

FCC TEST REPORT (15.407)

REPORT NO.: RF120120E03-1 R2

MODEL NO.: AR5BMD22

FCC ID: PPD-AR5BMD22

IC: 4104A-AR5BMD22

RECEIVED: Jan. 20, 2012

TESTED: Feb. 06 to Apr. 12, 2012

ISSUED: May 07, 2012

APPLICANT: Qualcomm Atheros, Inc.

ADDRESS: 1700 Technology Drive, San Jose, CA
95110

ISSUED BY: Bureau Veritas Consumer Products Services
(H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

LAB ADDRESS : No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen,
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan,
R.O.C.

TEST LOCATION (1): No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen,
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan,
R.O.C.

TEST LOCATION (2): No. 49, Ln. 206, Wende Rd., Shangshan Tsuen,
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan,
R.O.C.

This test report consists of 300 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product certification, approval, or endorsement by TAF or any government agencies. The test results in the report only apply to the tested sample.





A D T

Table of Contents

RELEASE CONTROL RECORD	4
1. CERTIFICATION	5
2. SUMMARY OF TEST RESULTS	6
2.1 MEASUREMENT UNCERTAINTY	7
3. GENERAL INFORMATION	8
3.1 GENERAL DESCRIPTION OF EUT	8
3.2 DESCRIPTION OF ANTENNA	10
3.3 DESCRIPTION OF TEST MODES	11
3.3.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	13
3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS	15
3.5 DUTY CYCLE OF TEST SIGNAL	15
3.6 DESCRIPTION OF SUPPORT UNITS	16
3.7 CONFIGURATION OF SYSTEM UNDER TEST	17
4. TEST TYPES AND RESULTS	18
4.1 CONDUCTED EMISSION MEASUREMENT	18
4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	18
4.1.2 TEST INSTRUMENTS	18
4.1.3 TEST PROCEDURES	19
4.1.4 DEVIATION FROM TEST STANDARD	19
4.1.5 TEST SETUP	20
4.1.6 EUT OPERATING CONDITIONS	20
4.1.7 TEST RESULTS	21
4.2 UNWANTED EMISSION MEASUREMENT	23
4.2.1 LIMITS OF UNWANTED EMISSION MEASUREMENT	23
4.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS	24
4.2.3 TEST INSTRUMENTS	25
4.2.4 TEST PROCEDURES	26
4.2.5 DEVIATION FROM TEST STANDARD	27
4.2.6 TEST SETUP	27
4.2.7 EUT OPERATING CONDITION	27
4.2.8 TEST RESULTS (RADIATED TEST)	28
4.2.9 TEST RESULTS (CONDUCTED TEST)	66
4.3 TRANSMIT POWER MEASUREMENT	108
4.3.1 LIMITS OF OUTPUT TRANSMIT POWER MEASUREMENT	108
4.3.2 TEST INSTRUMENTS	108
4.3.3 TEST PROCEDURE	109
4.3.4 DEVIATION FROM TEST STANDARD	109
4.3.5 TEST SETUP	110
4.3.6 EUT OPERATING CONDITIONS	110
4.3.7 TEST RESULTS	111



4.4	PEAK POWER EXCURSION MEASUREMENT	151
4.4.1	LIMITS OF PEAK POWER EXCURSION MEASUREMENT	151
4.4.2	TEST INSTRUMENTS.....	151
4.4.3	TEST PROCEDURE.....	151
4.4.4	DEVIATION FROM TEST STANDARD	151
4.4.5	TEST SETUP	151
4.4.6	EUT OPERATING CONDITIONS	151
4.4.7	TEST RESULTS	152
4.5	PEAK POWER SPECTRAL DENSITY MEASUREMENT	220
4.5.1	LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT	220
4.5.2	TEST INSTRUMENTS.....	220
4.5.3	TEST PROCEDURES	220
4.5.4	DEVIATION FROM TEST STANDARD	220
4.5.5	TEST SETUP	220
4.5.6	EUT OPERATING CONDITIONS	221
4.5.7	TEST RESULTS	222
4.6	OCCUPIED BANDWIDTH MEASUREMENT	258
4.6.1	TEST INSTRUMENTS.....	258
4.6.2	TEST PROCEDURE.....	258
4.6.3	TEST SETUP	258
4.6.4	EUT OPERATING CONDITIONS	258
4.6.5	TEST RESULTS	259
4.7	FREQUENCY STABILITY.....	295
4.7.1	LIMITS OF FREQUENCY STABILITY MEASUREMENT	295
4.7.2	TEST INSTRUMENTS.....	295
4.7.3	TEST PROCEDURE.....	295
4.7.4	DEVIATION FROM TEST STANDARD	296
4.7.5	TEST SETUP	296
4.7.6	EUT OPERATING CONDITION.....	296
4.7.7	TEST RESULTS	297
5.	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	298
6.	INFORMATION ON THE TESTING LABORATORIES	299
7.	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	300

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120120E03-1	Original release	Apr. 17, 2012
RF120120E03-1 R1	1. Revised test data of section 4.2.9 2. Revised test instruments of section 4.3.2 3. Added description "For Industry Canada output power limitation is determined based on 99% bandwidth of section 4.3.7 4. Revised test procedure of section 4.4.3	May 03, 2012
RF120120E03 R2	Modify the version of the standard	May 07, 2012



A D T

1. CERTIFICATION

PRODUCT: 802.11 a/b/g/n + BT Combo Card
BRAND NAME: Atheros
MODEL NO.: AR5BMD22
TEST SAMPLE: R&D SAMPLE
APPLICANT: Qualcomm Atheros, Inc.
TESTED: Feb. 06 to Apr. 12, 2012
STANDARDS: FCC Part 15, Subpart E (Section 15.407)
ANSI C63.4:2003
Canada RSS-210 Issue 8 (2010-12)
Canada RSS-Gen Issue 3 (2010-12)

The above equipment (Model: AR5BMD22) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and was in compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Midoli Peng , **DATE:** May 07, 2012
(Midoli Peng, Specialist)

APPROVED BY : May Chen , **DATE:** May 07, 2012
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407) ; RSS-210; RSS-Gen				
STANDARD SECTION		TEST TYPE	RESULT	REMARK
FCC Part 15	RSS-210; RSS-Gen			
15.407(b)(6)	RSS-Gen 7.2.4	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -14.54dB at 0.16366MHz
15.407(b)(1/2/3) (b)(6)	RSS-210 A9.2	Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.7dB at 166.00MHz.
15.407 (a/1/2)	RSS-210 A9.2	Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	RSS-210 A9.2	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407 (a/1/2)	RSS-210 A9.2 A9.4 (2)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	RSS-Gen 4.7	Frequency Stability	PASS	Meet the requirement of limit.
-	RSS-Gen 4.6	Occupied Bandwidth Measurement	-	Meet the requirement.
15.203	-	Antenna Requirement	PASS	Antenna connector is IPEX not a standard connector.

NOTE:

1. There are Bluetooth technology and WLAN technology used for the EUT. (The Bluetooth test data please refer "RF120120E03-2 R2")
2. For WLAN: The EUT was operating in 2400 ~ 2483.5MHz, 5.15~5.35GHz, 5.47~5.6GHz & 5.65~5.725GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 5.15~5.35GHz, 5.47~5.6GHz & 5.65~5.725GHz. For the 2400 ~ 2483.5MHz and 5.725~5.850GHz RF parameters was recorded in another test report. (RF120120E03 R2).
3. The DFS report was recorded in another test report<Report No.: RF120120E03-3>.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Measurement	Value
Conducted emissions	2.45 dB
Radiated emissions (30MHz-1GHz)	5.69 dB
Radiated emissions (1GHz -6GHz)	5.12 dB
Radiated emissions (6GHz -18GHz)	5.32 dB
Radiated emissions (18GHz -40GHz)	5.37 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	802.11 a/b/g/n + BT Combo Card
MODEL NO.	AR5BMD22
POWER SUPPLY	DC 3.3V from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM GFSK(BT <LE> mode) for DSSS
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: up to 11Mbps 802.11g: up to 54Mbps 802.11n (20MHz, 800ns GI): up to 130Mbps 802.11n (20MHz, 400ns GI): up to 144.4Mbps 802.11n (40MHz, 800ns GI) : up to 270Mbps 802.11n (40MHz, 400ns GI) : up to 300Mbps Bluetooth(LE mode): 1Mbps
OPERATING FREQUENCY	For 15.407 802.11a: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.5~5.58GHz & 5.66~5.7GHz
	For 15.247 802.11b & 802.11g: 2.412 ~ 2.462GHz 802.11a: 5.745 ~ 5.825GHz Bluetooth(LE mode): 2.402 ~ 2.480GHz
NUMBER OF CHANNEL	For 15.407 16 for 802.11a, 802.11n (20MHz) 7 for 802.11n (40MHz)
	For 15.247(2.4GHz) 11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz) 40 (37 hopping + 3 advertising channel) for Bluetooth(LE mode) For 15.247(5GHz) 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)

MAXIMUM OUTPUT POWER	For 15.407 802.11a: 52.481mW 802.11n (20MHz): 42.273mW 802.11n (40MHz): 42.760mW For 15.247(2.4GHz) 802.11b: 129.439mW 802.11g: 335.783mW 802.11n (20MHz): 320.670mW 802.11n (40MHz): 263.652mW Bluetooth(LE mode): 2.630 mW For 15.247(5GHz) 802.11a: 232.305mW 802.11n (20MHz): 176.315mW 802.11n (40MHz): 176.315mW
ANTENNA TYPE	See item 3.2
ANTENNA CONNECTOR	See item 3.2
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

- There are Bluetooth technology and WLAN technology used for the EUT. <the Bluetooth test data please refer "RF120120E03-2 R2">
- The device has three configurations (working mode)
 - WLAN only (2x2 MIMO)
 - BT+WLAN (2x2 MIMO) with reduced power on WLAN
 - BT+WLAN (1x1 mode on a/b/g only, chain 0 is used for BT and chain 1 is used for WLAN)
- Spurious Emission (radiated emission) of the simultaneous operation (WiFi & Bluetooth) have been evaluated and no non-compliance found. The detail combinations of transmitters / frequencies / modes as below table

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type
2.4 GHz (802.11g) + Bluetooth	1 to 11	6	OFDM	BPSK
	0 to 78	0	FHSS	8DPSK
5 GHz (802.11a) + Bluetooth	149 to 165	149	OFDM	BPSK
	0 to 78	0	FHSS	8DPSK

4. The EUT is 2 * 2 MIMO with 11n beam forming function.

MODULATION MODE	TX/Rx FUNCTION
802.11b	1Tx/1Rx(Diversity) or 2Tx/2Rx
802.11g	1Tx/1Rx(Diversity) or 2Tx/2Rx
802.11a	1Tx/1Rx(Diversity) or 2Tx/2Rx
802.11n (20MHz)	2Tx/2Rx
802.11n (40MHz)	2Tx/2Rx

5. The EUT was pre-tested under the following modes:

Test Mode	Data rate
Mode A	400ns GI
Mode B	800ns GI

From the above modes, the worst case was found in **Mode B**. Therefore only the test data of the mode was recorded in this report.

6. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 DESCRIPTION OF ANTENNA

The antennas provided to the EUT, please refer to the following table:

No.	Brand	Model	Antenna Type	Connector	Antenna Gain (dBi)< included cable loss>			
					For 2.4GHz	For 5GHz (5.15~5.35)	For 5GHz (5.47~5.725)	For 5GHz (5.725~5.850)
1&2	WNC	81.EBJ15.005	PIFA	IPEX	3.62	3.08	4.76	4.76

Cable Loss:

No.	Brand	Model	Cable Loss(dB)				Cable Length
			For 2.4GHz	For 5GHz (5.15~5.35)	For 5GHz (5.47~5.725)	For 5GHz (5.725~5.850)	
1&2	WNC	81-EBJ15.005	1.15	1.70	1.74	1.79	300

Note: Above antenna gains of antenna are Total (H+V).

3.3 DESCRIPTION OF TEST MODES

Operated in 5150MHz ~ 5350MHz bands:

Eight channels are provided for 802.11a and 802.11n (20MHz):

CHANNEL	FREQUENCY
36	5180 MHz
40	5200 MHz
44	5220 MHz
48	5240 MHz
52	5260 MHz
56	5280 MHz
60	5300 MHz
64	5320 MHz

Four channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY
38	5190 MHz
46	5230 MHz
54	5270 MHz
62	5310 MHz

Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

Eight channels are provided for 802.11a and 802.11n (20MHz):

CHANNEL	FREQUENCY
100	5500 MHz
104	5520 MHz
108	5540 MHz
112	5560 MHz
116	5580 MHz
132	5660 MHz
136	5680 MHz
140	5700 MHz

Three channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY
102	5510 MHz
110	5550 MHz
134	5670 MHz

3.3.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	
-	√	√	√	√	-

Where **PLC**: Power Line Conducted Emission

RE < 1G: Radiated Emission below 1GHz

RE ≥ 1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

NOTE: The EUT's antenna had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.

POWER LINE CONDUCTED EMISSION TEST:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ The investigation has been done for the worst-case (1x1 vs. 2x2) on harmonics and band-edge to find out the worst-case for the final tests.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	36 to 140	64	OFDM	BPSK	6

RADIATED EMISSION TEST (BELOW 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ The investigation has been done for the worst-case (1x1 vs. 2x2) on harmonics and band-edge to find out the worst-case for the final tests.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	36 to 140	64	OFDM	BPSK	6

RADIATED EMISSION TEST (ABOVE 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ The measurement was separately on 1x1 and 2x2 for a/b/g mode.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6
For 5 GHz 802.11n (20MHz)	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6.5
For 5 GHz 802.11n (40MHz)	38 to 134	38, 46, 54, 62, 102, 110, 134	OFDM	BPSK	13.5

ANTENNA PORT CONDUCTED MEASUREMENT:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ The measurement was separately on 1x1 and 2x2 for a/b/g mode.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6
For 5 GHz 802.11n (20MHz)	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6.5
For 5 GHz 802.11n (40MHz)	38 to 134	38, 46, 54, 62, 102, 110, 134	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
PLC	26deg. C, 68%RH	120Vac, 60Hz	Kyle Huang
RE<1G	22deg. C, 64%RH	120Vac, 60Hz	Frank Liu
RE ³ 1G	24deg. C, 71%RH	120Vac, 60Hz	Frank Liu
APCM	25deg. C, 60%RH	120Vac, 60Hz	Rex Huang



A D T

3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart E (Section 15.407)

ANSI C63.4:2003

Canada RSS-210 Issue 8 (2010-12)

Canada RSS-Gen Issue 3 (2010-12)

All test items have been performed and recorded as per the above standards.

3.5 DUTY CYCLE OF TEST SIGNAL

Test tool can set the EUT to transmit at > 98 % duty cycle.

3.6 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

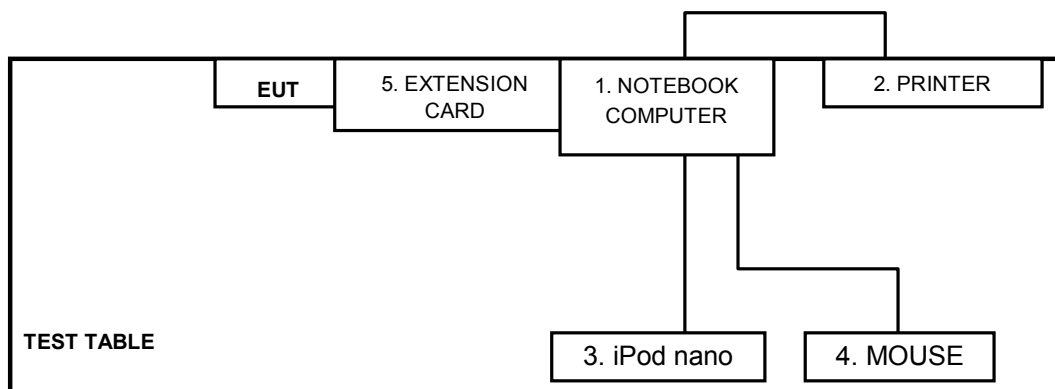
For conducted emission test					
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK COMPUTER	DELL	E5420	CHHYLQ1	FCC DoC
2	PRINTER	EPSON	LQ-300+II	G88Y074086	FCC DoC
3	iPod nano	Apple	A1137	5K7170JBUPR	FCC DoC
4	MOUSE	DELL	MO56UO	349003988	NA
5	EXTENSION CARD	Atheros	NA	NA	NA
For other test items					
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK COMPUTER	Lenovo	0769	L3-be248 08/01	FCC DoC
2	EXTENSION CARD	Atheros	NA	NA	NA

For conducted emission test	
No.	Signal cable description
1	NA
2	USB cable(1.8m)
3	USB cable(1m)
4	USB cable(1.8m)
5	NA
For other test items	
No.	Signal cable description
1	NA
2	NA

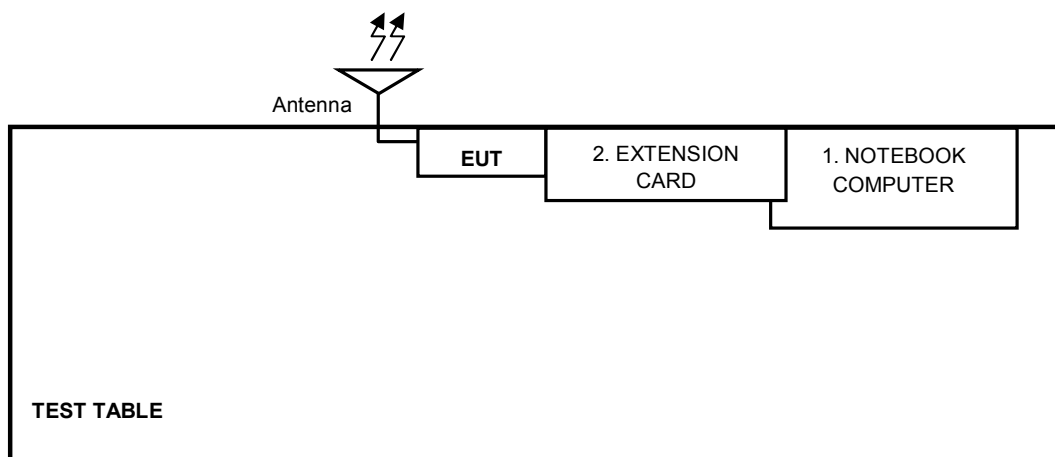
Note: The power cords of the above support units were unshielded (1.8m).

3.7 CONFIGURATION OF SYSTEM UNDER TEST

For conducted emission test



For other test items



4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

NOTE: 1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 02, 2011	Mar. 01, 2012
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-523	Sep. 20, 2011	Sep. 19, 2012
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 10, 2011	June 09, 2012
RF Cable (JYEBAO)	5DFB	COACAB-002	Aug. 06, 2011	Aug. 05, 2012
50 ohms Terminator	50	3	Nov. 02, 2011	Nov. 01, 2012
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. A.
3. The VCCI Con A Registration No. is C-817.
4. Tested Date: Feb. 06, 2012

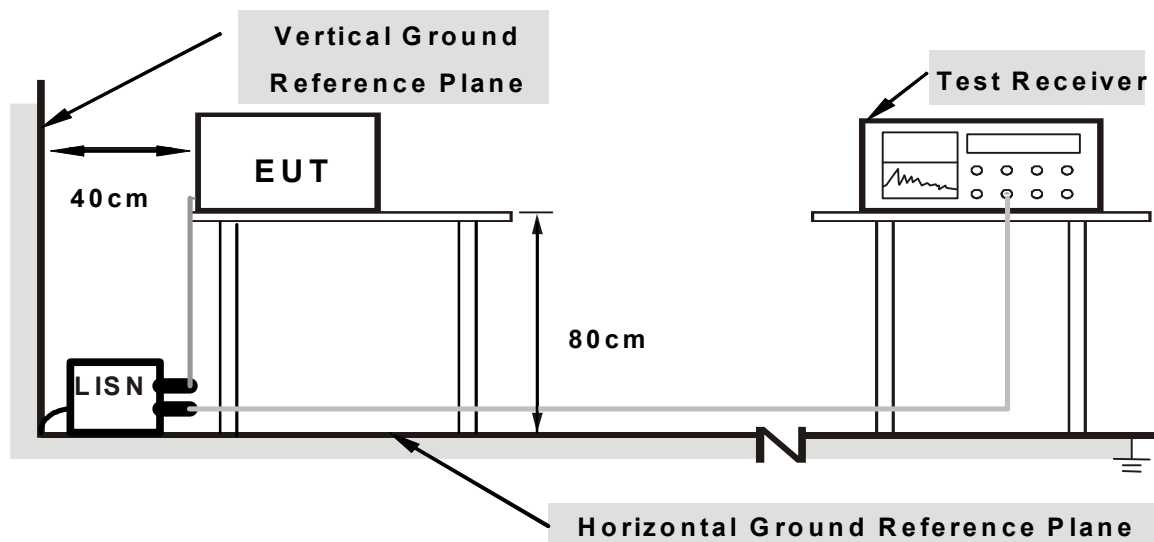
4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN.
- b. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- d. The frequency range from 150kHz to 30MHz was searched. Emission level under (Limit – 20dB) was not recorded.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

1. Connect the EUT with the support unit 1 (Notebook Computer) which is placed on a testing table.
2. The communication partner run test program “artgui.exe” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

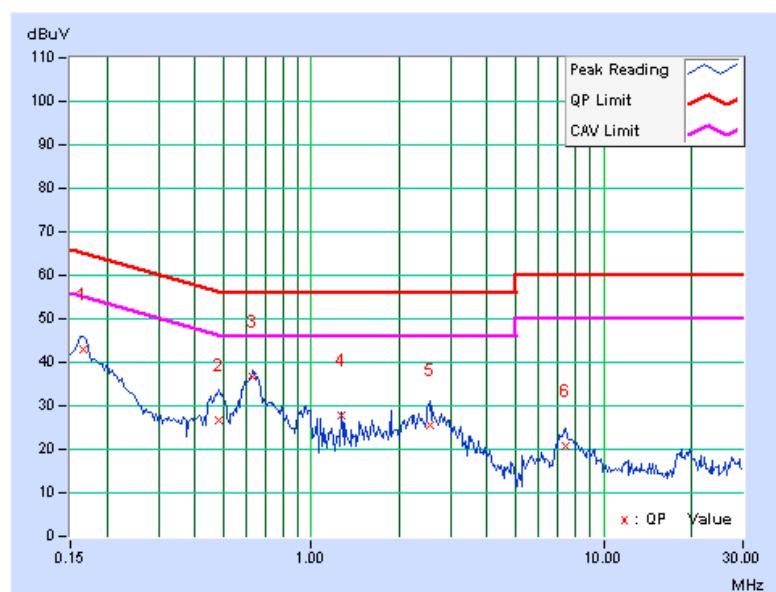
4.1.7 TEST RESULTS

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
-------	----------	---------------	-------

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor [dB]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB]	[dB]
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16562	0.06	43.07	40.29	43.13	40.35	65.18	55.18	-22.05	-14.83
2	0.48203	0.07	26.56	20.29	26.63	20.36	56.30	46.30	-29.67	-25.94
3	0.63047	0.08	36.77	20.54	36.85	20.62	56.00	46.00	-19.15	-25.38
4	1.26563	0.11	27.50	14.82	27.61	14.93	56.00	46.00	-28.39	-31.07
5	2.55078	0.21	25.25	19.57	25.46	19.78	56.00	46.00	-30.54	-26.22
6	7.38672	0.37	20.44	13.63	20.81	14.00	60.00	50.00	-39.19	-36.00

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

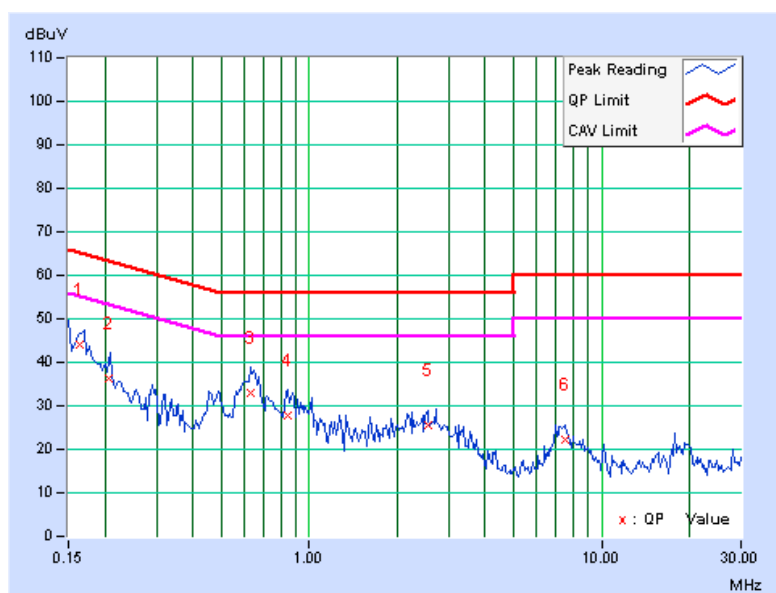


PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
-------	-------------	---------------	-------

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor (dB)	Q.P. [dB (uV)]	AV. [dB (uV)]	Q.P. [dB (uV)]	AV. [dB (uV)]	Q.P. [dB (uV)]	AV. [dB (uV)]	Q.P. (dB)	AV. (dB)
1	0.16366	0.07	44.13	40.67	44.20	40.74	65.28	55.28	-21.08	-14.54
2	0.20584	0.07	36.19	27.85	36.26	27.92	63.37	53.37	-27.11	-25.45
3	0.63047	0.08	33.03	20.38	33.11	20.46	56.00	46.00	-22.89	-25.54
4	0.84531	0.09	27.63	16.02	27.72	16.11	56.00	46.00	-28.28	-29.89
5	2.54297	0.20	25.39	19.91	25.59	20.11	56.00	46.00	-30.41	-25.89
6	7.47266	0.35	21.70	14.80	22.05	15.15	60.00	50.00	-37.95	-34.85

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



4.2 UNWANTED EMISSION MEASUREMENT

4.2.1 LIMITS OF UNWANTED EMISSION MEASUREMENT

Unwanted emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequencies (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at 3m (dBμV/m) *note 3
5150~5250	-27	68.3
5250~5350	-27	68.3
5470~5725	-27	68.3
5725~5825	-27 *note 1	68.3
	-17 *note 2	78.3

NOTE:

- For frequencies 10MHz or greater above or below the band edge.
- All emissions within the frequency range from the band edge to 10MHz above or below the band edge.
- The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts)}$$



A D T

4.2.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250253	Aug. 29, 2011	Aug. 28, 2012
Agilent Pre-Selector	N9039A	MY46520310	Aug. 29, 2011	Aug. 28, 2012
Agilent Signal Generator	N5181A	MY49060347	July 25, 2011	July 24, 2012
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-04	Nov. 15, 2011	Nov. 14, 2012
Agilent Pre-Amplifier	8449B	3008A02465	Feb. 27, 2012	Feb. 26, 2013
SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-361	Apr. 06, 2012	Apr. 05, 2013
AISI Horn_Antenna	AIH.8018	0000220091110	Nov. 23, 2011	Nov. 22, 2012
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 07, 2011	Oct. 06, 2012
RF CABLE	NA	RF104-205 RF104-207 RF104-202	Dec. 27, 2011	Dec. 26, 2012
RF Cable	NA	CHHCAB_001	Oct. 08, 2011	Oct. 07, 2012
Software	ADT_Radiated_V8.7.05	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in 966 Chamber No. H.
4. The FCC Site Registration No. is 797305.
5. The CANADA Site Registration No. is IC 7450H-3.
6. Tested Date: Apr. 10 to 13, 2012

4.2.4 TEST PROCEDURES

Following FCC KDB 789033 D01 General UNII Test Procedures:

Radiated versus Conducted Measurements.

