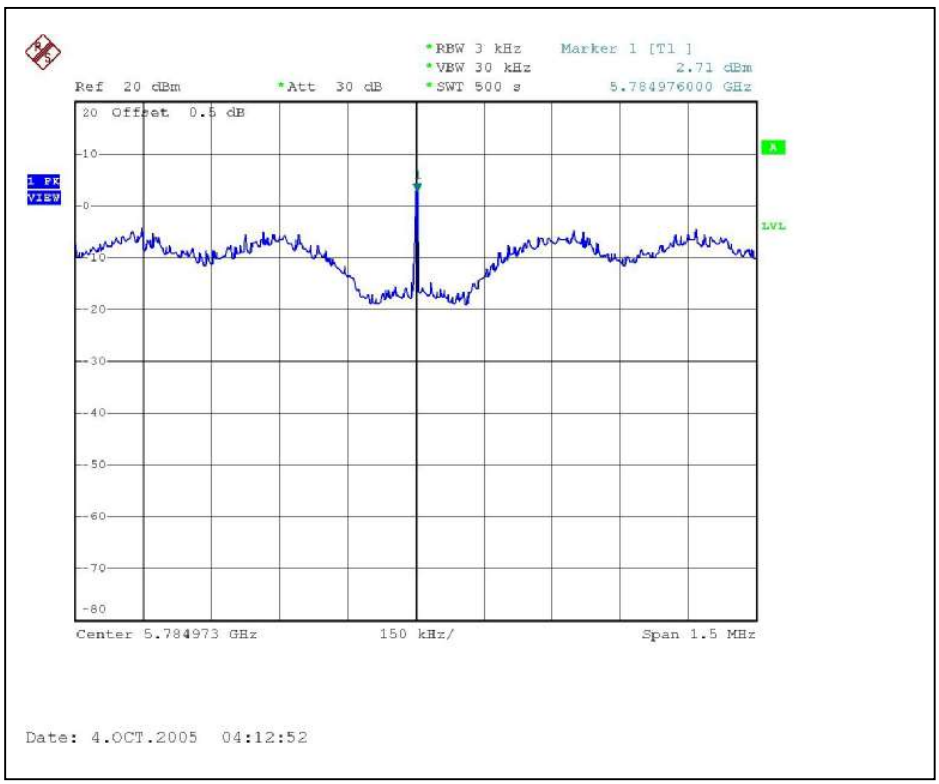
EUT	Aruba 80 a+b/g Outdoor Stand-alone Access Point / WDS Bridge Master		
MODEL	AP-80MB	**TRANSFER RATE**	6Mbps
MODULATION TYPE	BPSK	**ENVIRONMENTAL CONDITIONS**	27deg. C, 53%RH, 961hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Eric Lee

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5745	3.41	8	PASS
3	5785	2.71	8	PASS
5	5825	2.47	8	PASS