The unwanted emission limits in both the restricted and non-restricted bands are based on antenna-port conducted measurements in conjunction with cabinet emissions tests are permitted to demonstrate compliance.

The following steps was performed:

- a. Cabinet emissions measurements. Radiated measurement was performed to ensure that cabinet emissions are below the emission limits. For the cabinet-emission measurements the antenna was replaced by a termination matching the nominal impedance of the antenna.
- b. Conducted tests was performed using equipment that matches the nominal impedance of the antenna assembly used with the EUT
- c. EIRP calculation. A value representative of an upper bound on out-of-band antenna gain (in dBi) shall be added to the measured antenna-port conducted emission power to compute EIRP within the specified measurement bandwidth. (For emissions in the restricted bands, additional calculations are required to convert EIRP to field strength at the specified distance.) The upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands or 2 dBi, whichever is greater
- d. EIRP adjustments for multiple outputs. (Follow the procedures specified in FCC KDB Publication 662911)
- e. For all of Radiation emission test
 - e-1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
 - e-2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
 - e-3. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
 - e-4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
 - e-5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
 - e-6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

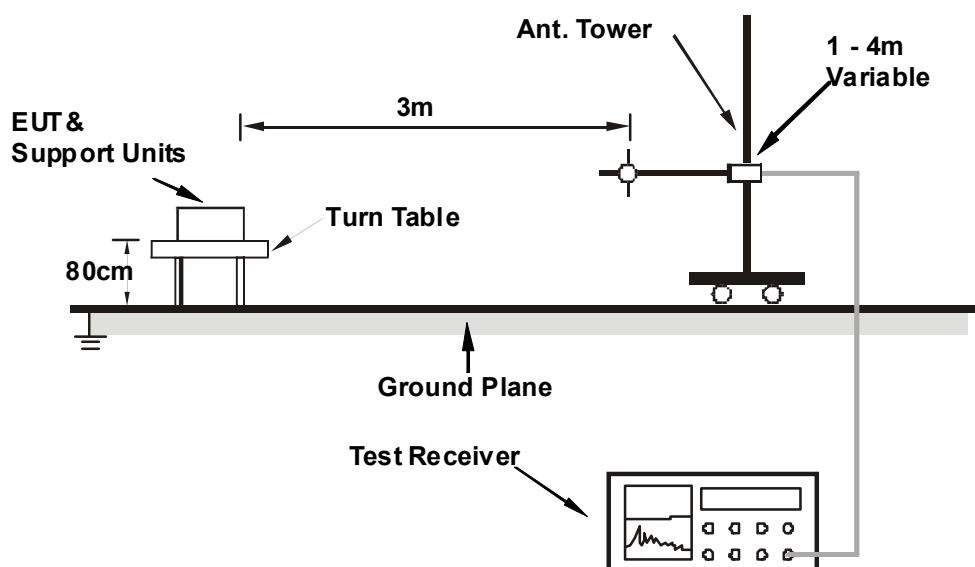
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.2.5 DEVIATION FROM TEST STANDARD

No deviation

4.2.6 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.2.7 EUT OPERATING CONDITION

Same as 4.1.6

4.2.8 TEST RESULTS (RADIATED TEST)

BELOW 1GHz WORST-CASE DATA

Single chain - 802.11a

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	166.00	42.8 QP	43.5	-0.7	1.76 H	348	28.66	14.18
2	358.62	35.6 QP	46.0	-10.4	2.00 H	246	18.63	16.93
3	398.29	43.2 QP	46.0	-2.8	1.00 H	211	25.05	18.19
4	697.07	43.1 QP	46.0	-2.9	2.00 H	225	19.14	23.99
5	796.67	40.2 QP	46.0	-5.8	1.00 H	283	14.35	25.89
6	896.14	41.3 QP	46.0	-4.7	1.00 H	143	13.67	27.66
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	144.00	38.3 QP	43.5	-5.2	1.94 V	296	23.97	14.33
2	166.20	37.4 QP	43.5	-6.1	1.95 V	300	23.25	14.17
3	298.50	41.6 QP	46.0	-4.4	1.50 V	276	26.52	15.09
4	322.00	34.1 QP	46.0	-11.9	1.97 V	356	18.25	15.81
5	360.00	37.3 QP	46.0	-8.7	2.00 V	21	20.34	16.97
6	400.00	43.3 QP	46.0	-2.7	2.00 V	356	25.06	18.24

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

ABOVE 1GHz DATA

Single chain - 802.11a

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10360.00	64.5 PK	68.3	-3.8	1.00 H	45	15.71	48.79
2	15540.00	62.6 PK	74.0	-11.4	1.02 H	146	8.23	54.37
3	15540.00	50.9 AV	54.0	-3.1	1.02 H	146	-3.47	54.37
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10360.00	64.1 PK	68.3	-4.2	1.54 V	36	15.31	48.79
2	15540.00	62.7 PK	74.0	-11.3	1.00 V	15	8.33	54.37
3	15540.00	50.8 AV	54.0	-3.2	1.00 V	15	-3.57	54.37

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10400.00	64.2 PK	68.3	-4.1	1.00 H	39	15.73	48.47
2	15600.00	62.5 PK	74.0	-11.5	1.01 H	162	8.12	54.38
3	15600.00	50.7 AV	54.0	-3.3	1.01 H	162	-3.68	54.38
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10400.00	63.1 PK	68.3	-5.2	1.53 V	40	14.63	48.47
2	15600.00	62.7 PK	74.0	-11.3	1.03 V	15	8.32	54.38
3	15600.00	50.9 AV	54.0	-3.1	1.03 V	15	-3.48	54.38

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10480.00	65.1 PK	68.3	-3.2	1.01 H	50	16.17	48.93
2	15720.00	62.2 PK	74.0	-11.8	1.00 H	161	8.27	53.93
3	15720.00	50.4 AV	54.0	-3.6	1.00 H	161	-3.53	53.93
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10480.00	62.3 PK	68.3	-6.0	1.52 V	52	13.37	48.93
2	15720.00	62.4 PK	74.0	-11.6	1.00 V	23	8.47	53.93
3	15720.00	50.7 AV	54.0	-3.3	1.00 V	23	-3.23	53.93

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10520.00	62.6 PK	68.3	-5.7	1.21 H	115	13.61	48.99
2	15780.00	62.3 PK	74.0	-11.7	1.00 H	153	8.18	54.12
3	15780.00	50.4 AV	54.0	-3.6	1.00 H	153	-3.72	54.12
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10520.00	62.1 PK	68.3	-6.2	1.51 V	55	13.11	48.99
2	15780.00	62.2 PK	74.0	-11.8	1.00 V	32	8.08	54.12
3	15780.00	50.5 AV	54.0	-3.5	1.00 V	32	-3.62	54.12

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	10600.00	60.5 PK	74.0	-13.5	1.20 H	140	11.69	48.81
2	10600.00	49.1 AV	54.0	-4.9	1.20 H	140	0.29	48.81
3	15900.00	63.0 PK	74.0	-11.0	1.01 H	143	8.86	54.14
4	15900.00	50.8 AV	54.0	-3.2	1.01 H	143	-3.34	54.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	10600.00	62.5 PK	74.0	-11.5	1.09 V	17	13.69	48.81
2	10600.00	49.3 AV	54.0	-4.7	1.09 V	17	0.49	48.81
3	15900.00	62.5 PK	74.0	-11.5	1.00 V	43	8.36	54.14
4	15900.00	50.9 AV	54.0	-3.1	1.00 V	43	-3.24	54.14

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	10640.00	62.2 PK	74.0	-11.8	1.19 H	117	13.25	48.95
2	10640.00	50.1 AV	54.0	-3.9	1.19 H	117	1.15	48.95
3	15960.00	62.7 PK	74.0	-11.3	1.05 H	130	8.58	54.12
4	15960.00	50.3 AV	54.0	-3.7	1.05 H	130	-3.82	54.12
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	10640.00	62.1 PK	74.0	-11.9	1.09 V	16	13.15	48.95
2	10640.00	50.4 AV	54.0	-3.6	1.09 V	16	1.45	48.95
3	15960.00	62.4 PK	74.0	-11.6	1.01 V	47	8.28	54.12
4	15960.00	50.7 AV	54.0	-3.3	1.01 V	47	-3.42	54.12

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



A D T

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3666.60	55.9 PK	74.0	-18.1	1.25 H	111	19.87	36.03
2	3666.60	46.9 AV	54.0	-7.1	1.25 H	111	10.87	36.03
3	11000.00	64.8 PK	74.0	-9.2	1.31 H	118	15.42	49.38
4	11000.00	51.3 AV	54.0	-2.7	1.31 H	118	1.92	49.38
5	#16500.00	63.3 PK	68.3	-5.0	1.06 H	141	7.75	55.55

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11000.00	66.3 PK	74.0	-7.7	1.19 V	18	16.92	49.38
2	11000.00	52.8 AV	54.0	-1.2	1.19 V	18	3.42	49.38
3	#16500.00	63.1 PK	68.3	-5.2	1.01 V	50	7.55	55.55

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 116	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11160.00	64.5 PK	74.0	-9.5	1.32 H	121	15.33	49.17
2	11160.00	52.1 AV	54.0	-1.9	1.32 H	121	2.93	49.17
3	#16740.00	63.8 PK	68.3	-4.5	1.07 H	138	8.11	55.69
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11160.00	62.3 PK	74.0	-11.7	1.30 V	20	13.13	49.17
2	11160.00	51.1 AV	54.0	-2.9	1.30 V	20	1.93	49.17
3	#16740.00	63.5 PK	68.3	-4.8	1.02 V	98	7.81	55.69

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.



A D T

CHANNEL	TX Channel 132	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3773.30	53.6 PK	74.0	-20.4	1.22 H	108	17.01	36.59
2	3773.30	46.1 AV	54.0	-7.9	1.22 H	108	9.51	36.59
3	11320.00	60.2 PK	74.0	-13.8	1.43 H	119	10.69	49.51
4	11320.00	48.0 AV	54.0	-6.0	1.43 H	119	-1.51	49.51
5	#16980.00	64.1 PK	68.3	-4.2	1.05 H	120	7.68	56.42
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3773.30	53.3 PK	74.0	-20.7	1.01 V	102	16.71	36.59
2	3773.30	42.8 AV	54.0	-11.2	1.01 V	102	6.21	36.59
3	11320.00	58.7 PK	74.0	-15.3	1.06 V	20	9.19	49.51
4	11320.00	47.2 AV	54.0	-6.8	1.06 V	20	-2.31	49.51
5	#16980.00	63.9 PK	68.3	-4.4	1.01 V	102	7.48	56.42

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11400.00	59.7 PK	74.0	-14.3	1.46 H	120	10.33	49.37
2	11400.00	47.6 AV	54.0	-6.4	1.46 H	120	-1.77	49.37
3	#17100.00	64.3 PK	68.3	-4.0	1.10 H	103	7.92	56.38
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11400.00	58.8 PK	74.0	-15.2	1.10 V	33	9.43	49.37
2	11400.00	47.6 AV	54.0	-6.4	1.10 V	33	-1.77	49.37
3	#17100.00	64.1 PK	68.3	-4.2	1.00 V	95	7.72	56.38

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

Multiple chain - 802.11a

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10360.00	58.7 PK	68.3	-9.6	1.00 H	50	9.91	48.79
2	15540.00	63.0 PK	74.0	-11.0	1.00 H	147	8.63	54.37
3	15540.00	50.8 AV	54.0	-3.2	1.00 H	147	-3.57	54.37
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10360.00	59.7 PK	68.3	-8.6	1.33 V	36	10.91	48.79
2	15540.00	61.6 PK	74.0	-12.4	1.00 V	12	7.23	54.37
3	15540.00	50.7 AV	54.0	-3.3	1.00 V	12	-3.67	54.37

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10400.00	61.2 PK	68.3	-7.1	1.38 H	48	12.73	48.47
2	15600.00	62.4 PK	74.0	-11.6	1.00 H	155	8.02	54.38
3	15600.00	50.5 AV	54.0	-3.5	1.00 H	155	-3.88	54.38
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10400.00	62.0 PK	68.3	-6.3	1.00 V	64	13.53	48.47
2	15600.00	61.5 PK	74.0	-12.5	1.00 V	21	7.12	54.38
3	15600.00	50.6 AV	54.0	-3.4	1.00 V	21	-3.78	54.38

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10480.00	60.6 PK	68.3	-7.7	1.42 H	47	11.67	48.93
2	15720.00	62.4 PK	74.0	-11.6	1.00 H	159	8.47	53.93
3	15720.00	50.3 AV	54.0	-3.7	1.00 H	159	-3.63	53.93
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10480.00	62.9 PK	68.3	-5.4	1.00 V	65	13.97	48.93
2	15720.00	61.4 PK	74.0	-12.6	1.00 V	36	7.47	53.93
3	15720.00	50.6 AV	54.0	-3.4	1.00 V	36	-3.33	53.93

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10520.00	57.8 PK	68.3	-10.5	1.29 H	62	8.81	48.99
2	15780.00	62.2 PK	74.0	-11.8	1.00 H	172	8.08	54.12
3	15780.00	50.1 AV	54.0	-3.9	1.00 H	172	-4.02	54.12
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10520.00	61.0 PK	68.3	-7.3	1.00 V	69	12.01	48.99
2	15780.00	61.7 PK	74.0	-12.3	1.00 V	44	7.58	54.12
3	15780.00	51.1 AV	54.0	-2.9	1.00 V	44	-3.02	54.12

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.



A D T

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	10600.00	57.9 PK	74.0	-16.1	1.40 H	44	9.09	48.81
2	10600.00	46.9 AV	54.0	-7.1	1.40 H	44	-1.91	48.81
3	15900.00	62.1 PK	74.0	-11.9	1.03 H	183	7.96	54.14
4	15900.00	49.9 AV	54.0	-4.1	1.03 H	183	-4.24	54.14

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	10600.00	61.2 PK	74.0	-12.8	1.00 V	58	12.39	48.81
2	10600.00	48.5 AV	54.0	-5.5	1.00 V	58	-0.31	48.81
3	15900.00	61.3 PK	74.0	-12.7	1.00 V	49	7.16	54.14
4	15900.00	50.8 AV	54.0	-3.2	1.00 V	49	-3.34	54.14

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



A D T

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	10640.00	58.2 PK	74.0	-15.8	1.40 H	46	9.25	48.95
2	10640.00	47.1 AV	54.0	-6.9	1.40 H	46	-1.85	48.95
3	15960.00	62.4 PK	74.0	-11.6	1.01 H	192	8.28	54.12
4	15960.00	50.0 AV	54.0	-4.0	1.01 H	192	-4.12	54.12
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	10640.00	60.3 PK	74.0	-13.7	1.00 V	57	11.35	48.95
2	10640.00	48.9 AV	54.0	-5.1	1.00 V	57	-0.05	48.95
3	15960.00	61.6 PK	74.0	-12.4	1.00 V	44	7.48	54.12
4	15960.00	51.2 AV	54.0	-2.8	1.00 V	44	-2.92	54.12

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3666.60	55.1 PK	74.0	-18.9	1.08 H	66	19.07	36.03
2	3666.60	44.3 AV	54.0	-9.7	1.08 H	66	8.27	36.03
3	11000.00	61.8 PK	74.0	-12.2	1.31 H	118	12.42	49.38
4	11000.00	50.0 AV	54.0	-4.0	1.31 H	118	0.62	49.38
5	#16500.00	64.1 PK	68.3	-4.2	1.00 H	153	8.55	55.55
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3666.60	54.1 PK	74.0	-19.9	1.00 V	142	18.07	36.03
2	3666.60	42.1 AV	54.0	-11.9	1.00 V	142	6.07	36.03
3	11000.00	60.5 PK	74.0	-13.5	1.03 V	286	11.12	49.38
4	11000.00	49.6 AV	54.0	-4.4	1.03 V	286	0.22	49.38
5	#16500.00	64.7 PK	68.3	-3.6	1.00 V	15	9.15	55.55

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 116	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11160.00	58.9 PK	74.0	-15.1	1.43 H	115	9.73	49.17
2	11160.00	46.1 AV	54.0	-7.9	1.43 H	115	-3.07	49.17
3	#16740.00	64.9 PK	68.3	-3.4	1.01 H	162	9.21	55.69
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11160.00	57.6 PK	74.0	-16.4	1.05 V	288	8.43	49.17
2	11160.00	45.7 AV	54.0	-8.3	1.05 V	288	-3.47	49.17
3	#16740.00	63.2 PK	68.3	-5.1	1.02 V	30	7.51	55.69

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 132	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11320.00	58.4 PK	74.0	-15.6	1.45 H	114	8.89	49.51
2	11320.00	45.9 AV	54.0	-8.1	1.45 H	114	-3.61	49.51
3	#16980.00	65.0 PK	68.3	-3.3	1.02 H	159	8.58	56.42
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11320.00	57.7 PK	74.0	-16.3	1.11 V	273	8.19	49.51
2	11320.00	45.6 AV	54.0	-8.4	1.11 V	273	-3.91	49.51
3	#16980.00	64.2 PK	68.3	-4.1	1.01 V	25	7.78	56.42

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.



A D T

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3800.00	54.9 PK	74.0	-19.1	1.06 H	87	18.15	36.75
2	3800.00	43.9 AV	54.0	-10.1	1.06 H	87	7.15	36.75
3	11400.00	56.7 PK	74.0	-17.3	1.46 H	123	7.33	49.37
4	11400.00	45.3 AV	54.0	-8.7	1.46 H	123	-4.07	49.37
5	#17100.00	66.1 PK	68.3	-2.2	1.01 H	155	9.72	56.38
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3800.00	54.2 PK	74.0	-19.8	1.00 V	148	17.45	36.75
2	3800.00	41.9 AV	54.0	-12.1	1.00 V	148	5.15	36.75
3	11400.00	55.6 PK	74.0	-18.4	1.04 V	289	6.23	49.37
4	11400.00	44.7 AV	54.0	-9.3	1.04 V	289	-4.67	49.37
5	#17100.00	64.1 PK	68.3	-4.2	1.00 V	19	7.72	56.38

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

802.11n (20MHz)

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10360.00	59.4 PK	68.3	-8.9	1.39 H	60	10.61	48.79
2	15540.00	63.2 PK	74.0	-10.8	1.01 H	158	8.83	54.37
3	15540.00	51.2 AV	54.0	-2.8	1.01 H	158	-3.17	54.37
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10360.00	59.9 PK	68.3	-8.4	1.05 V	64	11.11	48.79
2	15540.00	61.0 PK	74.0	-13.0	1.03 V	30	6.63	54.37
3	15540.00	50.7 AV	54.0	-3.3	1.03 V	30	-3.67	54.37

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10400.00	59.3 PK	68.3	-9.0	1.38 H	46	10.83	48.47
2	15600.00	63.7 PK	74.0	-10.3	1.03 H	159	9.32	54.38
3	15600.00	51.5 AV	54.0	-2.5	1.03 H	159	-2.88	54.38
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10400.00	59.5 PK	68.3	-8.8	1.06 V	63	11.03	48.47
2	15600.00	61.0 PK	74.0	-13.0	1.00 V	44	6.62	54.38
3	15600.00	50.7 AV	54.0	-3.3	1.00 V	44	-3.68	54.38

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10480.00	59.3 PK	68.3	-9.0	1.33 H	62	10.37	48.93
2	15720.00	63.8 PK	74.0	-10.2	1.00 H	171	9.87	53.93
3	15720.00	51.9 AV	54.0	-2.1	1.00 H	171	-2.03	53.93
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10480.00	59.0 PK	68.3	-9.3	1.00 V	64	10.07	48.93
2	15720.00	60.9 PK	74.0	-13.1	1.01 V	29	6.97	53.93
3	15720.00	50.7 AV	54.0	-3.3	1.01 V	29	-3.23	53.93

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10520.00	56.8 PK	68.3	-11.5	1.38 H	52	7.81	48.99
2	15780.00	63.4 PK	74.0	-10.6	1.02 H	174	9.28	54.12
3	15780.00	51.6 AV	54.0	-2.4	1.02 H	174	-2.52	54.12
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10520.00	58.6 PK	68.3	-9.7	1.00 V	58	9.61	48.99
2	15780.00	60.7 PK	74.0	-13.3	1.02 V	40	6.58	54.12
3	15780.00	50.4 AV	54.0	-3.6	1.02 V	40	-3.72	54.12

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.



A D T

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	10600.00	57.7 PK	74.0	-16.3	1.40 H	43	8.89	48.81
2	10600.00	45.8 AV	54.0	-8.2	1.40 H	43	-3.01	48.81
3	15900.00	63.0 PK	74.0	-11.0	1.00 H	190	8.86	54.14
4	15900.00	51.3 AV	54.0	-2.7	1.00 H	190	-2.84	54.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	10600.00	57.9 PK	74.0	-16.1	1.00 V	63	9.09	48.81
2	10600.00	46.2 AV	54.0	-7.8	1.00 V	63	-2.61	48.81
3	15900.00	55.8 PK	74.0	-18.2	1.04 V	283	1.66	54.14
4	15900.00	44.8 AV	54.0	-9.2	1.04 V	283	-9.34	54.14

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	10640.00	58.9 PK	74.0	-15.1	1.39 H	44	9.95	48.95
2	10640.00	46.7 AV	54.0	-7.3	1.39 H	44	-2.25	48.95
3	15960.00	62.6 PK	74.0	-11.4	1.00 H	183	8.48	54.12
4	15960.00	51.1 AV	54.0	-2.9	1.00 H	183	-3.02	54.12
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	10640.00	59.8 PK	74.0	-14.2	1.00 V	61	10.85	48.95
2	10640.00	48.6 AV	54.0	-5.4	1.00 V	61	-0.35	48.95
3	15960.00	56.4 PK	74.0	-17.6	1.09 V	272	2.28	54.12
4	15960.00	45.1 AV	54.0	-8.9	1.09 V	272	-9.02	54.12

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11000.00	59.3 PK	74.0	-14.7	1.31 H	118	9.92	49.38
2	11000.00	48.6 AV	54.0	-5.4	1.31 H	118	-0.78	49.38
3	#16500.00	62.8 PK	68.3	-5.5	1.01 H	175	7.25	55.55
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11000.00	59.4 PK	74.0	-14.6	1.02 V	286	10.02	49.38
2	11000.00	48.0 AV	54.0	-6.0	1.02 V	286	-1.38	49.38
3	#16500.00	56.3 PK	68.3	-12.0	1.08 V	280	0.75	55.55

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 116	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11160.00	57.1 PK	74.0	-16.9	1.46 H	120	7.93	49.17
2	11160.00	46.1 AV	54.0	-7.9	1.46 H	120	-3.07	49.17
3	#16740.00	63.1 PK	68.3	-5.2	1.02 H	180	7.41	55.69
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11160.00	60.0 PK	74.0	-14.0	1.00 V	298	10.83	49.17
2	11160.00	48.4 AV	54.0	-5.6	1.00 V	298	-0.77	49.17
3	#16740.00	67.2 PK	68.3	-1.1	1.08 V	265	11.51	55.69

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 132	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11320.00	56.9 PK	74.0	-17.1	1.46 H	119	7.39	49.51
2	11320.00	45.7 AV	54.0	-8.3	1.46 H	119	-3.81	49.51
3	#16980.00	63.0 PK	68.3	-5.3	1.01 H	175	6.58	56.42
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11320.00	59.5 PK	74.0	-14.5	1.01 V	301	9.99	49.51
2	11320.00	47.9 AV	54.0	-6.1	1.01 V	301	-1.61	49.51
3	#16980.00	67.3 PK	68.3	-1.0	1.07 V	255	10.88	56.42

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.



A D T

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11400.00	56.8 PK	74.0	-17.2	1.45 H	112	7.43	49.37
2	11400.00	45.6 AV	54.0	-8.4	1.45 H	112	-3.77	49.37
3	#17100.00	63.2 PK	68.3	-5.1	1.02 H	168	6.82	56.38
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11400.00	56.6 PK	74.0	-17.4	1.03 V	287	7.23	49.37
2	11400.00	44.8 AV	54.0	-9.2	1.03 V	287	-4.57	49.37
3	#17100.00	67.5 PK	68.3	-0.8	1.06 V	262	11.12	56.38

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

802.11n (40MHz)

CHANNEL	TX Channel 38	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10380.00	56.3 PK	68.3	-12.0	1.39 H	61	7.67	48.63
2	15570.00	62.9 PK	74.0	-11.1	1.00 H	146	8.52	54.38
3	15570.00	50.5 AV	54.0	-3.5	1.00 H	146	-3.88	54.38
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10380.00	55.3 PK	68.3	-13.0	1.01 V	292	6.67	48.63
2	15570.00	57.2 PK	74.0	-16.8	1.03 V	285	2.82	54.38
3	15570.00	46.5 AV	54.0	-7.5	1.03 V	285	-7.88	54.38

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.



A D T

CHANNEL	TX Channel 46	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10460.00	57.3 PK	68.3	-11.0	1.37 H	49	8.49	48.81
2	15690.00	63.3 PK	74.0	-10.7	1.04 H	150	9.39	53.91
3	15690.00	50.8 AV	54.0	-3.2	1.04 H	150	-3.11	53.91
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10460.00	58.0 PK	68.3	-10.3	1.03 V	63	9.19	48.81
2	15690.00	57.7 PK	74.0	-16.3	1.05 V	270	3.79	53.91
3	15690.00	47.0 AV	54.0	-7.0	1.05 V	270	-6.91	53.91

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.



A D T

CHANNEL	TX Channel 54	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10540.00	55.1 PK	68.3	-13.2	1.41 H	50	6.15	48.95
2	15810.00	63.0 PK	74.0	-11.0	1.01 H	158	8.81	54.19
3	15810.00	50.5 AV	54.0	-3.5	1.01 H	158	-3.69	54.19
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#10540.00	57.5 PK	68.3	-10.8	1.05 V	63	8.55	48.95
2	15810.00	57.2 PK	74.0	-16.8	1.07 V	282	3.01	54.19
3	15810.00	46.8 AV	54.0	-7.2	1.07 V	282	-7.39	54.19

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.



A D T

CHANNEL	TX Channel 62	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	10620.00	55.3 PK	74.0	-18.7	1.41 H	46	6.42	48.88
2	10620.00	44.7 AV	54.0	-9.3	1.41 H	46	-4.18	48.88
3	15930.00	62.7 PK	74.0	-11.3	1.01 H	172	8.57	54.13
4	15930.00	50.2 AV	54.0	-3.8	1.01 H	172	-3.93	54.13

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	10620.00	55.3 PK	74.0	-18.7	1.04 V	62	6.42	48.88
2	10620.00	44.8 AV	54.0	-9.2	1.04 V	62	-4.08	48.88
3	15930.00	57.5 PK	74.0	-16.5	1.05 V	277	3.37	54.13
4	15930.00	46.8 AV	54.0	-7.2	1.05 V	277	-7.33	54.13

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

CHANNEL	TX Channel 102	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11020.00	58.4 PK	74.0	-15.6	1.45 H	113	9.06	49.34
2	11020.00	46.8 AV	54.0	-7.2	1.45 H	113	-2.54	49.34
3	#16530.00	62.4 PK	68.3	-5.9	1.02 H	157	6.56	55.84
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11020.00	58.3 PK	74.0	-15.7	1.03 V	285	8.96	49.34
2	11020.00	47.1 AV	54.0	-6.9	1.03 V	285	-2.24	49.34
3	#16530.00	58.3 PK	68.3	-10.0	1.10 V	281	2.46	55.84

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 118	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11100.00	58.9 PK	74.0	-15.1	1.49 H	110	9.71	49.19
2	11100.00	45.5 AV	54.0	-8.5	1.49 H	110	-3.69	49.19
3	#16650.00	63.1 PK	68.3	-5.2	1.03 H	162	6.98	56.12
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11100.00	59.3 PK	74.0	-14.7	1.07 V	288	10.11	49.19
2	11100.00	45.4 AV	54.0	-8.6	1.07 V	288	-3.79	49.19
3	#16650.00	59.2 PK	68.3	-9.1	1.11 V	275	3.08	56.12

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 126	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11340.00	58.7 PK	74.0	-15.3	1.47 H	119	9.22	49.48
2	11340.00	46.6 AV	54.0	-7.4	1.47 H	119	-2.88	49.48
3	#17010.00	63.5 PK	68.3	-4.8	1.05 H	170	6.98	56.52
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	11340.00	59.5 PK	74.0	-14.5	1.13 V	297	10.02	49.48
2	11340.00	45.3 AV	54.0	-8.7	1.13 V	297	-4.18	49.48
3	#17010.00	60.1 PK	68.3	-8.2	1.13 V	280	3.58	56.52

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.

4.2.9 TEST RESULTS (CONDUCTED TEST)

The conducted emission test was considered some factor to compute test result.

Factor:

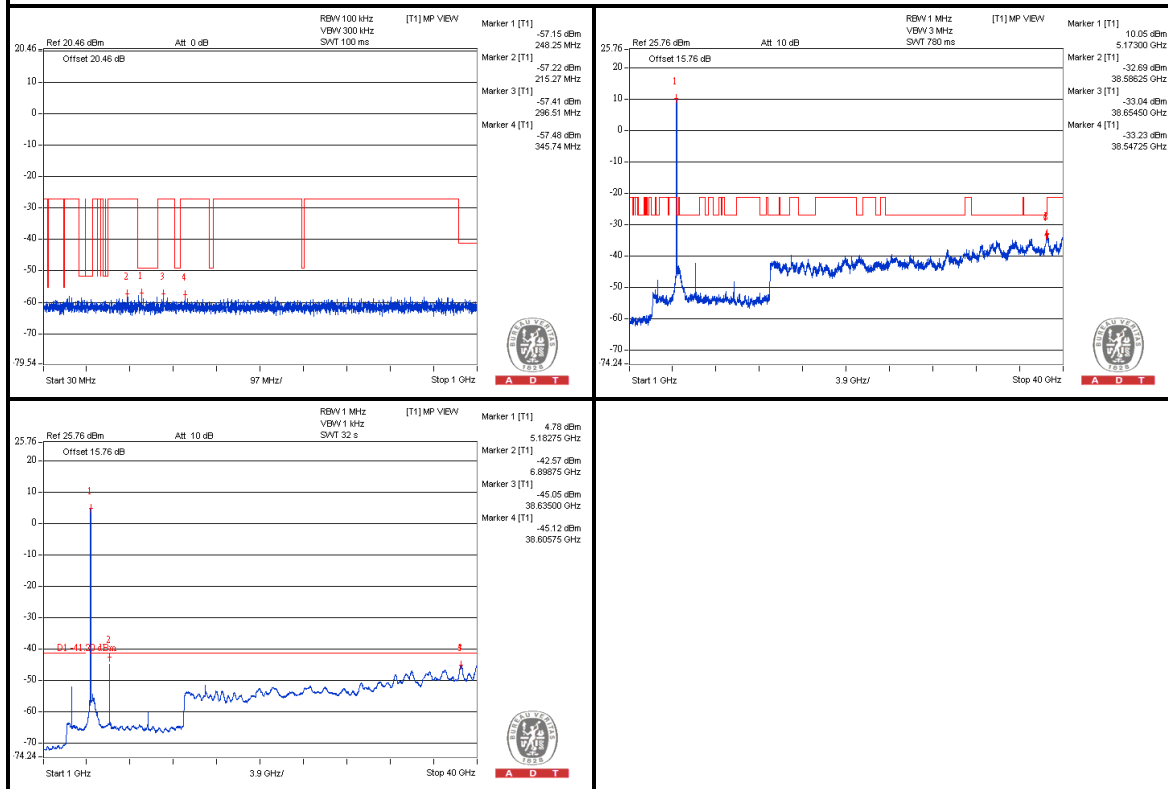
- The difference factor between the 1x1 versus 2x2. (The individual chain needs to be corrected by 3dB to account for two transmit chains.)
- The composite gain will be used when signal support the correlated signal.
- For the out of band spurious the gain for the specific band may have been used rather than the highest gain across all bands.
- For the band edge the gain for the specific band may have been used.
- In restricted bands below 1000 MHz, add upper bound on ground plane reflection:
For $f = 30 - 1000$ MHz, add 4.7 dB.

Antenna Gain (dBi)			
5.15~5.35GHz		5.47~5.725GHz	
Original Gain	Composite Gain	Original Gain	Composite Gain
3.08	6.09	4.76	7.77