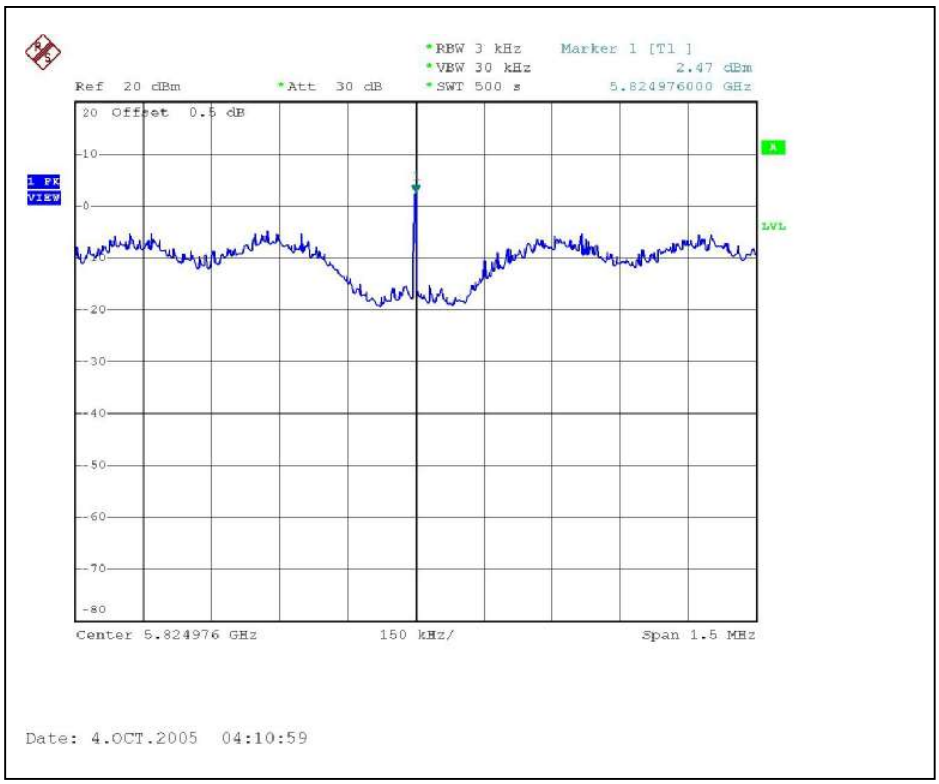
CH1


*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
3.41 dBm
Ref 20 dBm
*Att 30 dB
*SWT 500 s
5.744976000 GHz
20 Offset 0.5 dB
1 PK
VIEW
A
LVL
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 5.744976 GHz
150 kHz/
Span 1.5 MHz

CH3


*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
2.71 dBm
Ref 20 dBm
*Att 30 dB
*SWT 500 s
5.784976000 GHz
20 Offset 0.5 dB
1 PK
VIEW
A
LVL
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 5.784973 GHz
150 kHz/
Span 1.5 MHz
Date: 4.OCT.2005 04:12:52

CH5

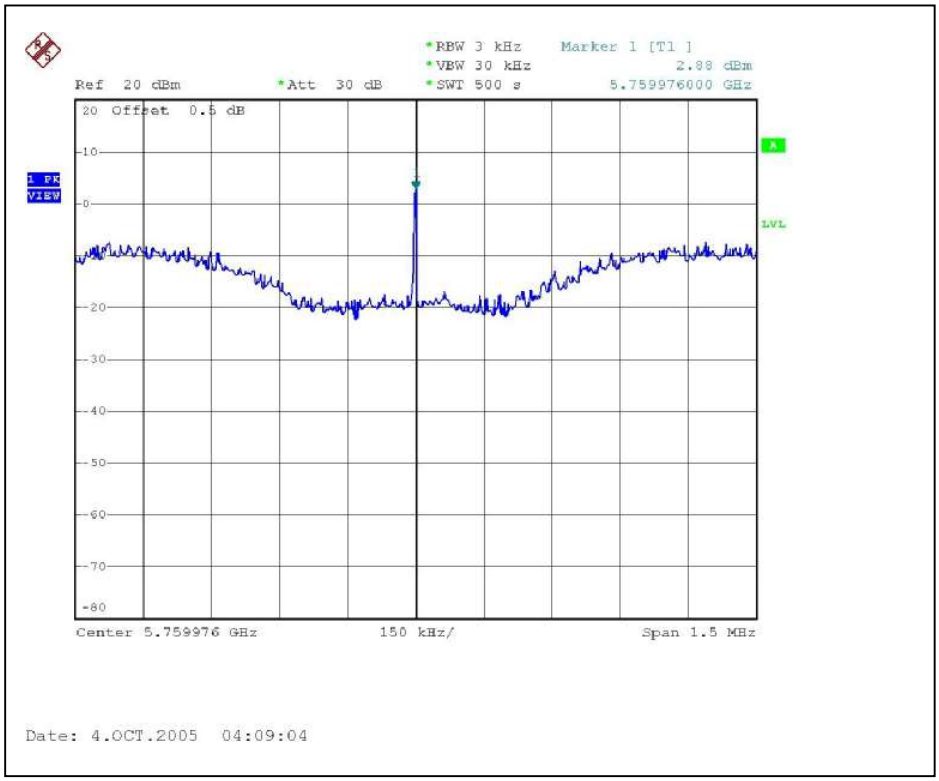

*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
2.47 dBm
Ref 20 dBm
*Att 30 dB
*SWT 500 s
5.824976000 GHz
20 Offset 0.5 dB
10
0
-10
-20
-30
-40
-50
-60
-70
-80
1 PK
VIEW
A
LVL
Center 5.824976 GHz
150 kHz/
Span 1.5 MHz
Date: 4.OCT.2005 04:10:59