Single chain - 802.11a

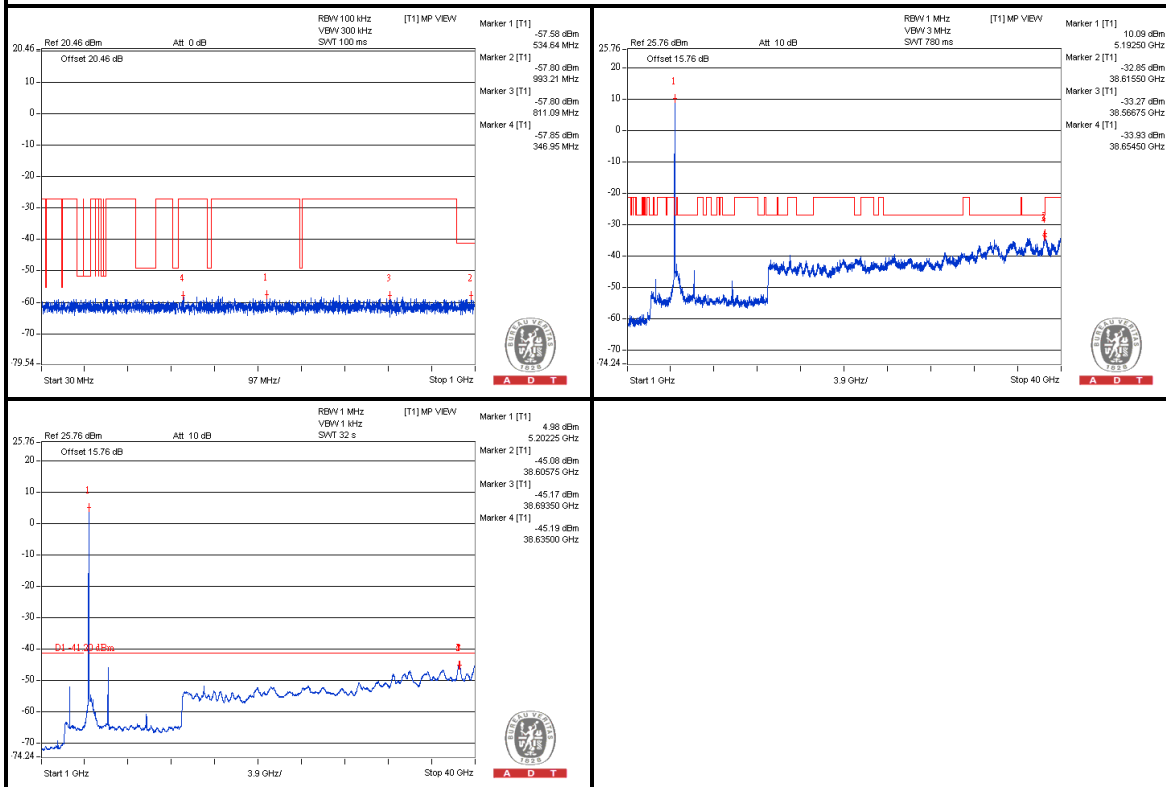
Conducted emission

CH 36



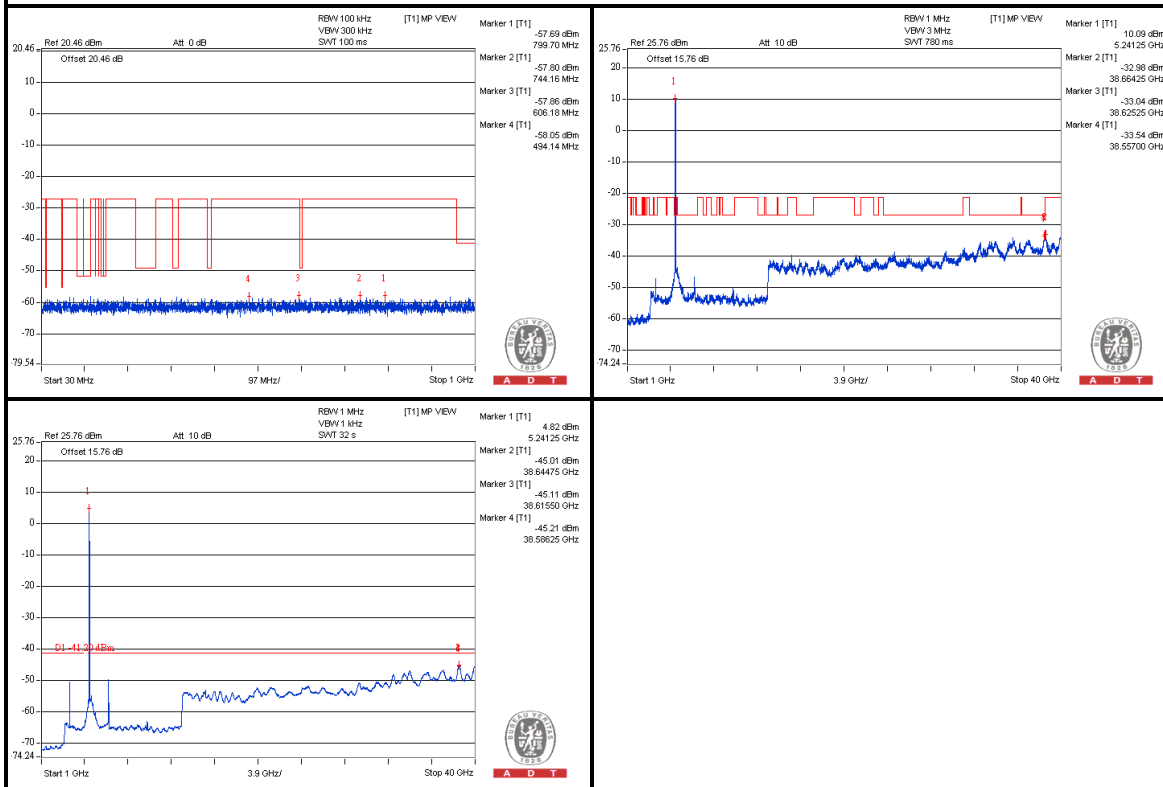
Conducted emission

CH 40



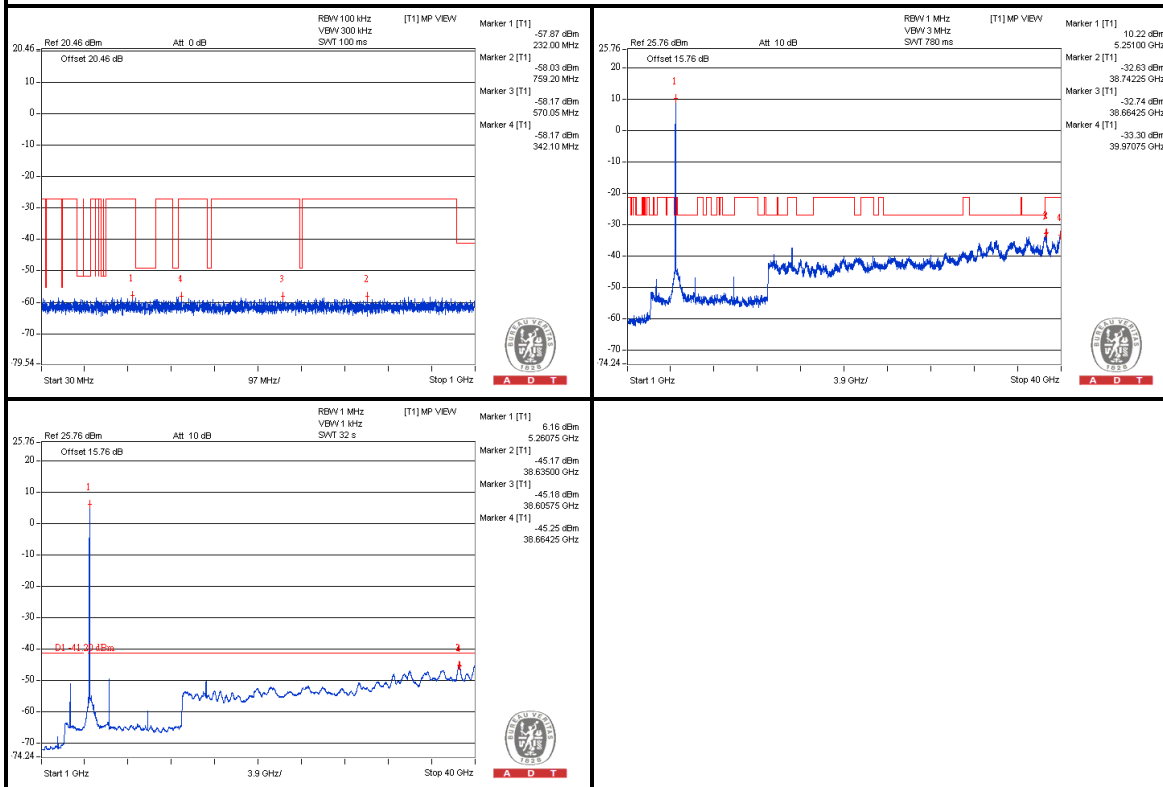
Conducted emission

CH 48



Conducted emission

CH 52

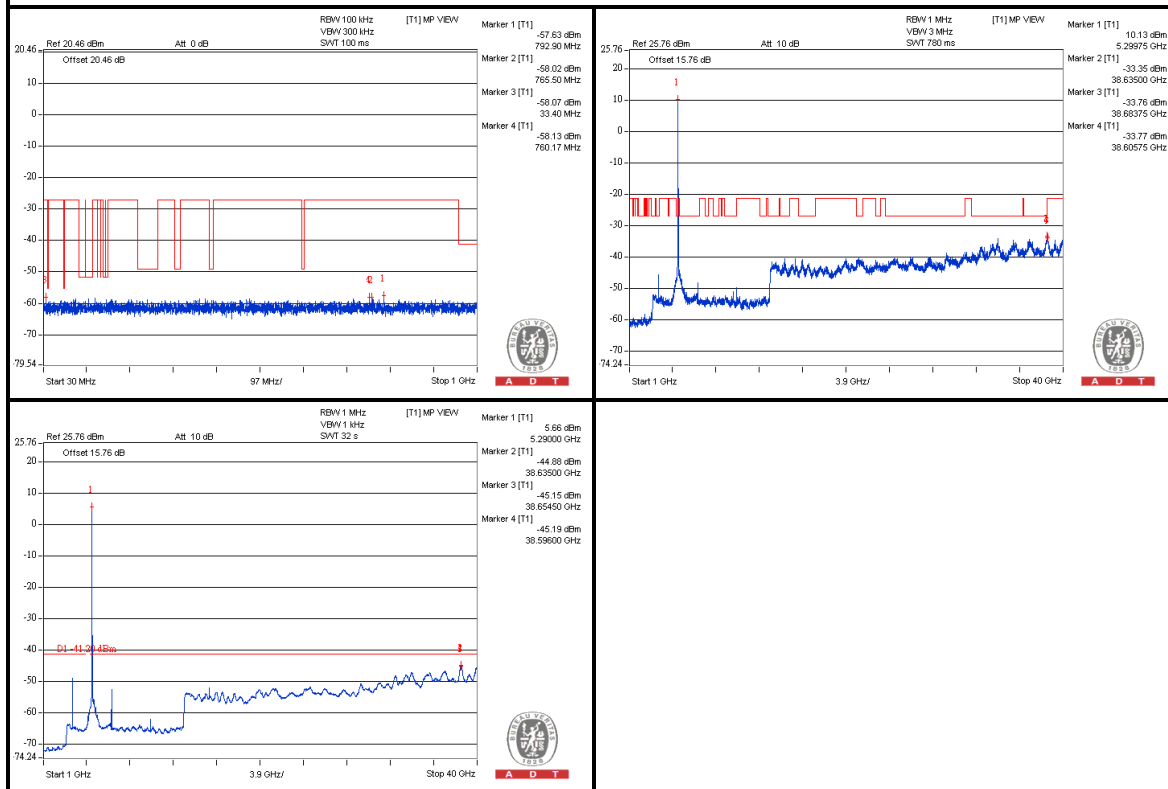




A D T

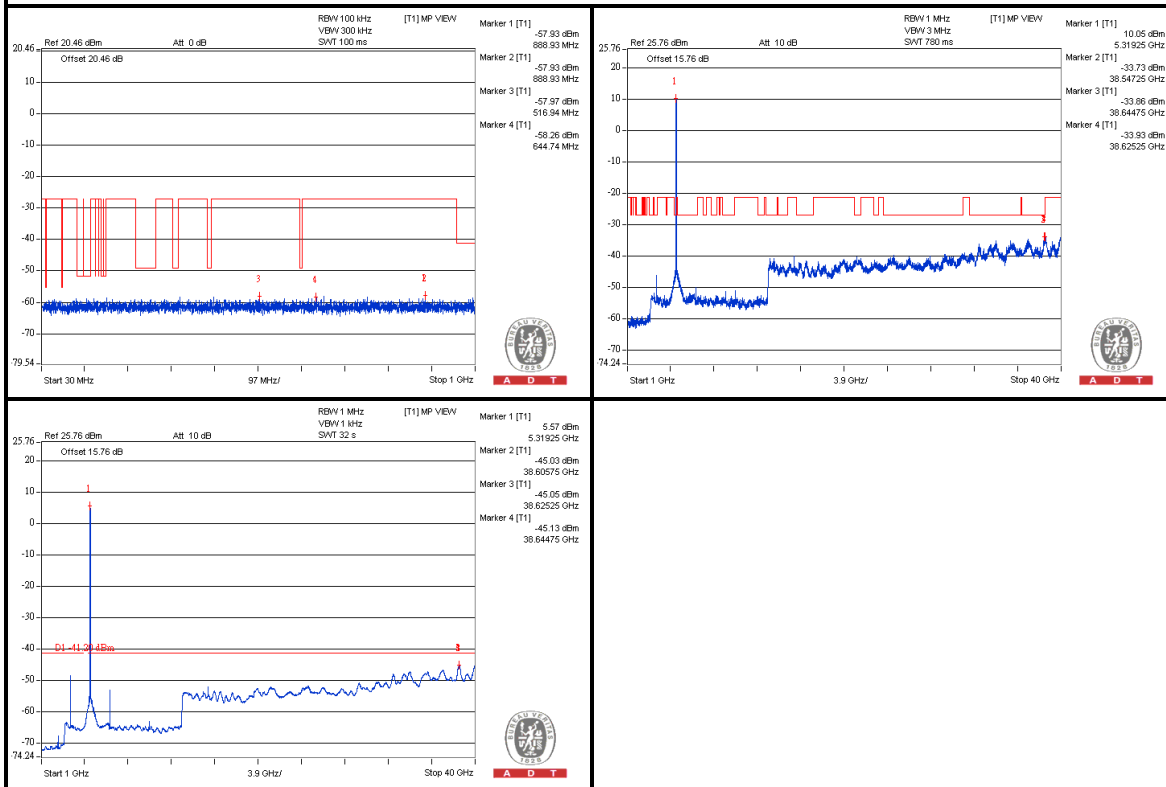
Conducted emission

CH 60



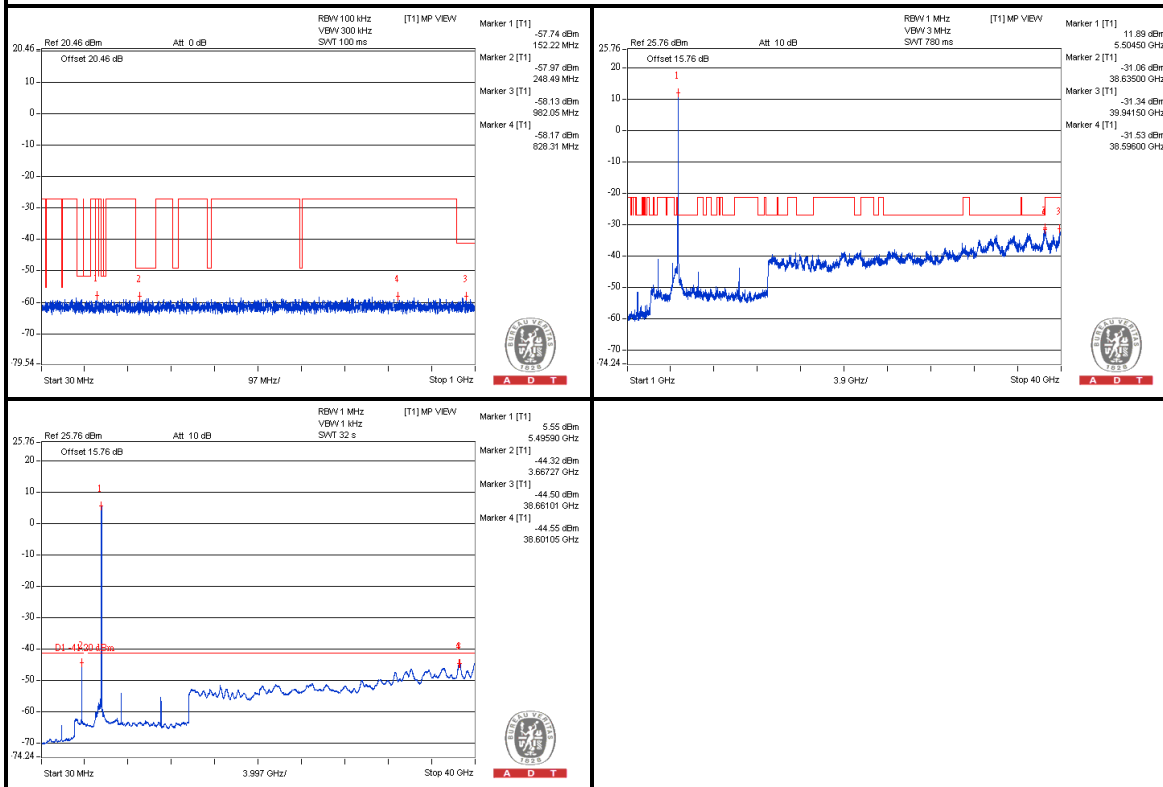
Conducted emission

CH 64



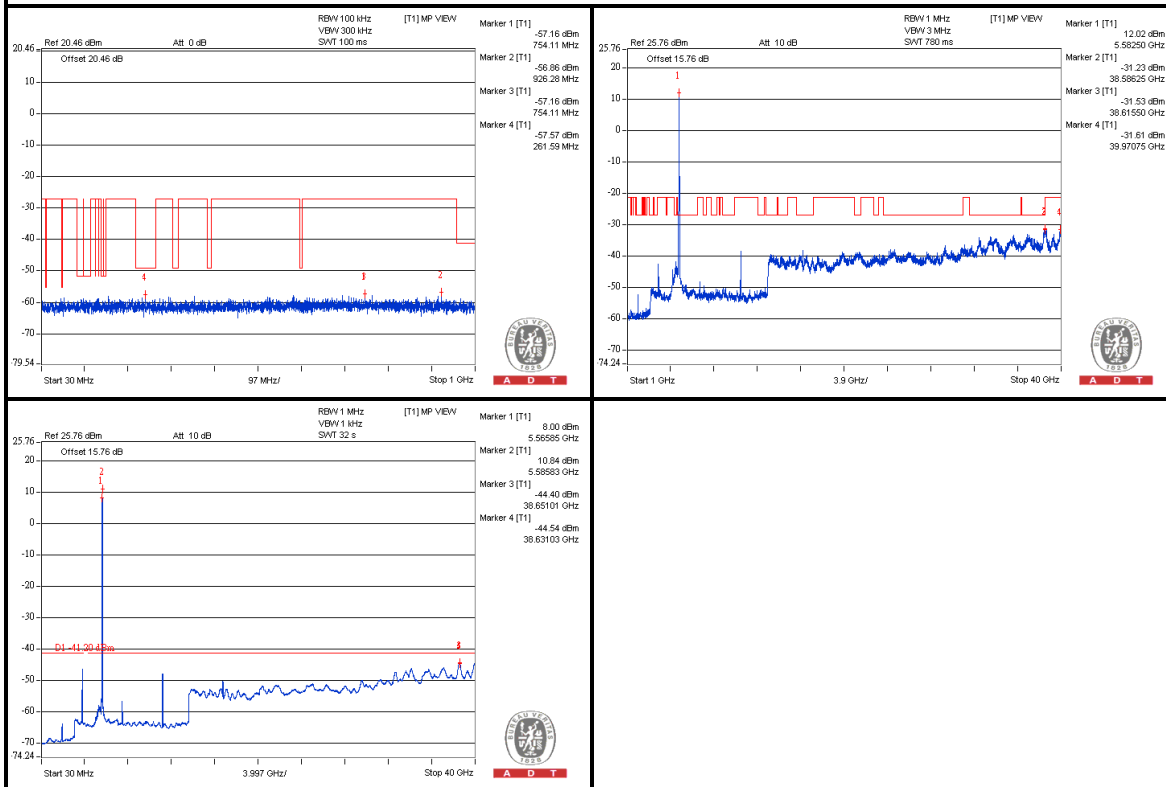
Conducted emission

CH 100



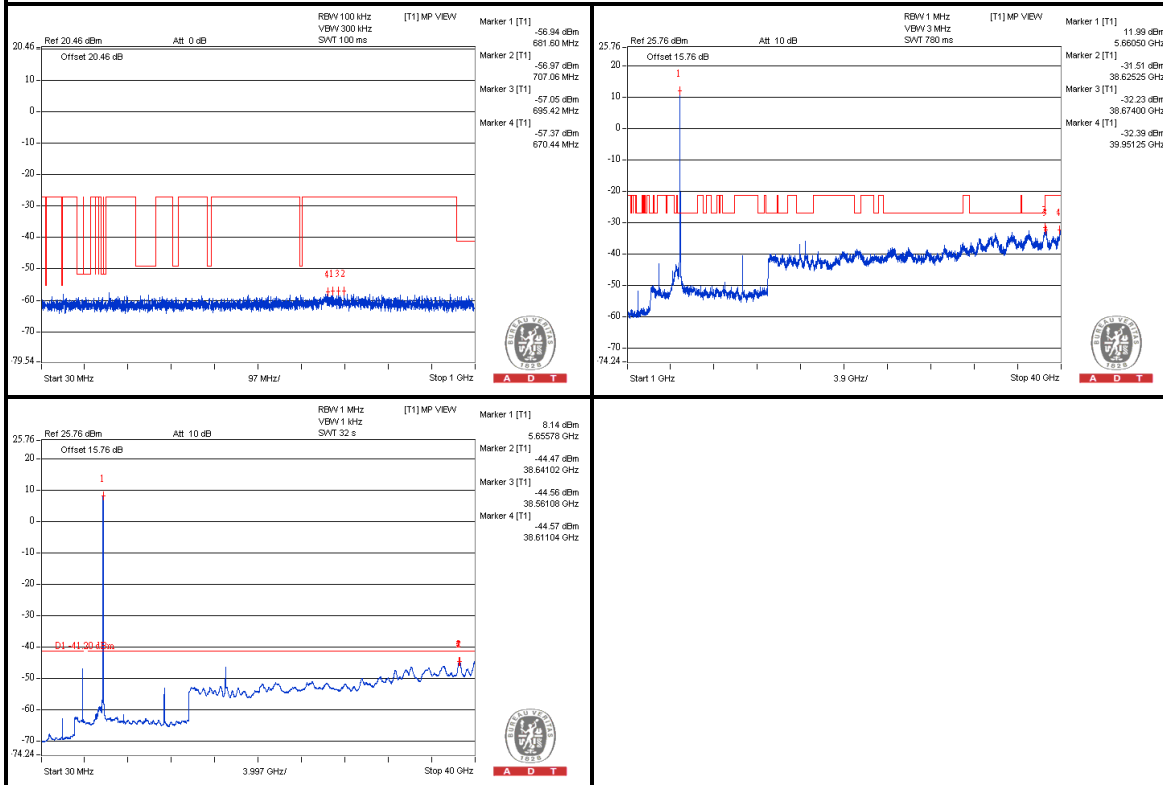
Conducted emission

CH 116



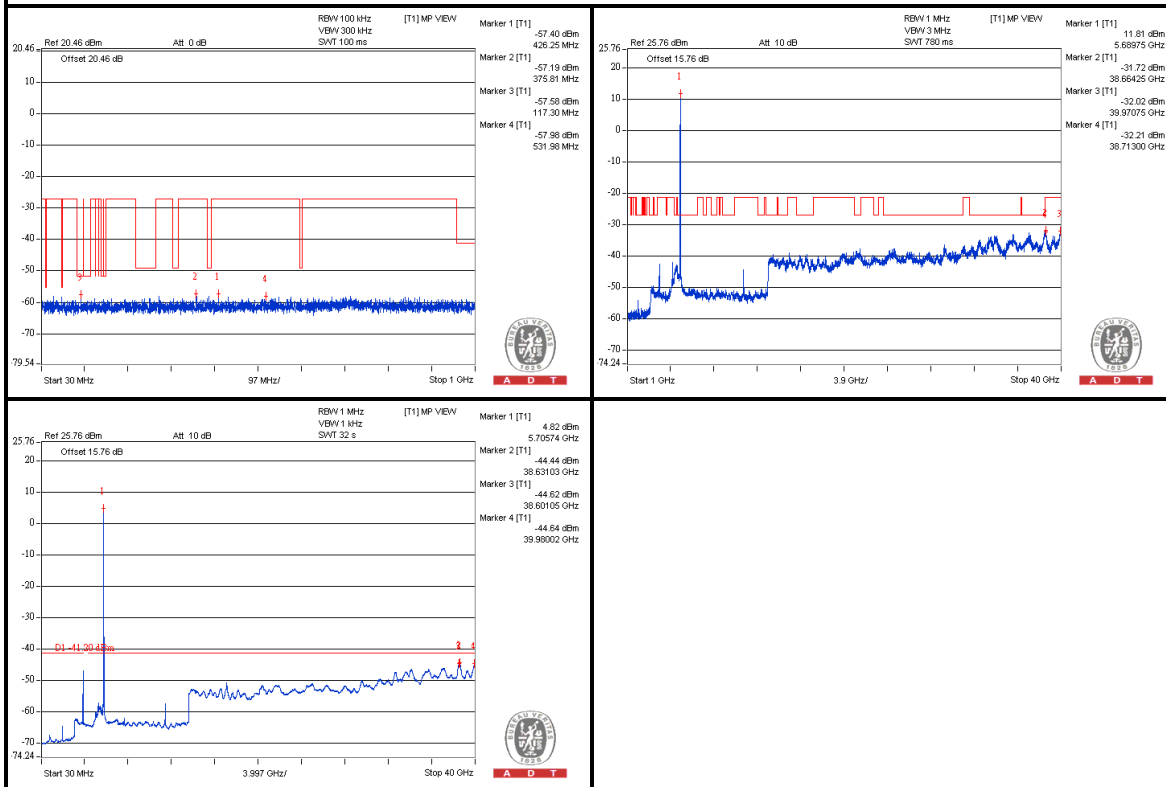
Conducted emission

CH 132



Conducted emission

CH 140

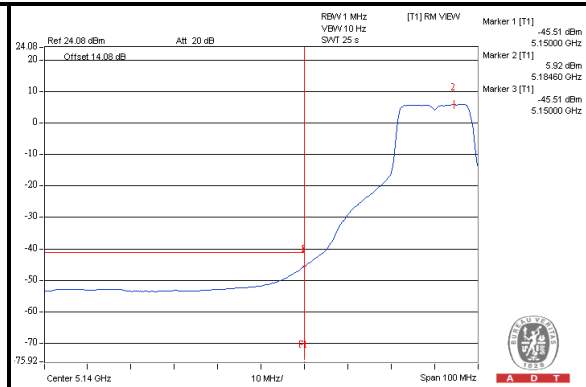
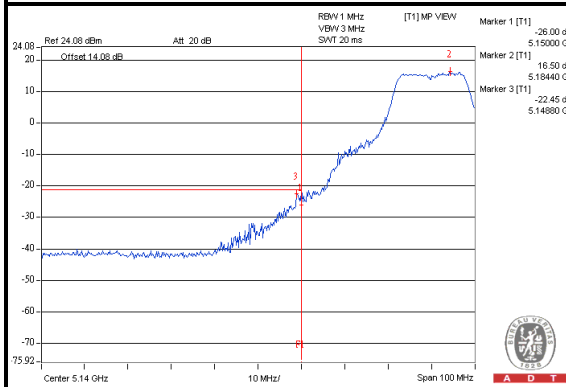




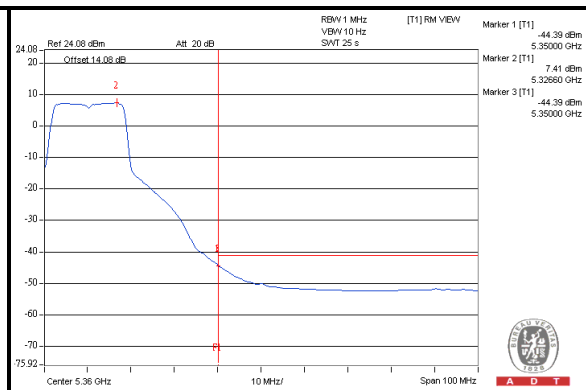
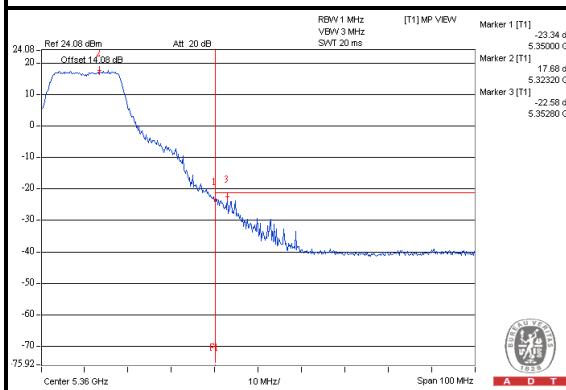
A D T

Band Edges(Worst data is presented only.)

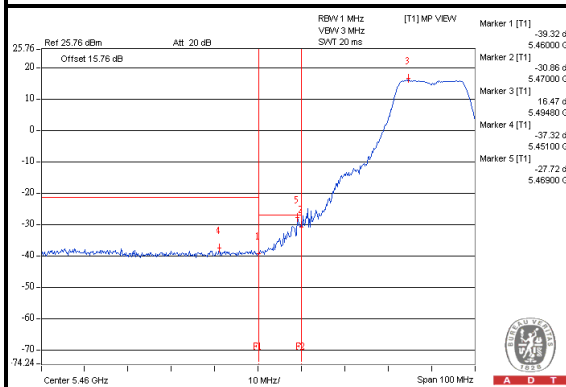
CH 36



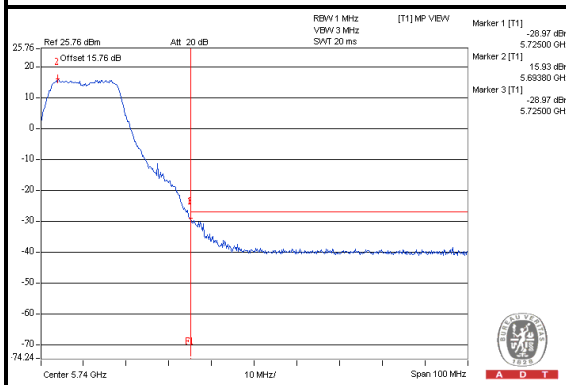
CH 64



CH 100



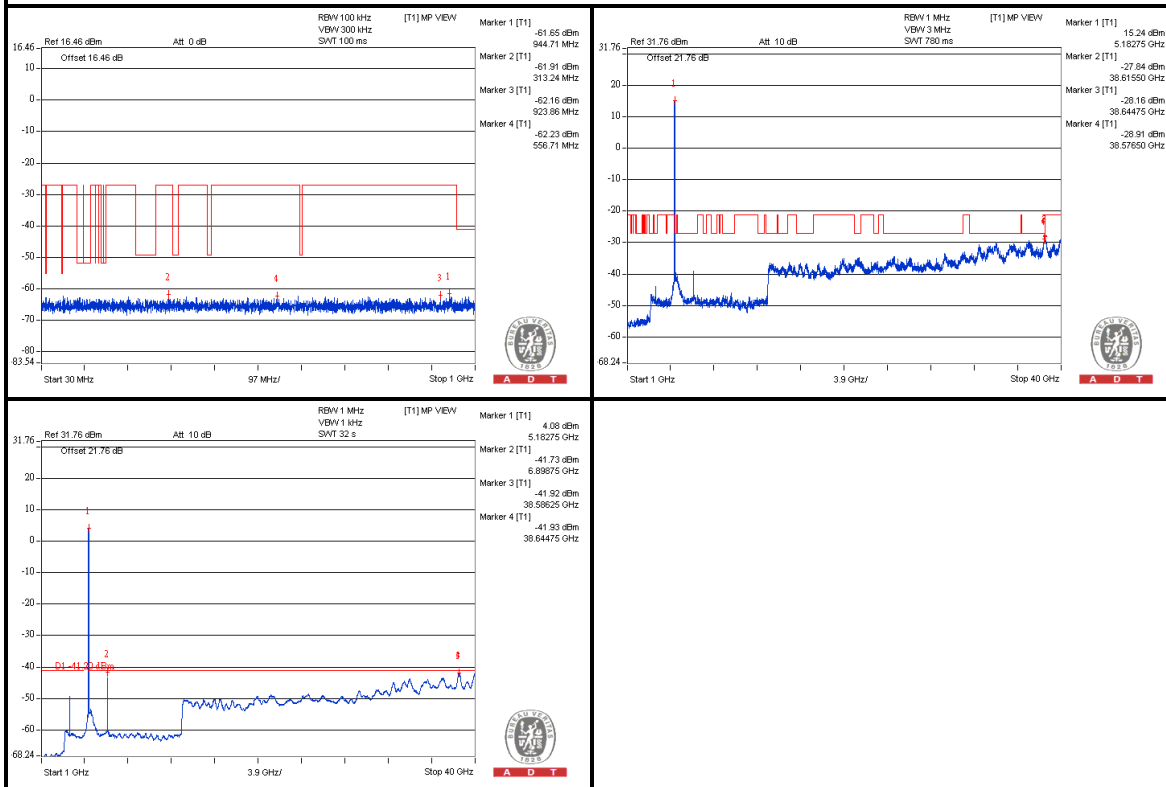
CH 140



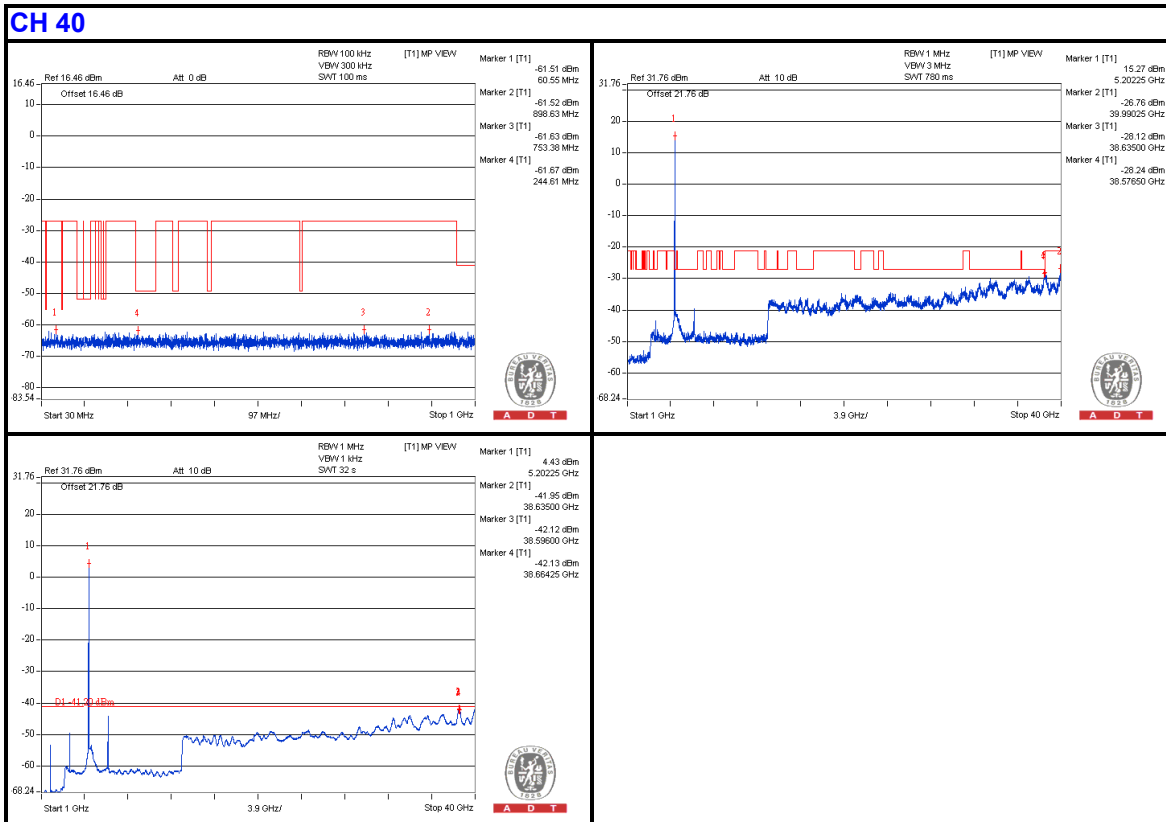
Multiple chain - 802.11a

Conducted emission (Worst data is presented only.)

CH 36

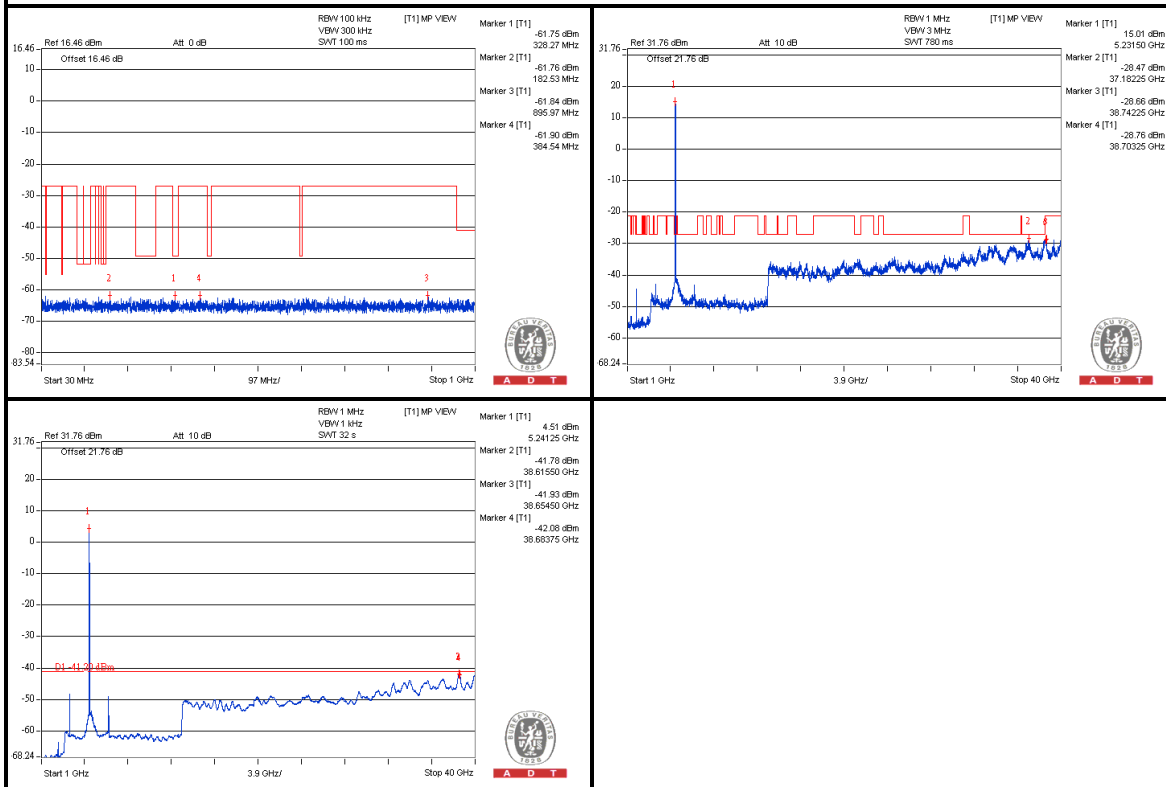


Conducted emission(Worst data is presented only.)



Conducted emission(Worst data is presented only.)

CH 48

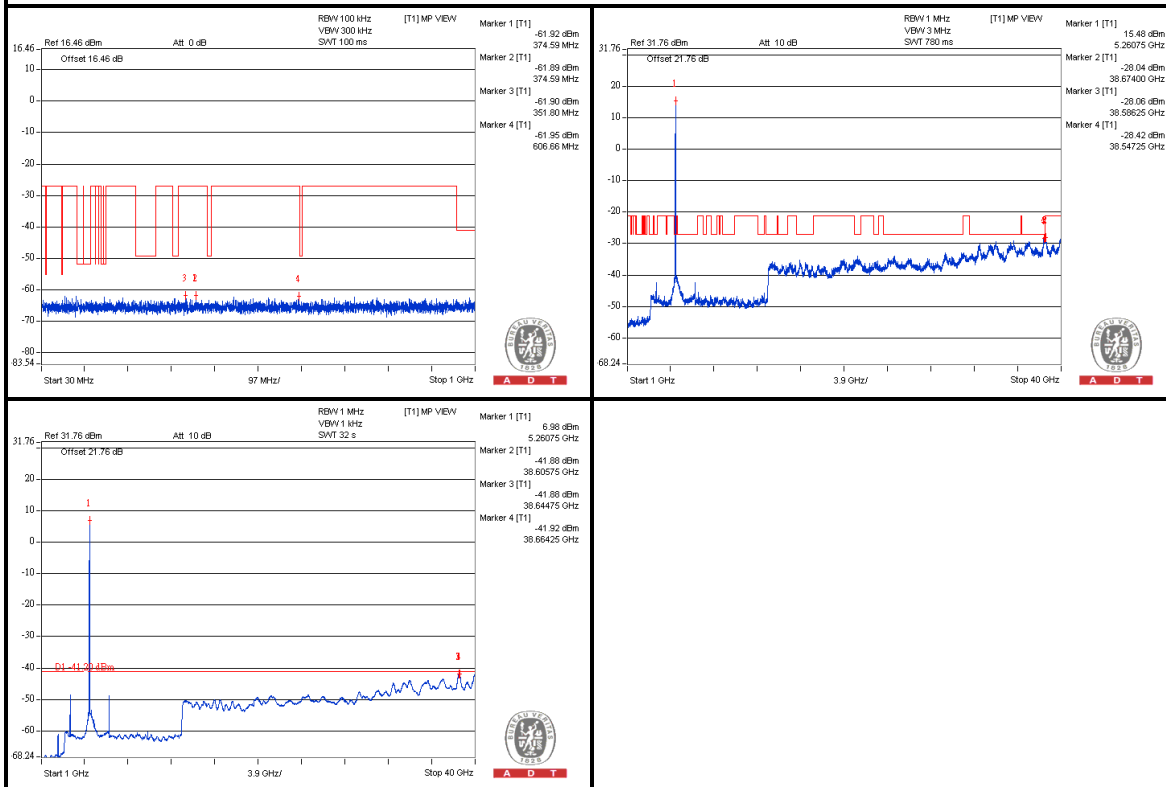




A D T

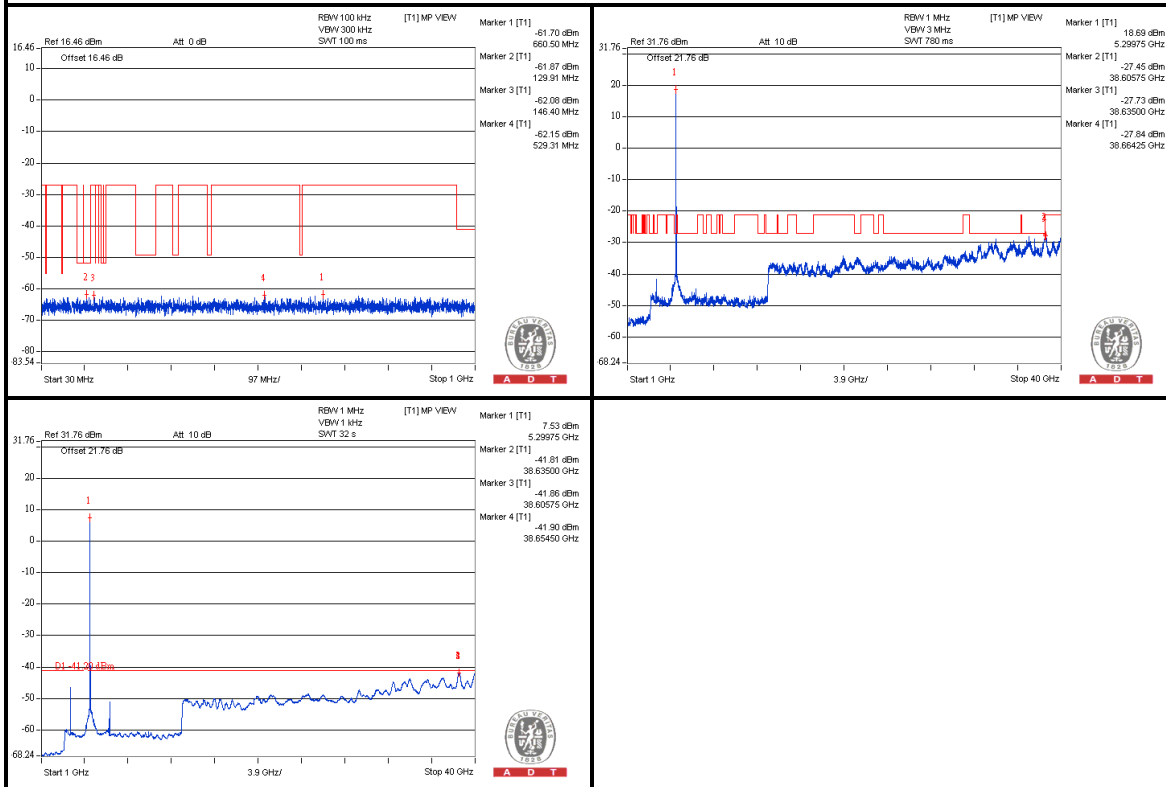
Conducted emission(Worst data is presented only.)

CH 52



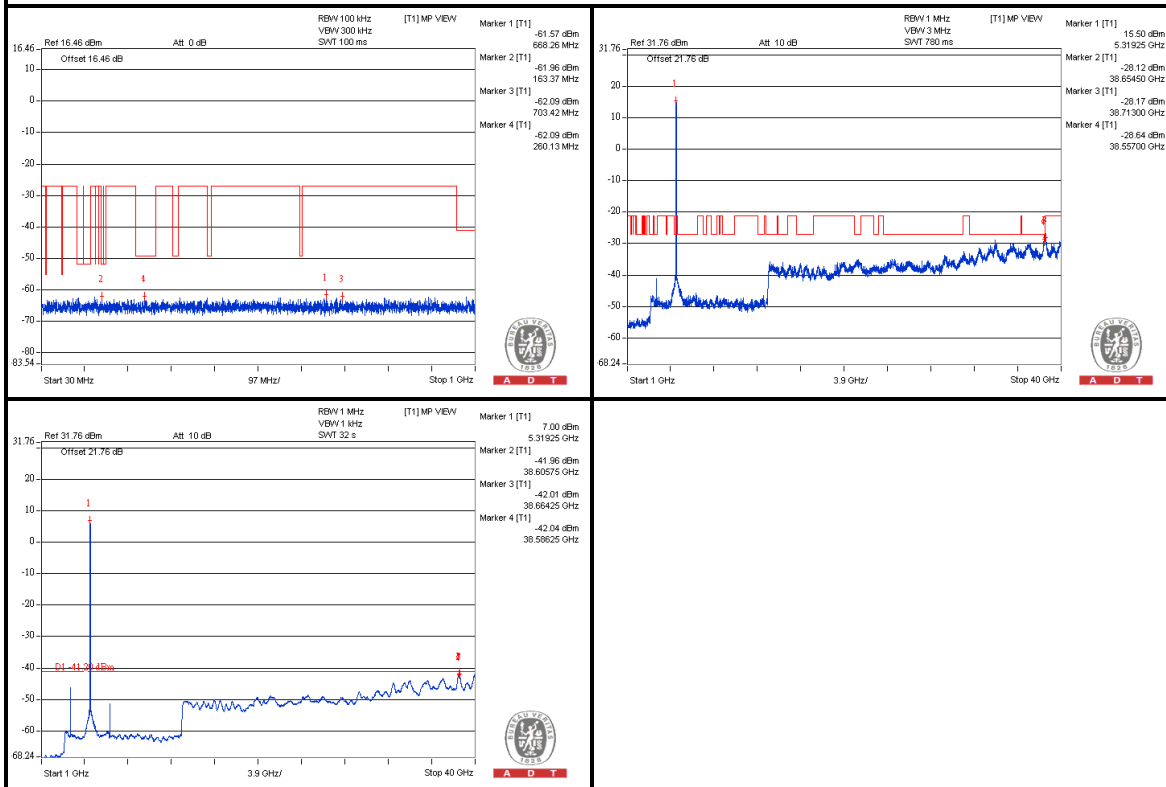
Conducted emission(Worst data is presented only.)

CH 60



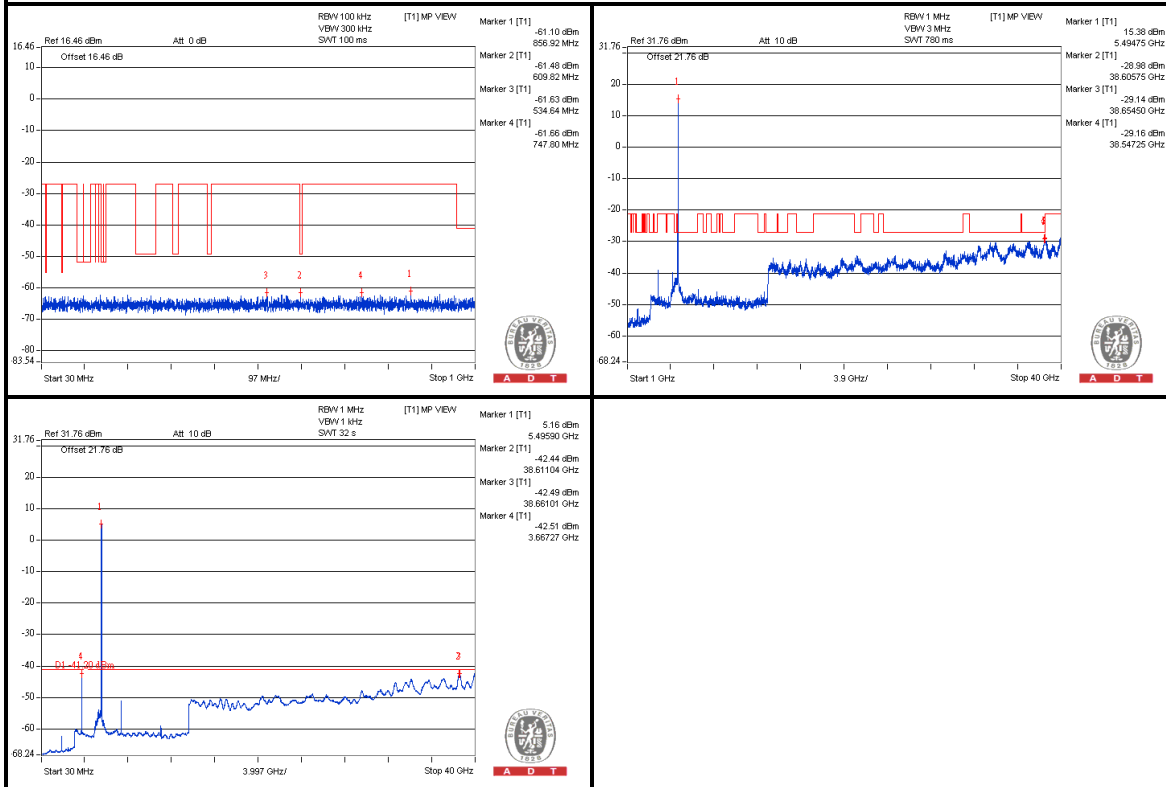
Conducted emission(Worst data is presented only.)

CH 64

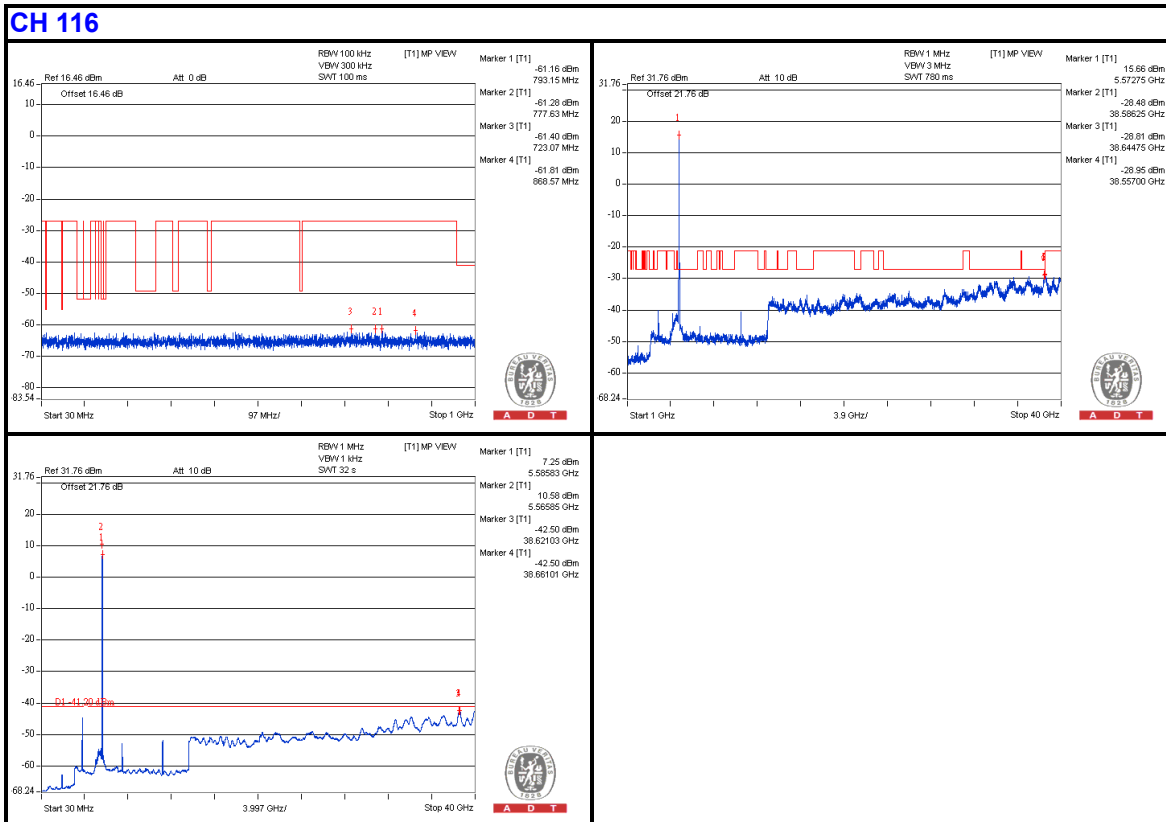


Conducted emission(Worst data is presented only.)

CH 100

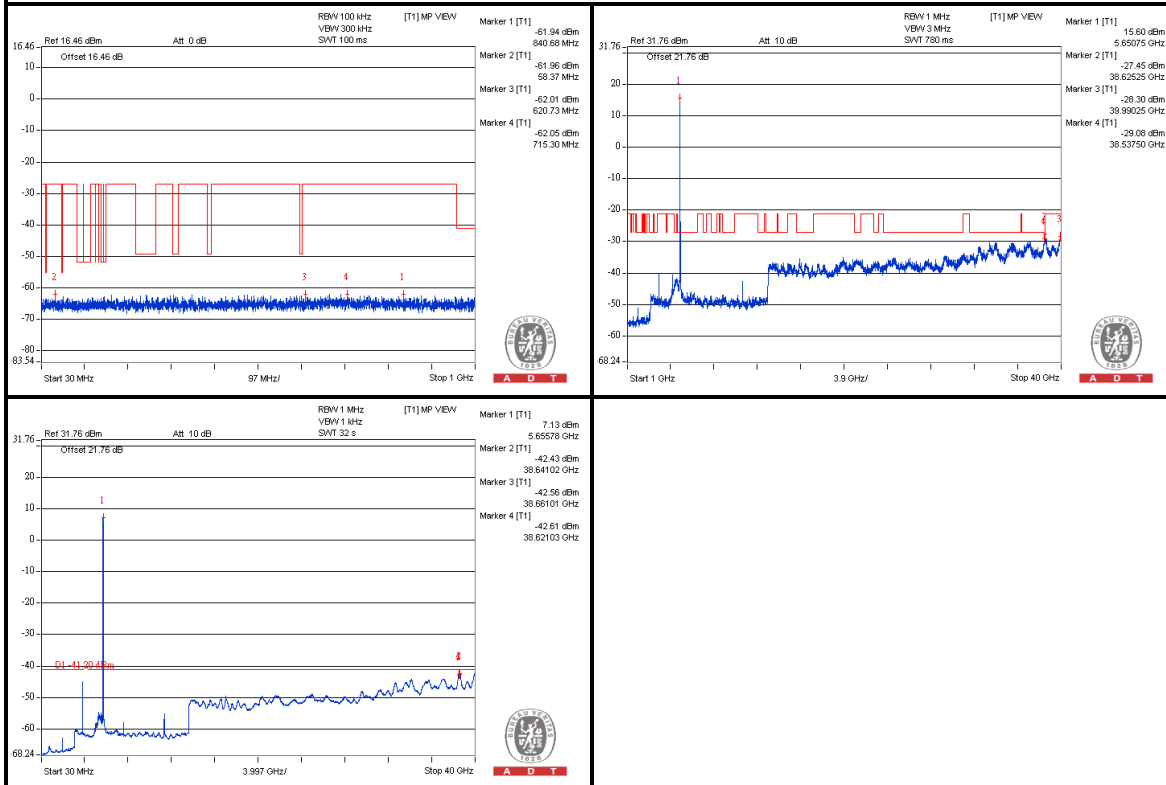


Conducted emission(Worst data is presented only.)



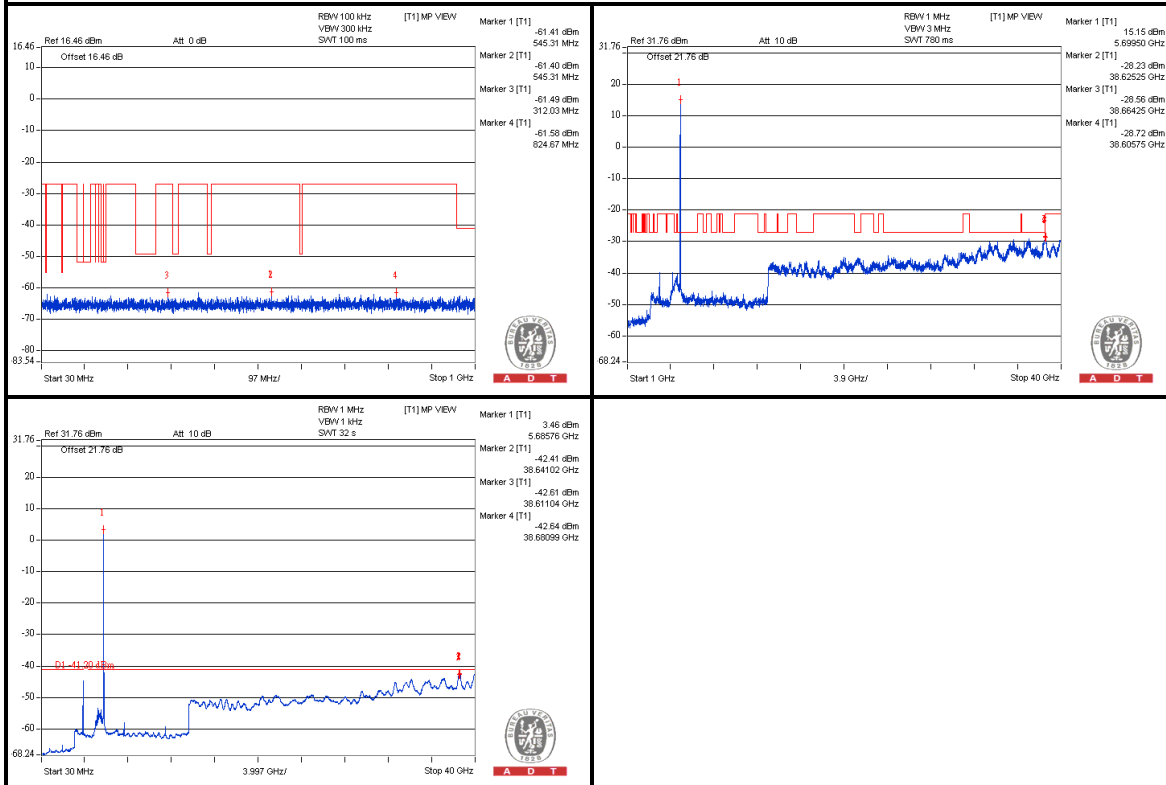
Conducted emission(Worst data is presented only.)

CH 132



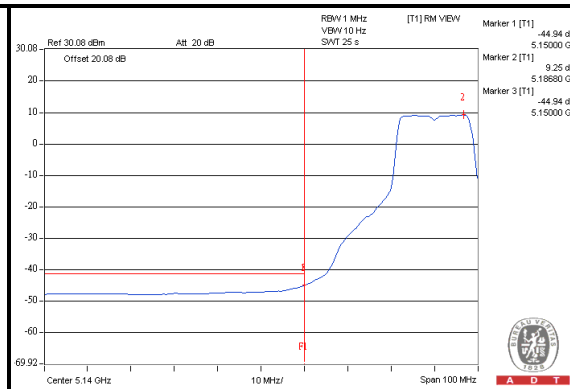
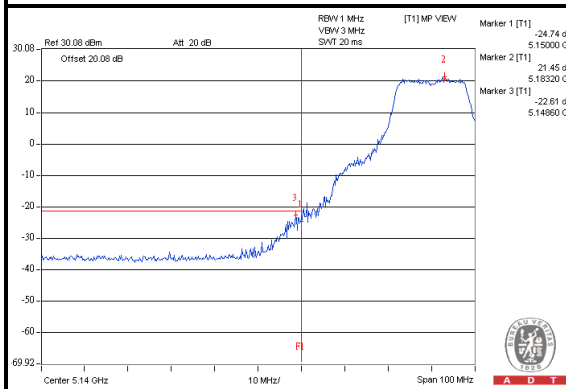
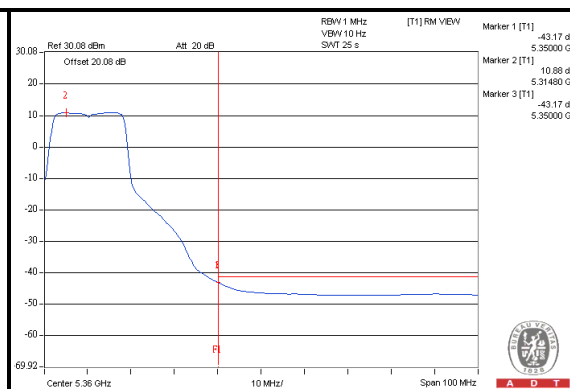
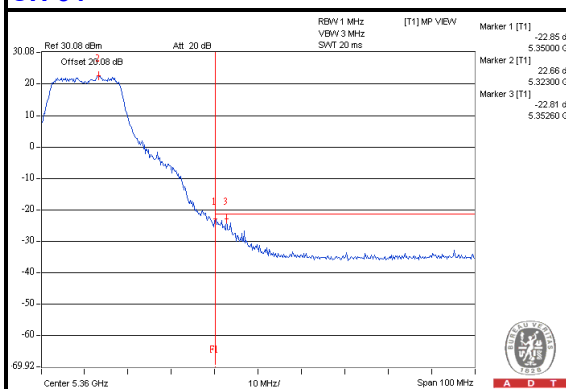
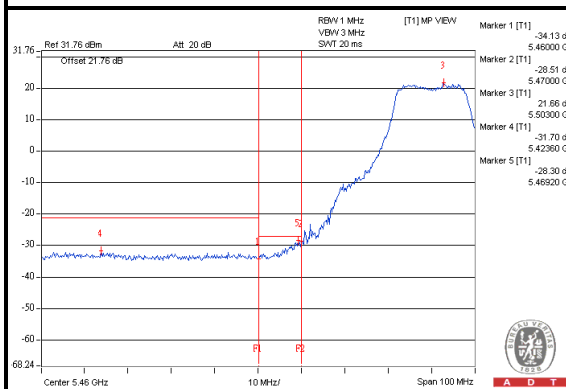
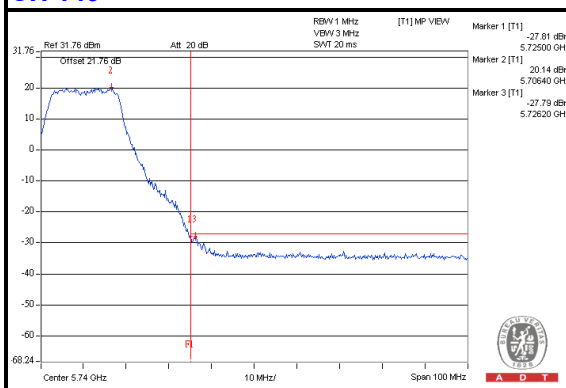
Conducted emission(Worst data is presented only.)