802.11a Turbo OFDM modulation

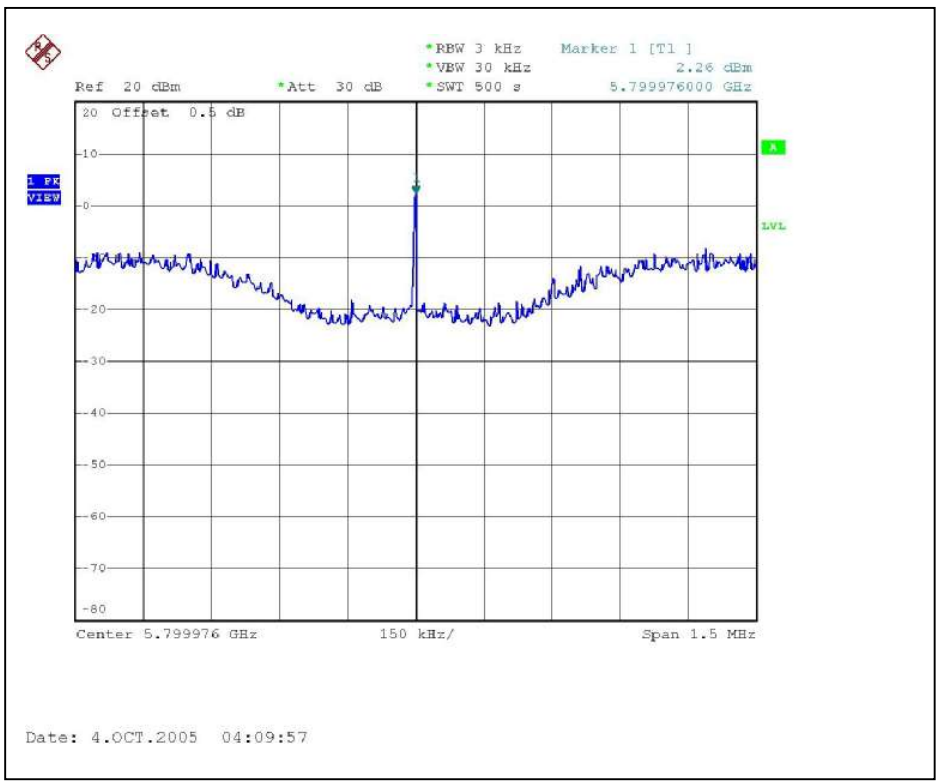
EUT	Aruba 80 a+b/g Outdoor Stand-alone Access Point / WDS Bridge Master		
MODEL	AP-80MB	**TRANSFER RATE**	12Mbps
MODULATION TYPE	BPSK	**ENVIRONMENTAL CONDITIONS**	27deg. C, 53%RH, 961hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Eric Lee

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5760	2.88	8	PASS
2	5800	2.26	8	PASS

CH1


RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
2.88 dBm
5.759976000 GHz
Ref 20 dBm
Att 30 dB
Offset 0.5 dB
1 PK VIEW
A
LVL
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 5.759976 GHz
150 kHz/
Span 1.5 MHz
Date: 4.OCT.2005 04:09:04

CH2


RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
2.26 dBm
5.799976000 GHz
Ref 20 dBm
Att 30 dB
Offset 0.5 dB
1 PK VIEW
A
LVL
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 5.799976 GHz
150 kHz/
Span 1.5 MHz
Date: 4.OCT.2005 04:09:57