CH 140





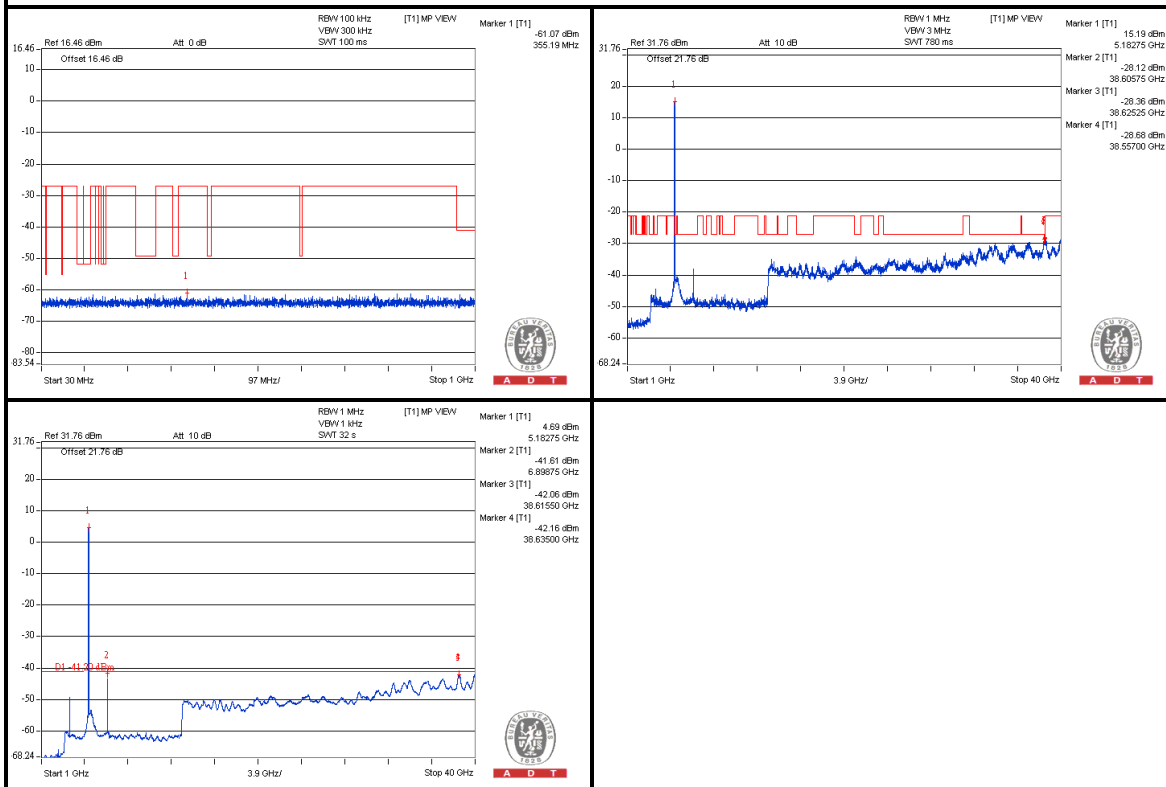
A D T

Band Edges(Worst data is presented only.)**CH 36****CH 64****CH 100****CH 140**

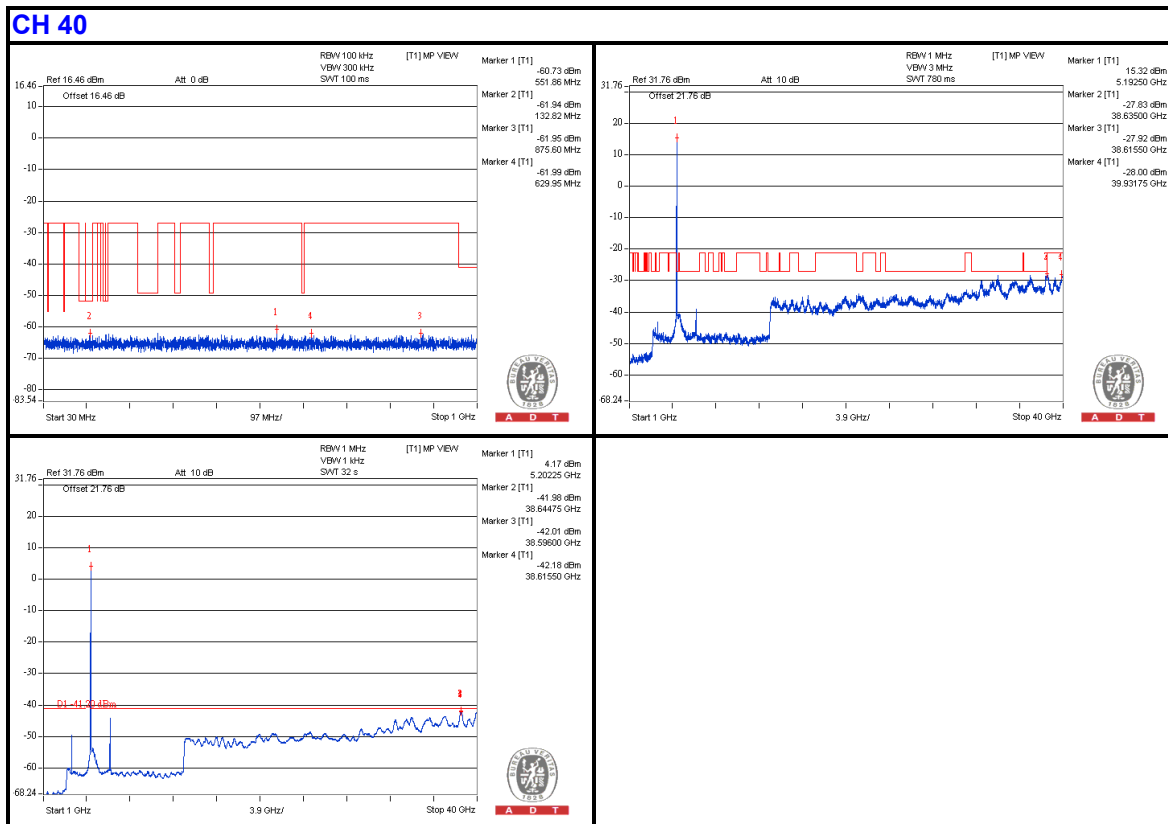
802.11n (20MHz)

Conducted emission (Worst data is presented only.)

CH 36

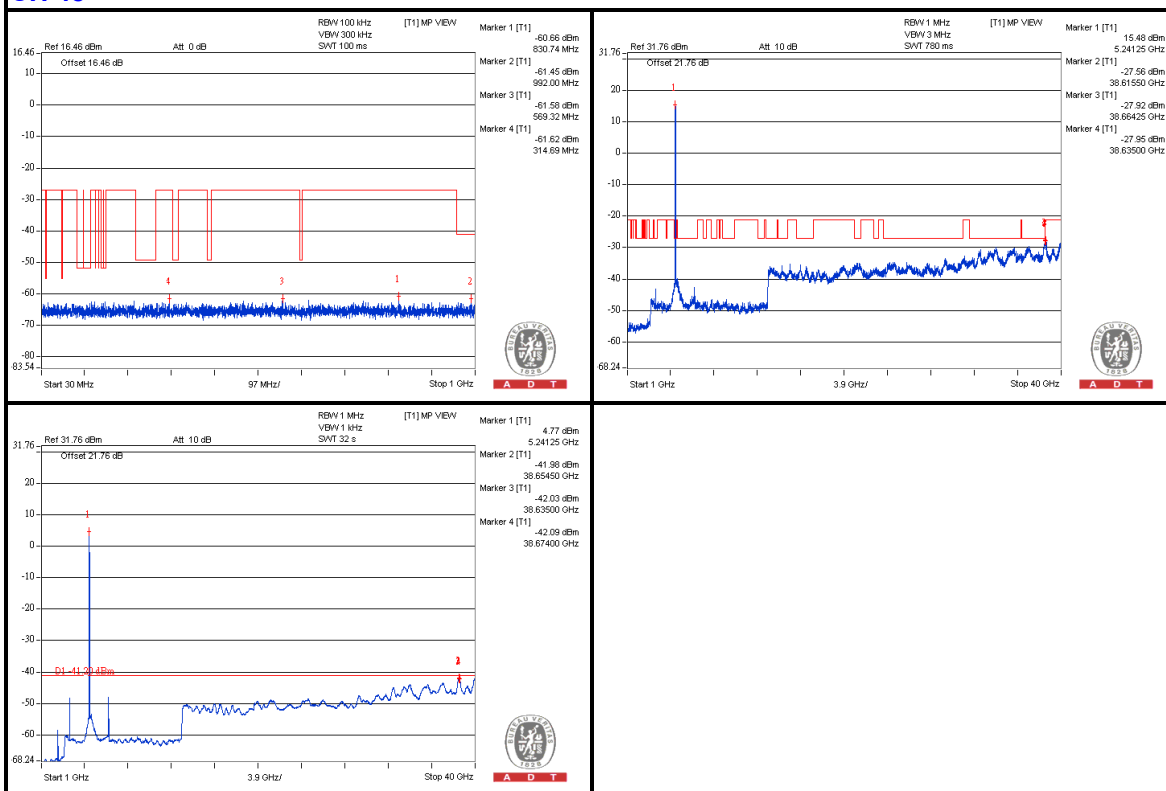


Conducted emission(Worst data is presented only.)



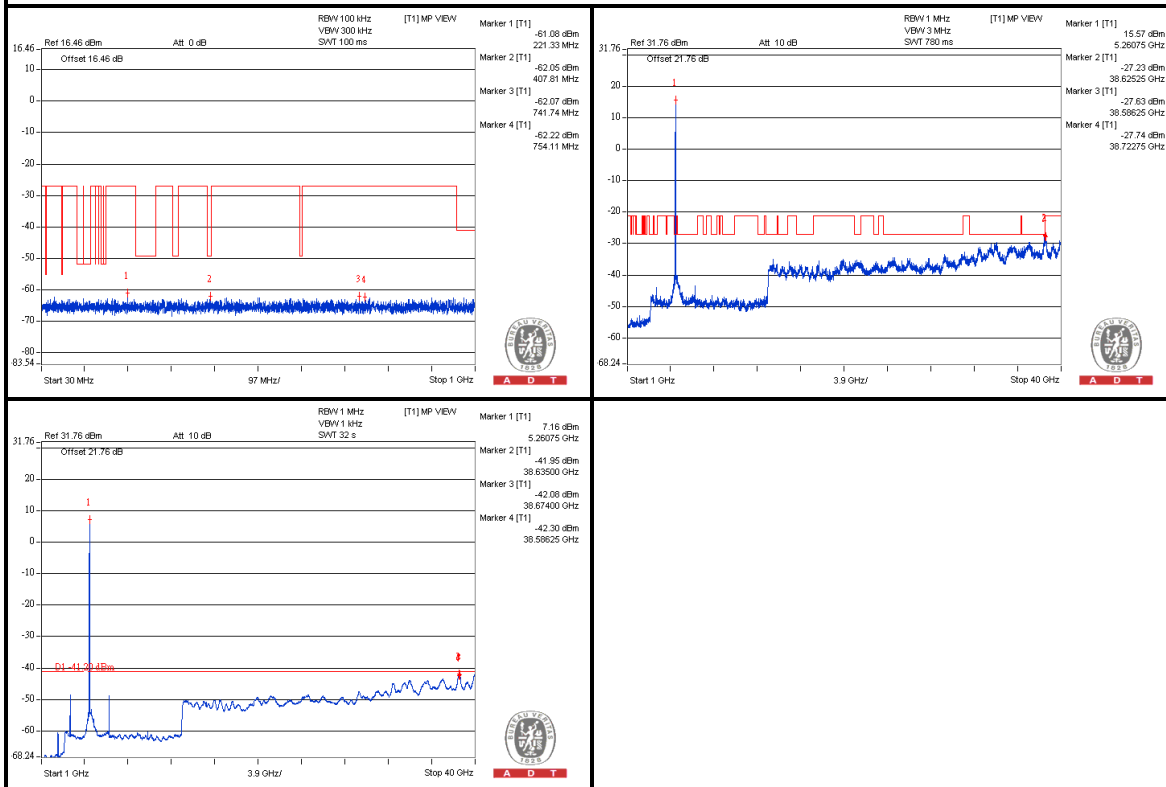
Conducted emission(Worst data is presented only.)

CH 48



Conducted emission(Worst data is presented only.)

CH 52

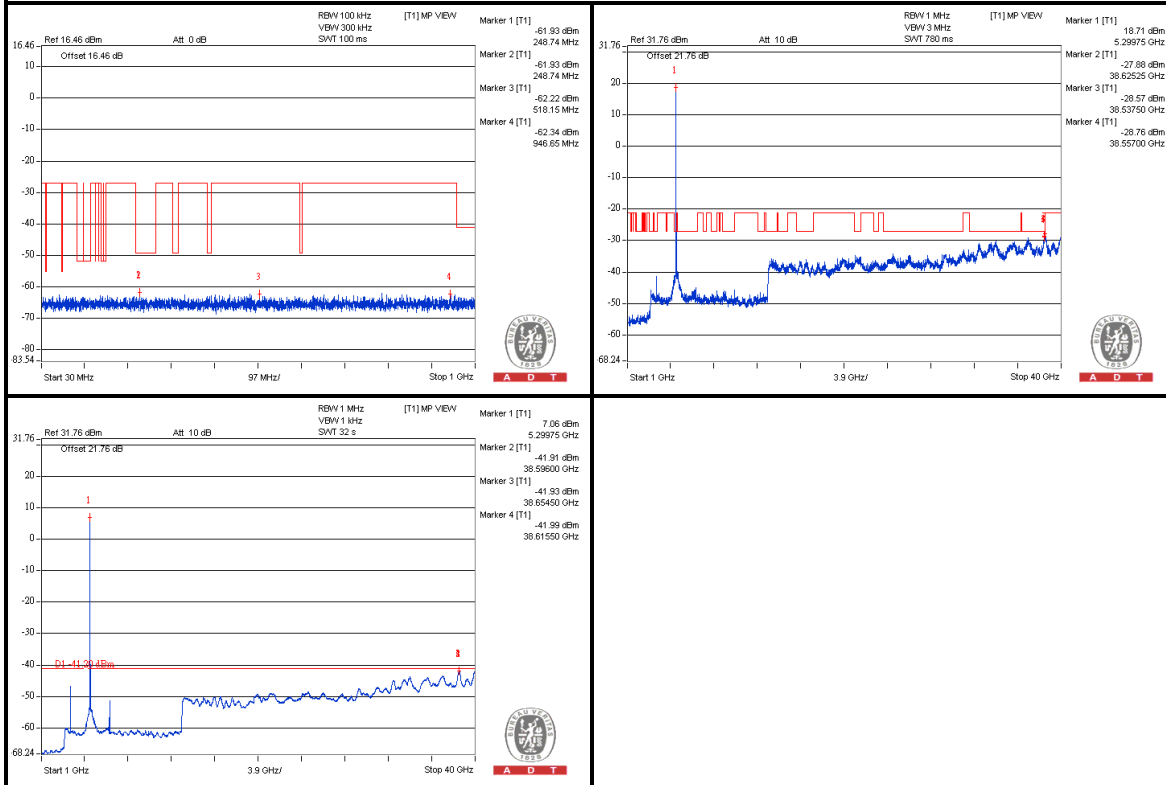




A D T

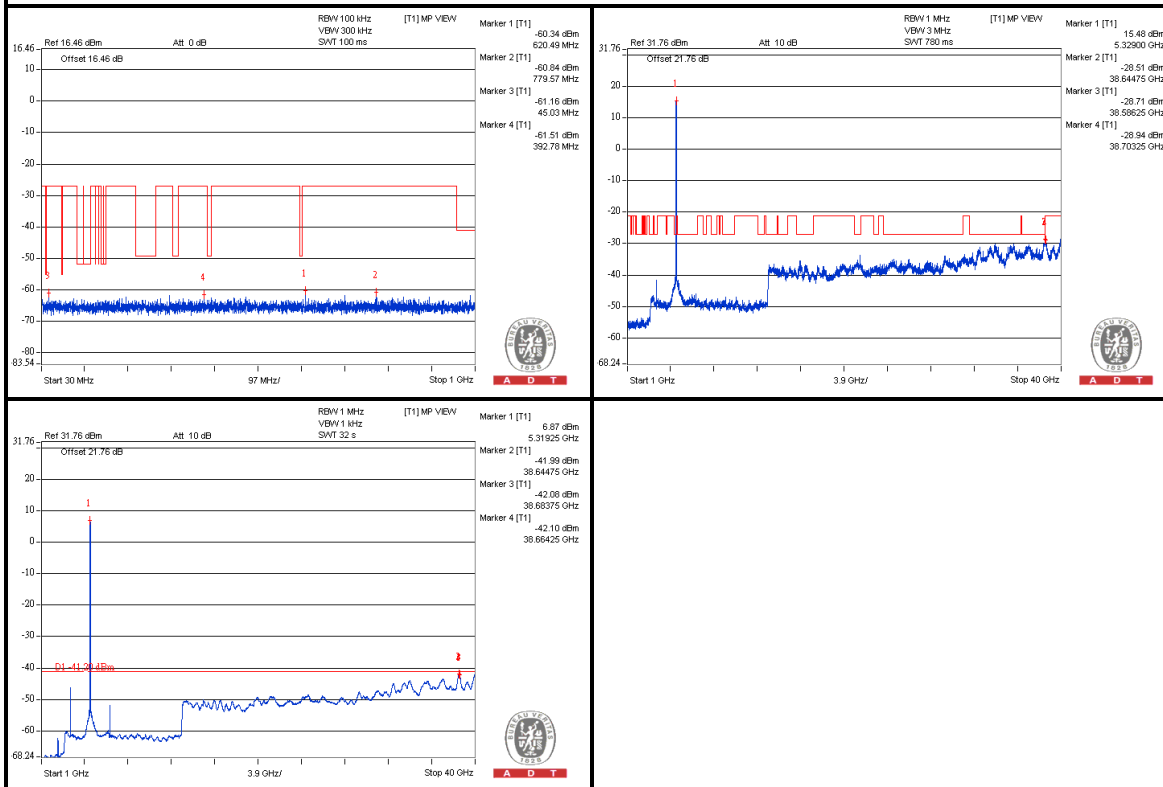
Conducted emission(Worst data is presented only.)

CH 60

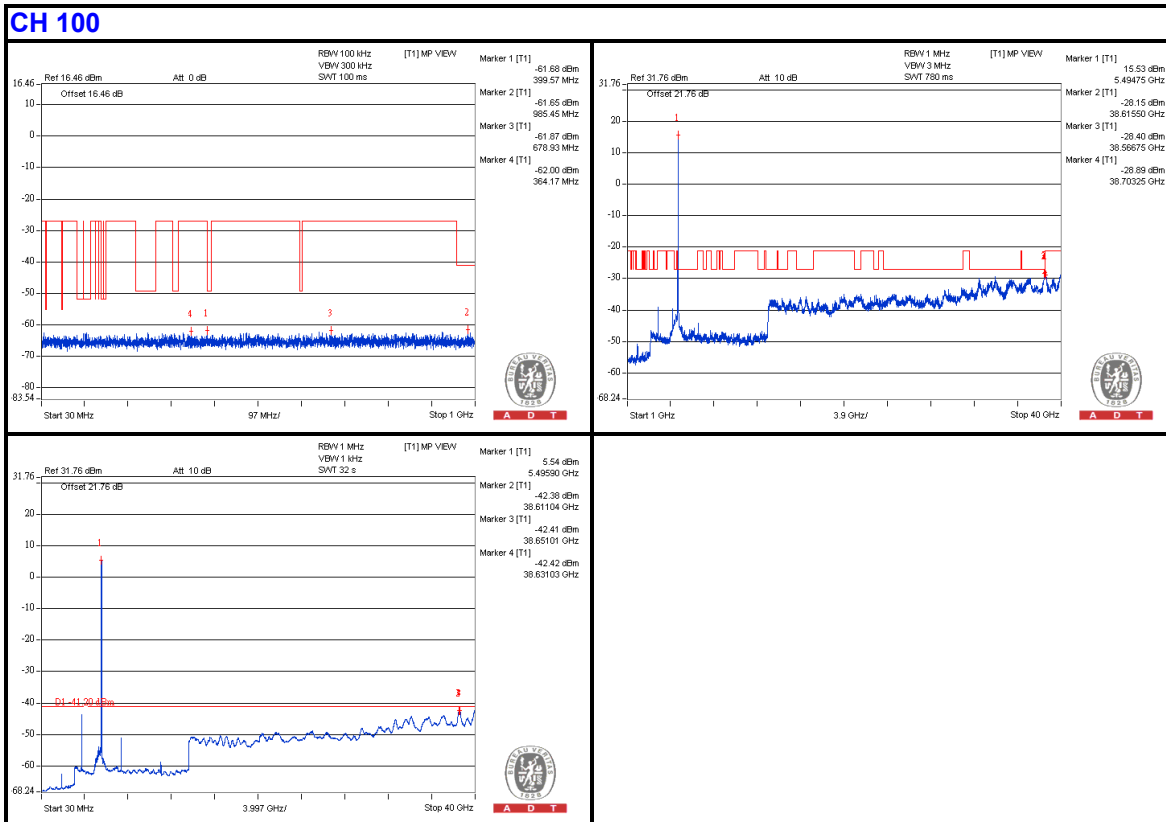


Conducted emission(Worst data is presented only.)

CH 64

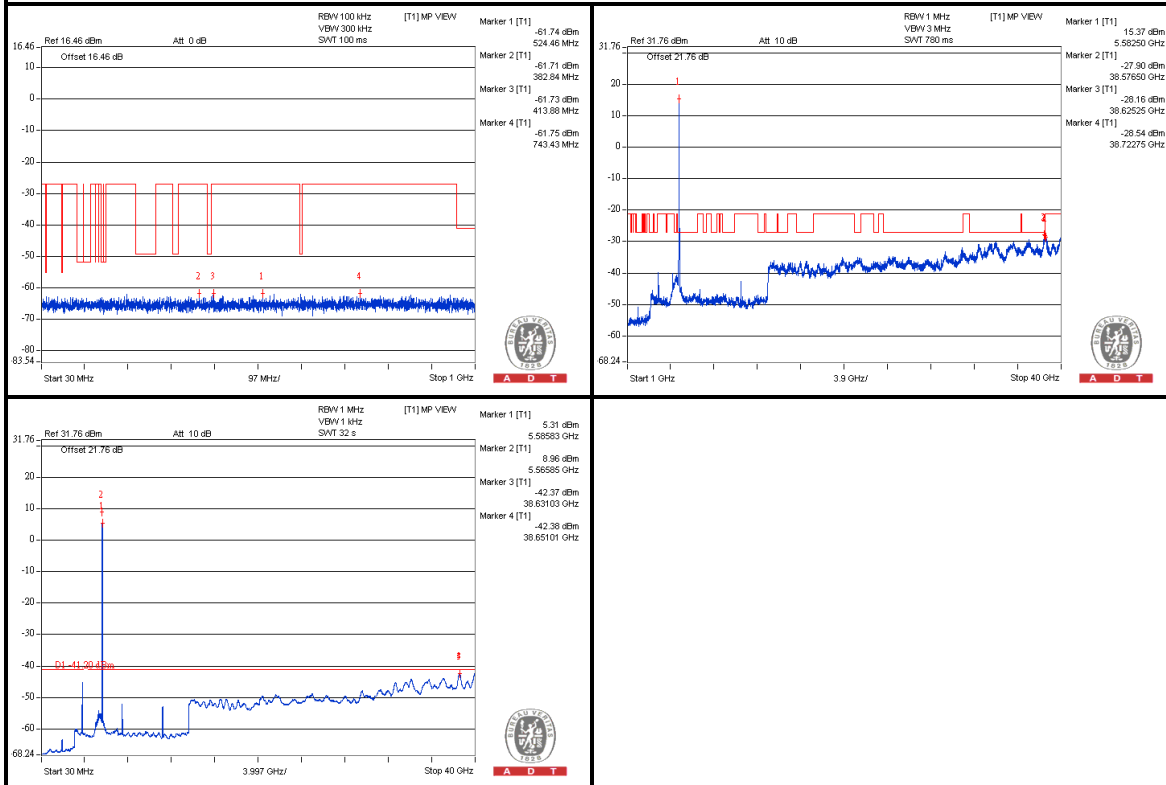


Conducted emission(Worst data is presented only.)



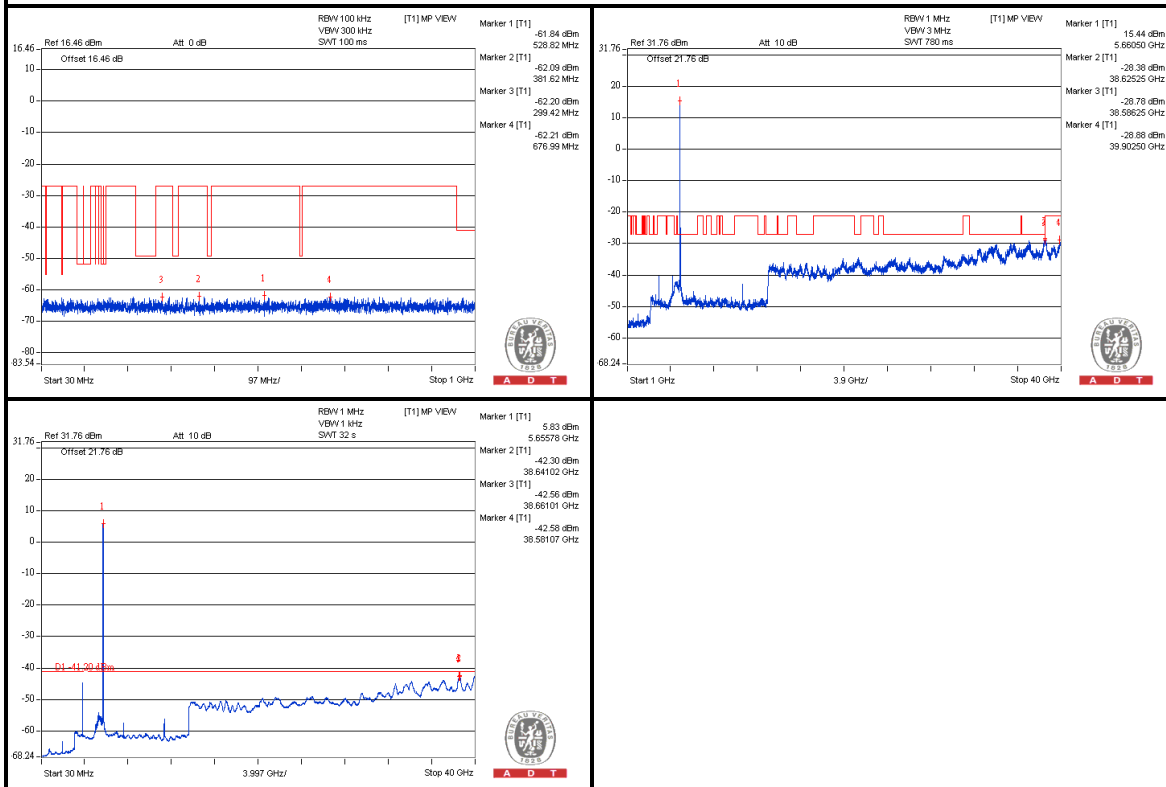
Conducted emission(Worst data is presented only.)

CH 116



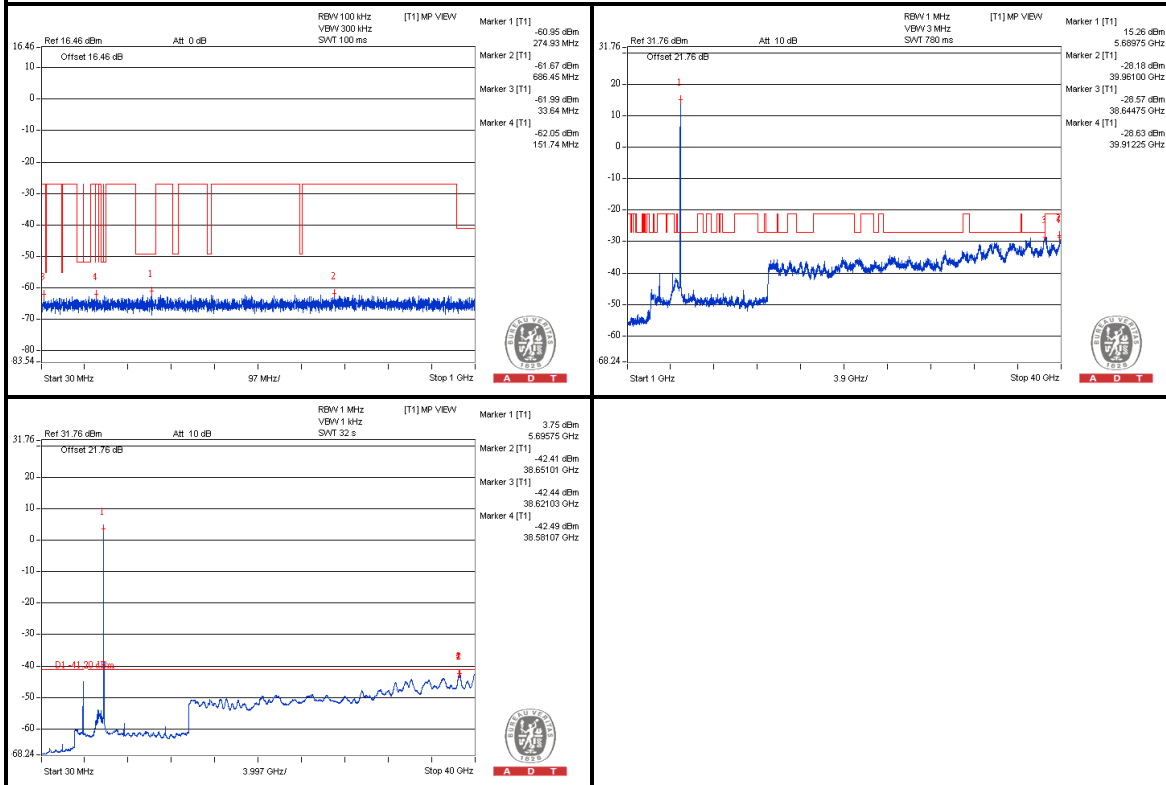
Conducted emission(Worst data is presented only.)

CH 132



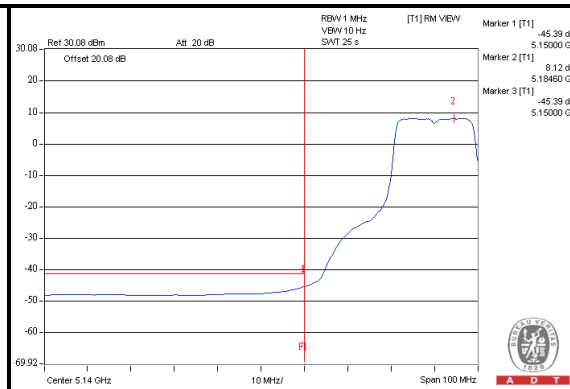
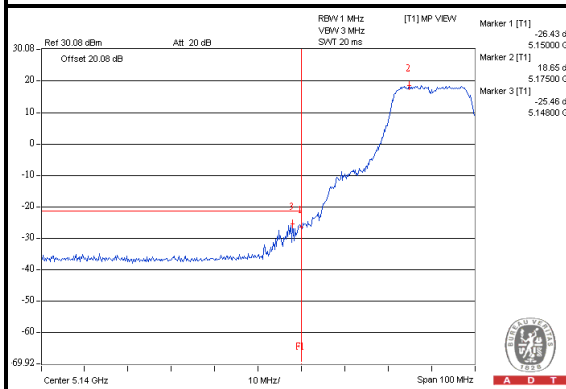
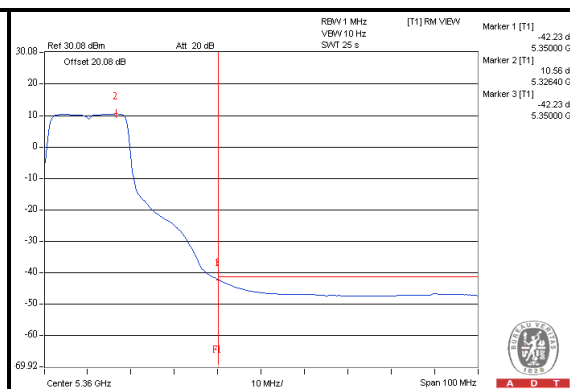
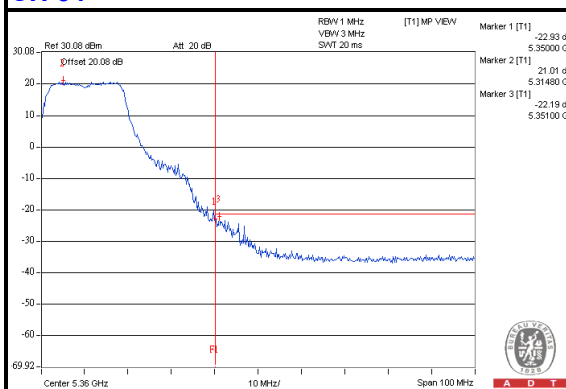
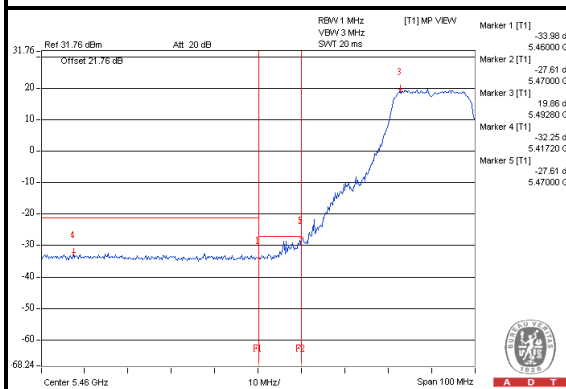
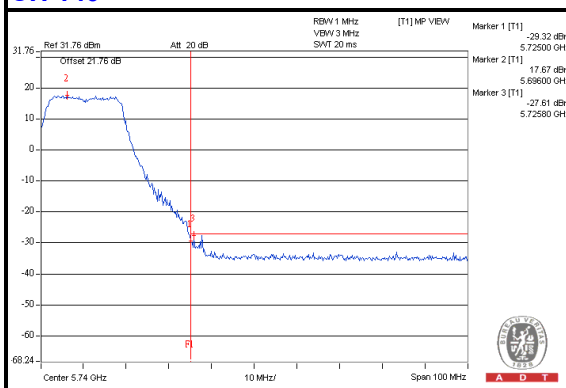
Conducted emission(Worst data is presented only.)

CH 140





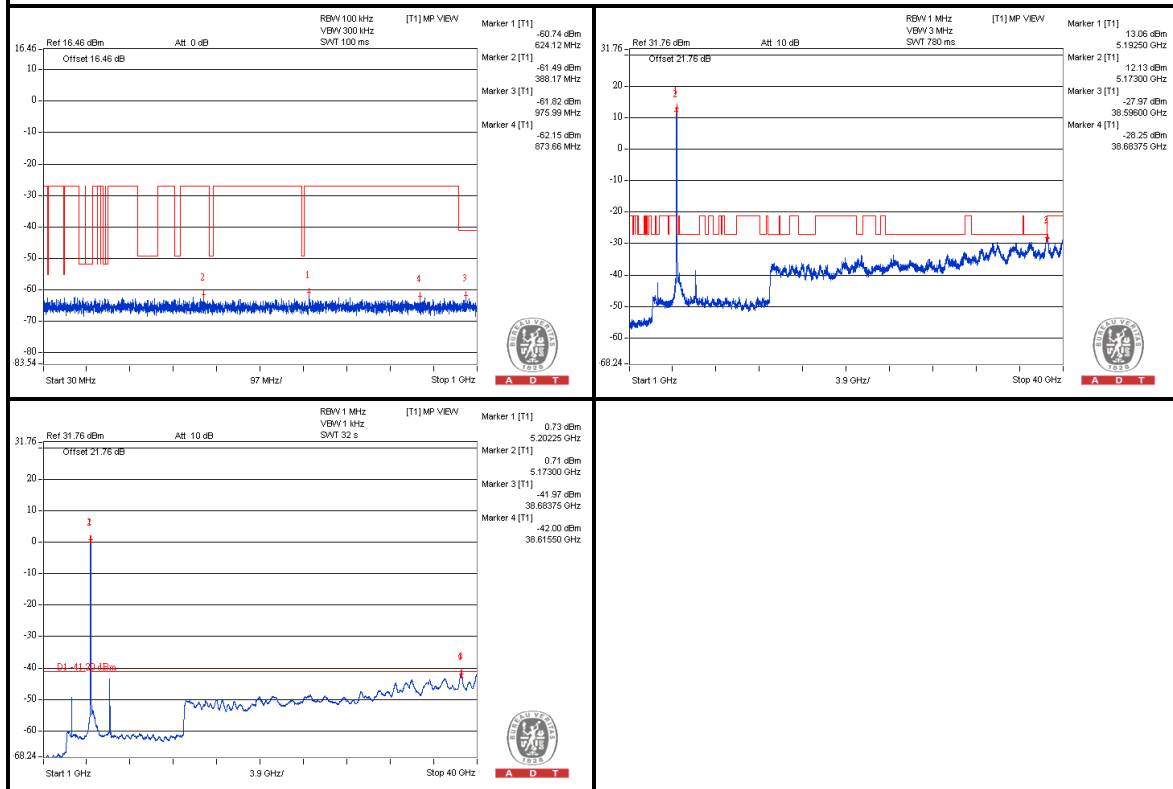
A D T

Band Edges(Worst data is presented only.)**CH 36****CH 64****CH 100****CH 140**

802.11n (40MHz)

Conducted emission (Worst data is presented only.)

CH 38

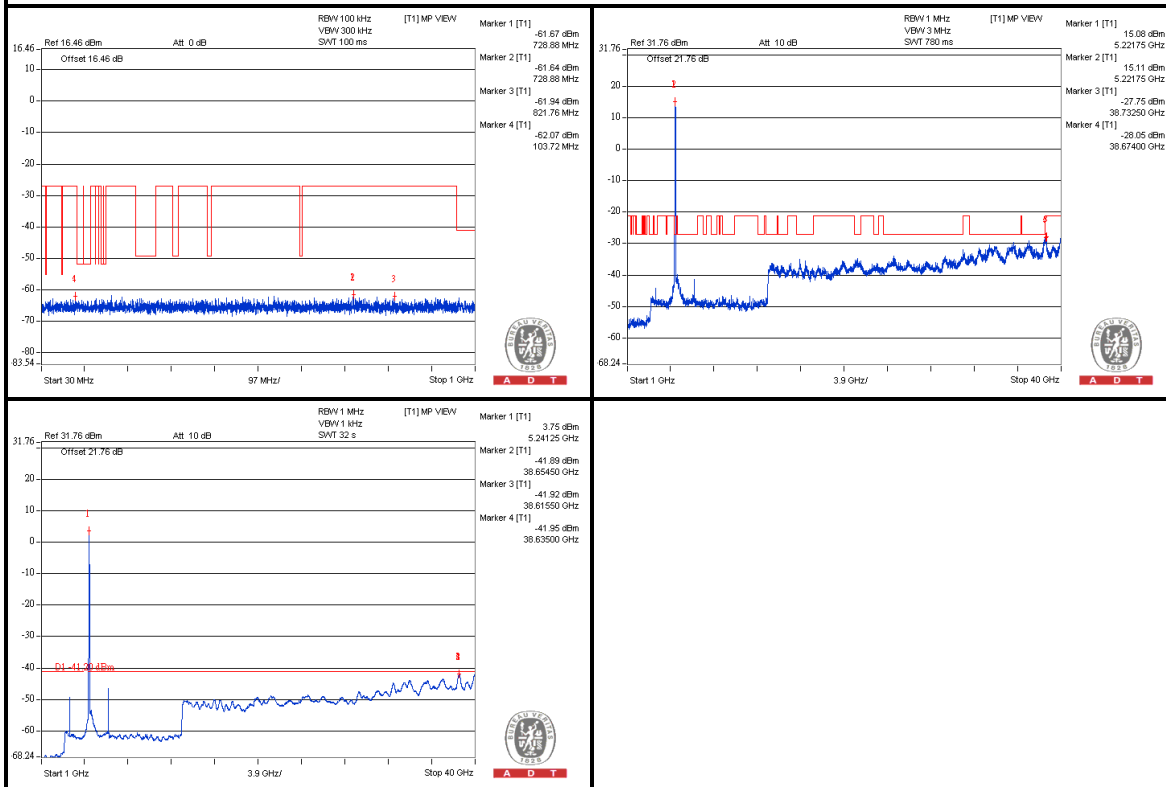




A D T

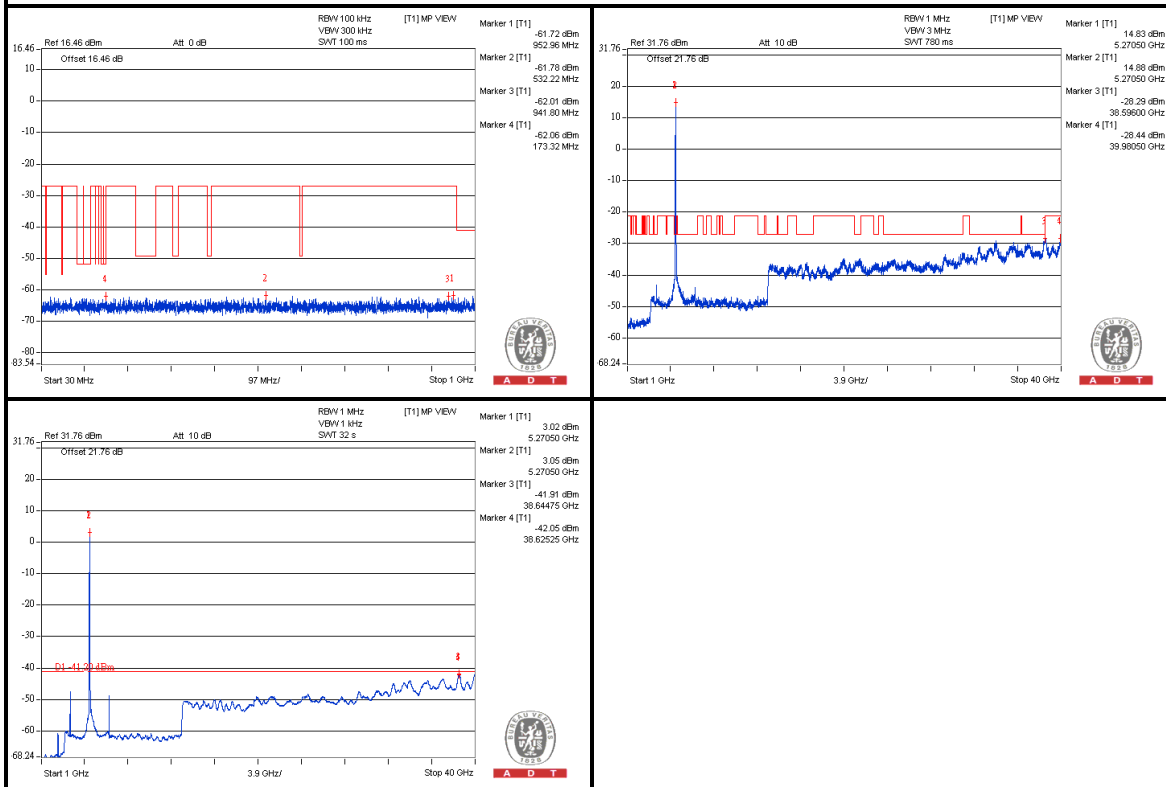
Conducted emission(Worst data is presented only.)

CH 46



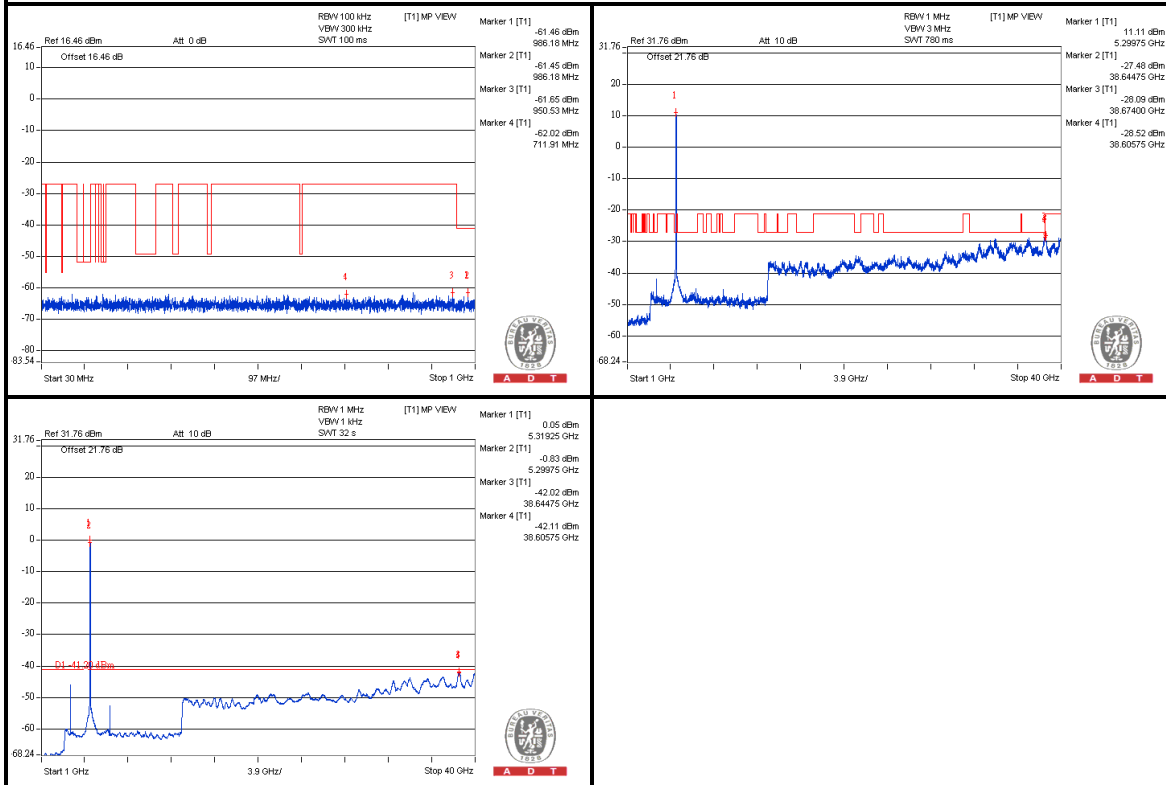
Conducted emission(Worst data is presented only.)

CH 54



Conducted emission(Worst data is presented only.)

CH 62

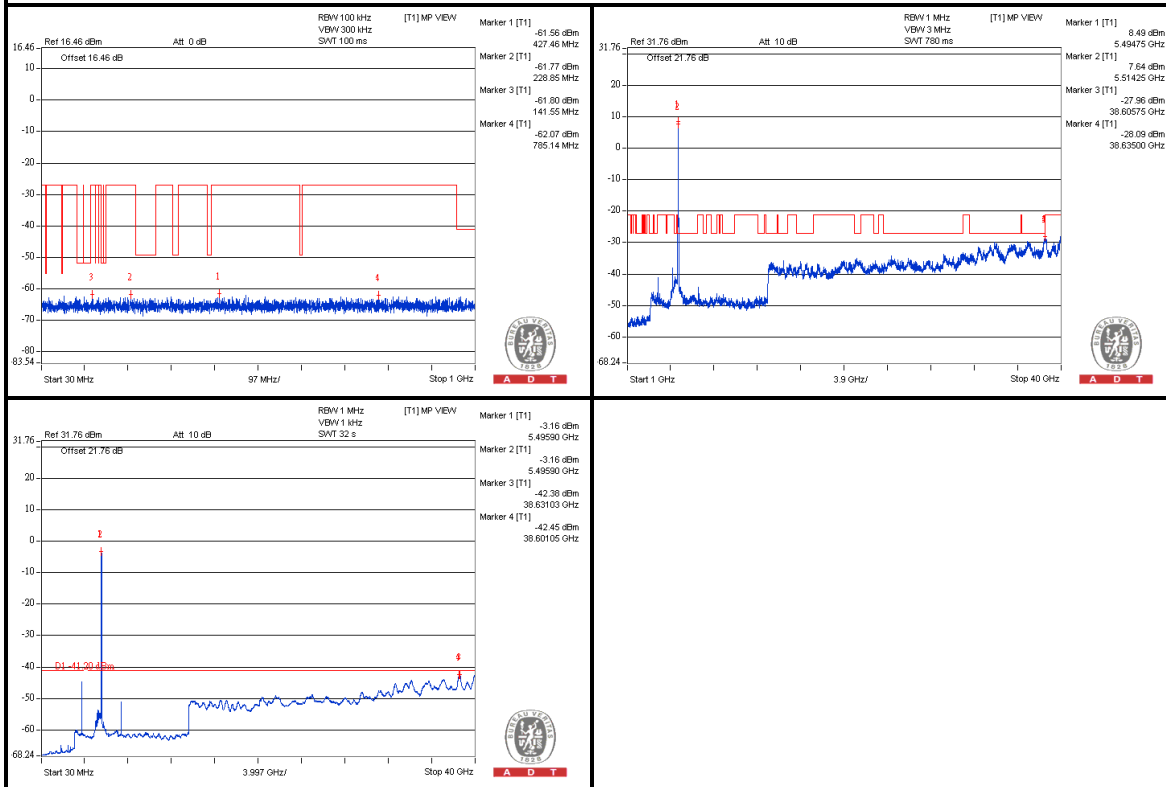




A D T

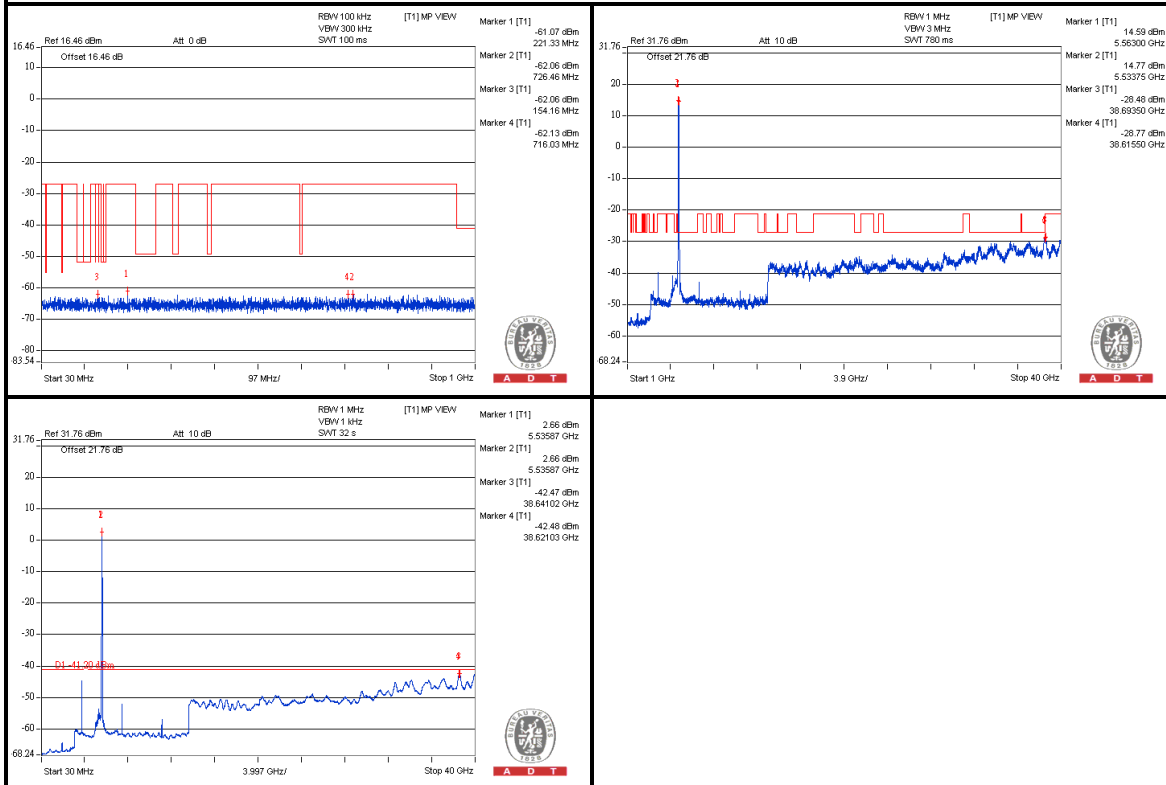
Conducted emission(Worst data is presented only.)

CH 102



Conducted emission(Worst data is presented only.)

CH 110

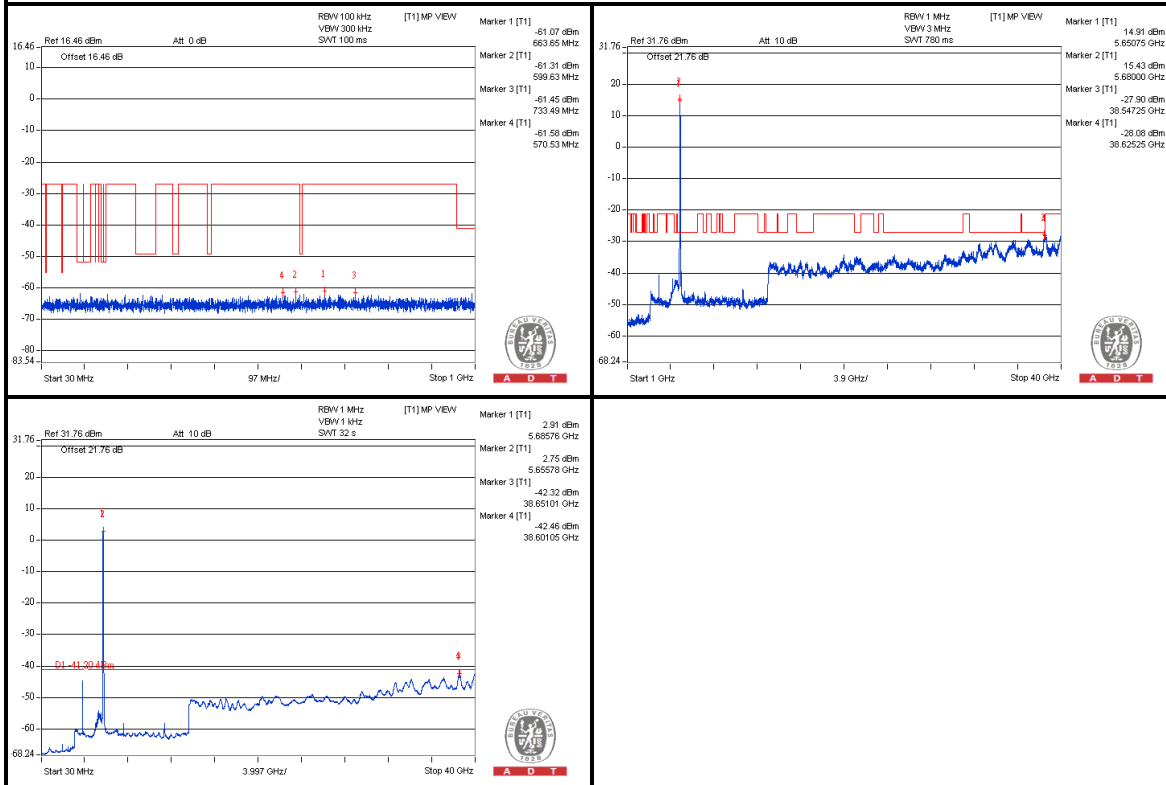




A D T

Conducted emission(Worst data is presented only.)

CH 134

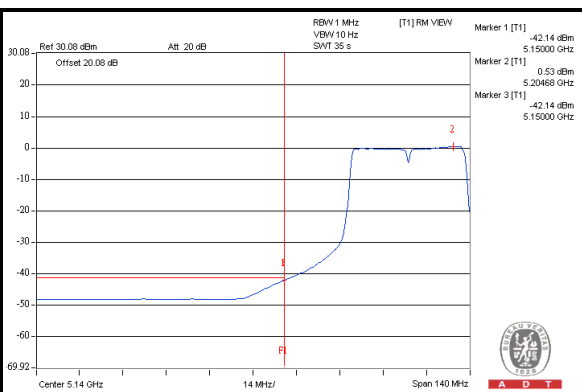
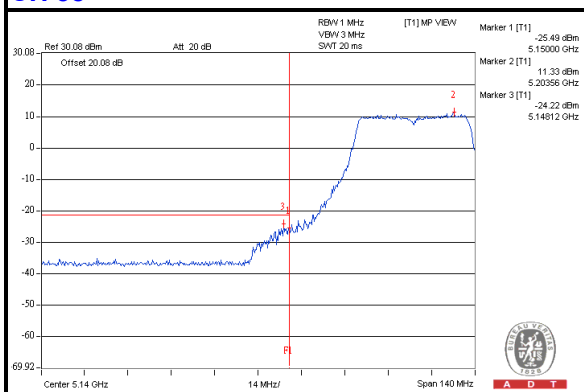




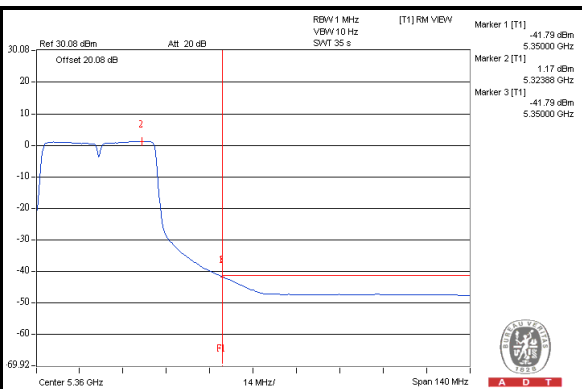
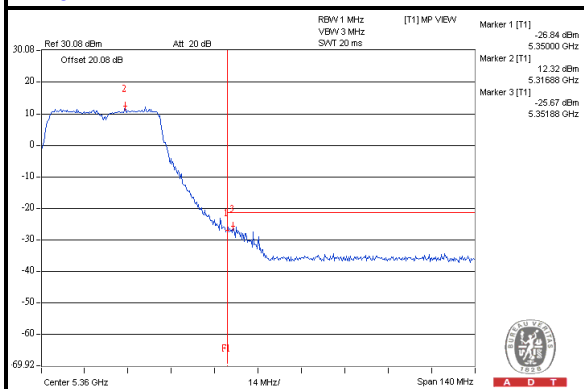
A D T

Band Edges(Worst data is presented only.)

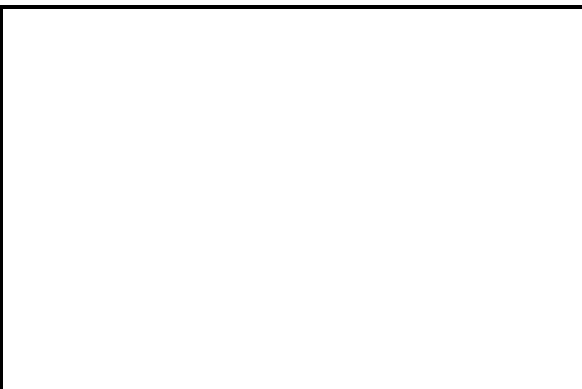
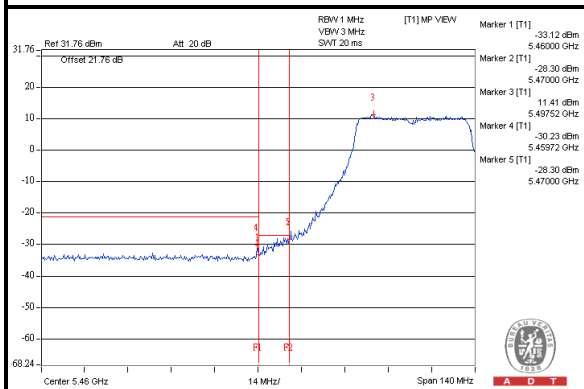
CH 38



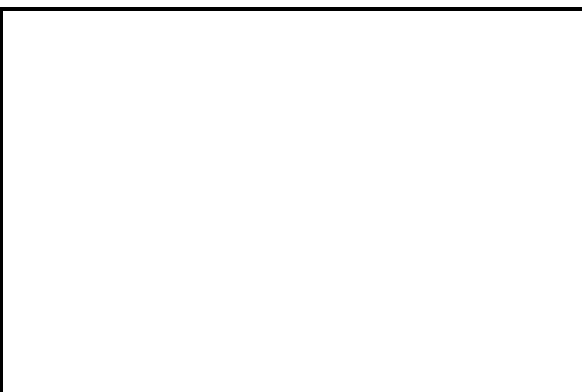
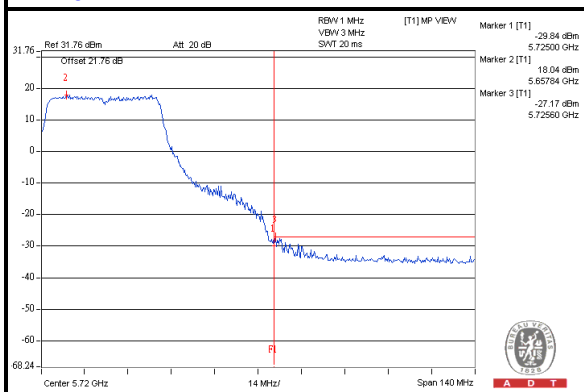
CH 62



CH 102



CH 134



4.3 TRANSMIT POWER MEASUREMENT

4.3.1 LIMITS OF OUTPUT TRANSMIT POWER MEASUREMENT

Frequency Band	Limit
5.15 – 5.25GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.25 – 5.35GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.47 – 5.725GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.725 – 5.825GHz	The lesser of 1W (30dBm) or 17dBm + 10logB

NOTE: Where B is the 26dB emission bandwidth in MHz.

4.3.2 TEST INSTRUMENTS

FOR POWER OUTPUT MEASUREMENT

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power Meter	ML2495A	0824006	May 04, 2011	May 03, 2012
Average Power Sensor	MA2411B	0738172	May 03, 2011	May 02, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Apr. 12, 2012

FOR 26dB OCCUPIED BANDWIDTH

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Apr. 12, 2012

4.3.3 TEST PROCEDURE

FOR AVERAGE POWER MEASUREMENT

An average power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power sensor. Record the power level.

FOR 26dB BANDWIDTH

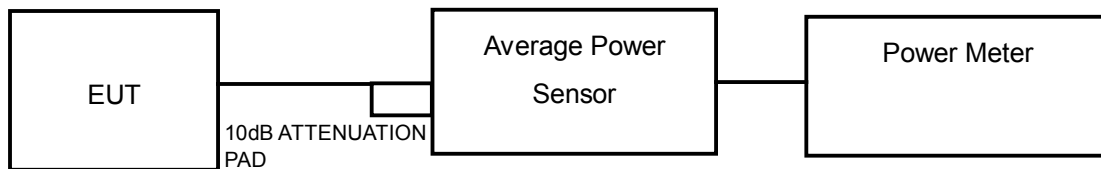
- 1) Set RBW = approximately 1% of the emission bandwidth.
- 2) Set the VBW > RBW.
- 3) Detector = Peak.
- 4) Trace mode = max hold.
- 5) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

4.3.4 DEVIATION FROM TEST STANDARD

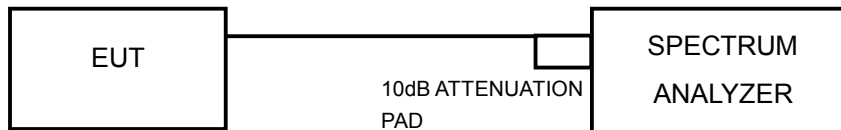
No deviation

4.3.5 TEST SETUP

FOR POWER OUTPUT MEASUREMENT



FOR 26dB OCCUPIED BANDWIDTH



4.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

4.3.7 TEST RESULTS

POWER OUTPUT

Single chain - 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	28.840	14.60	17	PASS
40	5200	30.200	14.80	17	PASS
48	5240	28.840	14.60	17	PASS
52	5260	52.481	17.20	24	PASS
60	5300	52.481	17.20	24	PASS
64	5320	52.481	17.20	24	PASS
100	5500	30.200	14.80	24	PASS
116	5580	52.481	17.20	24	PASS
132	5660	52.481	17.20	24	PASS
140	5700	25.119	14.00	24	PASS

Note: For Industry Canada output power limitation is determined based on 99% bandwidth.

a.5150~5250MHz: 16.3dBm

b.5250~5350MHz and 5470~5725MHz: 23.3dBm



A D T

POWER OUTPUT

Multiple chain - 802.11a

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	10.00	11.70	24.791	13.94	16.91	PASS
40	5200	10.30	11.50	24.840	13.95	16.91	PASS
48	5240	11.30	11.60	27.944	14.46	16.91	PASS
52	5260	14.10	14.00	50.823	17.06	23.91	PASS
60	5300	14.10	14.00	50.823	17.06	23.91	PASS
64	5320	14.00	14.00	50.238	17.01	23.91	PASS
100	5500	12.80	12.50	36.838	15.66	22.23	PASS
116	5580	14.10	14.10	51.408	17.11	22.23	PASS
132	5660	14.10	14.20	52.007	17.16	22.23	PASS
140	5700	11.60	10.10	24.687	13.92	22.23	PASS

For Operated in 5150MHz ~ 5250MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 6.09

The effective legacy gain is 6.09dBi, therefore the limit needs to reduce.

For Operated in 5250MHz ~ 5350MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 6.09

The effective legacy gain is 6.09dBi, therefore the limit needs to reduce.

For Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 7.77

The effective legacy gain is 7.77dBi, therefore the limit needs to reduce.

Note: For Industry Canada output power limitation is determined based on 99% bandwidth.

a. 5150~5250MHz: 16.21dBm

b. 5250~5350MHz: 23.21dBm

c. 5470~5725MHz: 21.53dBm

POWER OUTPUT

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	10.10	11.70	25.024	13.98	16.91	PASS
40	5200	10.60	11.90	26.970	14.31	16.91	PASS
48	5240	12.00	11.90	31.337	14.96	16.91	PASS
52	5260	13.20	13.10	41.310	16.16	23.91	PASS
60	5300	13.10	13.20	41.310	16.16	23.91	PASS
64	5320	13.30	13.20	42.273	16.26	23.91	PASS
100	5500	12.90	12.70	38.119	15.81	22.23	PASS
116	5580	13.40	13.00	41.831	16.21	22.23	PASS
132	5660	13.30	13.10	41.797	16.21	22.23	PASS
140	5700	11.70	10.60	26.273	14.20	22.23	PASS

For Operated in 5150MHz ~ 5250MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 6.09

The effective legacy gain is 6.09dBi, therefore the limit needs to reduce.

For Operated in 5250MHz ~ 5350MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 6.09

The effective legacy gain is 6.09dBi, therefore the limit needs to reduce.

For Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 7.77

The effective legacy gain is 7.77dBi, therefore the limit needs to reduce.

Note: For Industry Canada output power limitation is determined based on 99% bandwidth.

a. 5150~5250MHz: 16.21dBm

b. 5250~5350MHz: 23.21dBm

c. 5470~5725MHz: 21.53dBm

POWER OUTPUT

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	11.80	10.70	26.885	14.30	16.91	PASS
46	5230	13.00	13.50	42.340	16.27	16.91	PASS
54	5270	13.20	13.10	41.310	16.16	23.91	PASS
62	5310	10.30	10.00	20.715	13.16	23.91	PASS
102	5510	6.90	7.10	10.027	10.01	22.23	PASS
110	5550	13.20	13.00	40.846	16.11	22.23	PASS
134	5670	13.30	13.30	42.760	16.31	22.23	PASS

For Operated in 5150MHz ~ 5250MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 6.09

The effective legacy gain is 6.09dBi, therefore the limit needs to reduce.

For Operated in 5250MHz ~ 5350MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 6.09

The effective legacy gain is 6.09dBi, therefore the limit needs to reduce.

For Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 7.77

The effective legacy gain is 7.77dBi, therefore the limit needs to reduce.

Note: For Industry Canada output power limitation is determined based on 99% bandwidth.

a. 5150~5250MHz: 16.91dBm

b. 5250~5350MHz: 23.91dBm

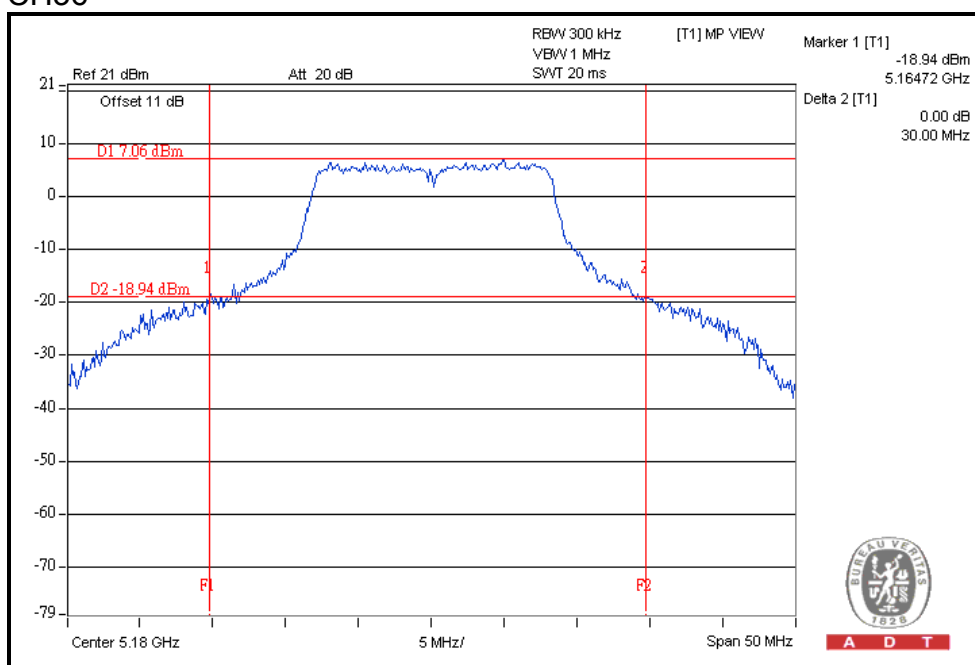
c. 5470~5725MHz: 22.23dBm

26dB OCCUPIED BANDWIDTH

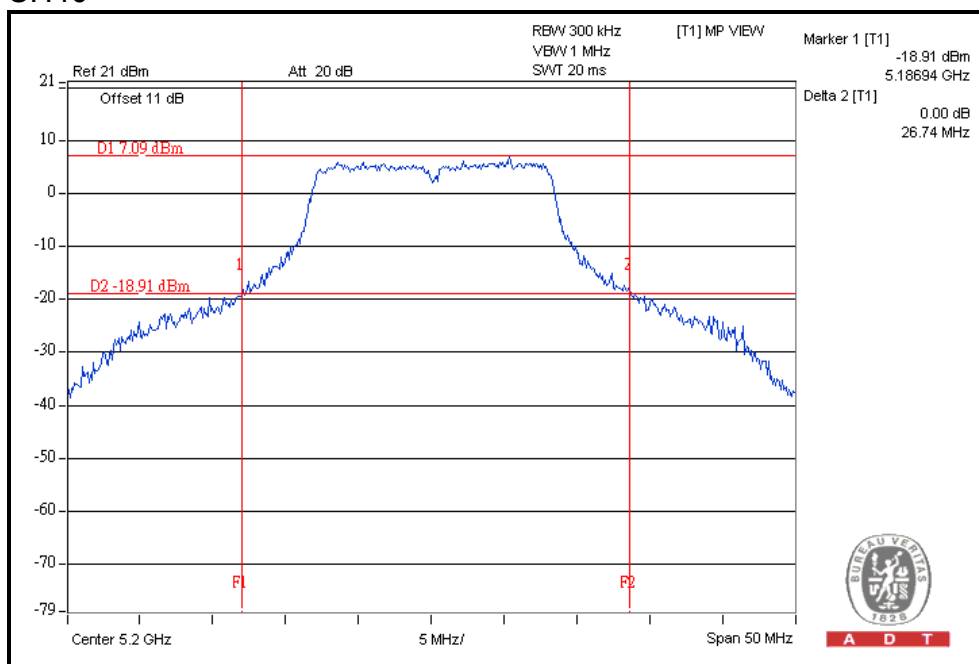
Single chain - 802.11a OFDM

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)
36	5180	30.00
40	5200	26.74
48	5240	29.15
52	5260	37.73
60	5300	37.35
64	5320	39.21
100	5500	33.74
116	5580	37.99
132	5660	37.23
140	5700	25.98

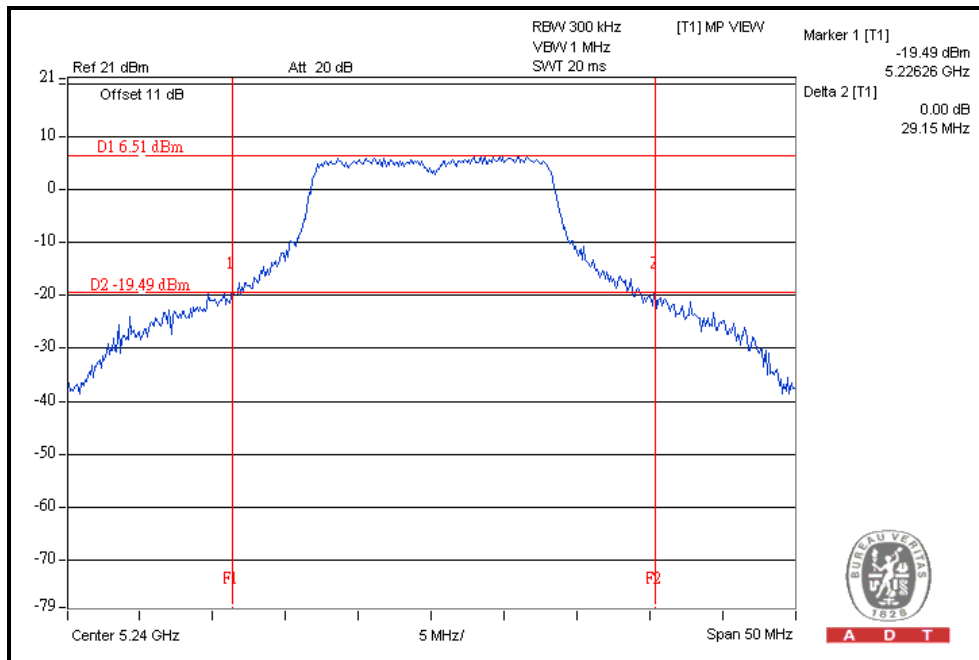
CH36



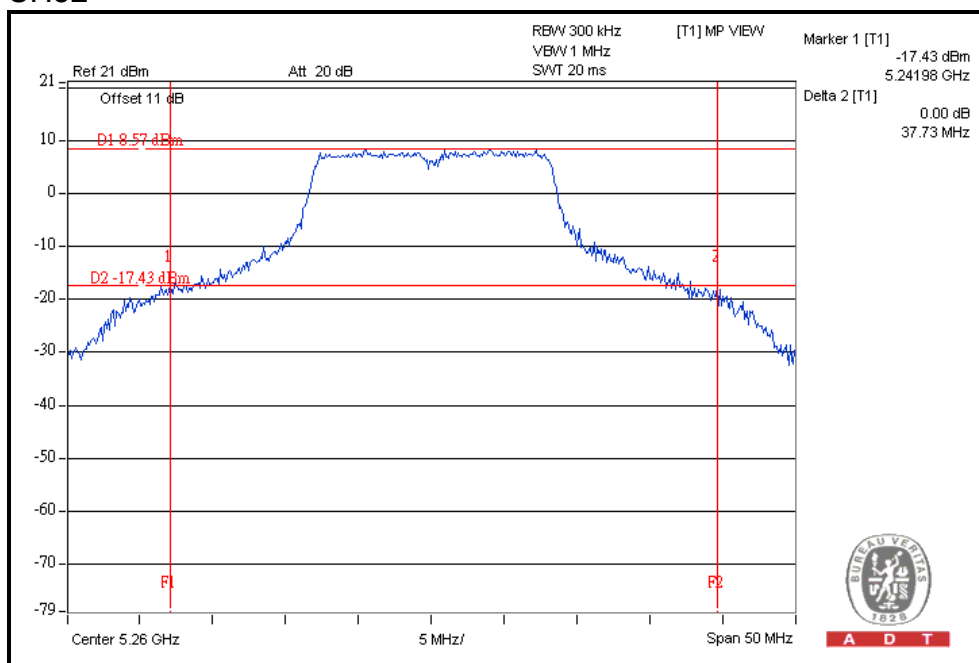
CH40



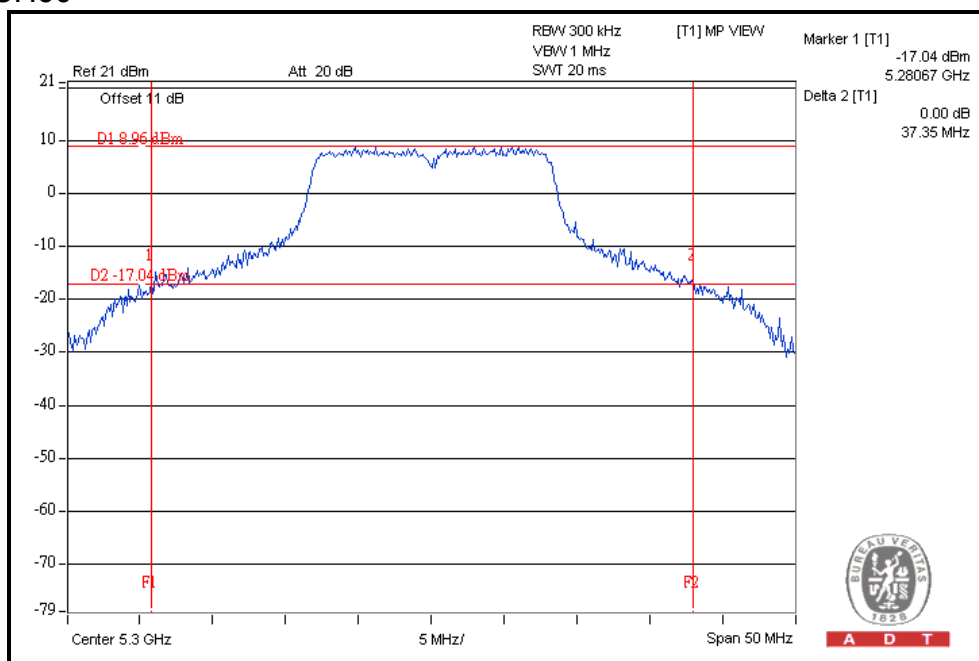
CH48



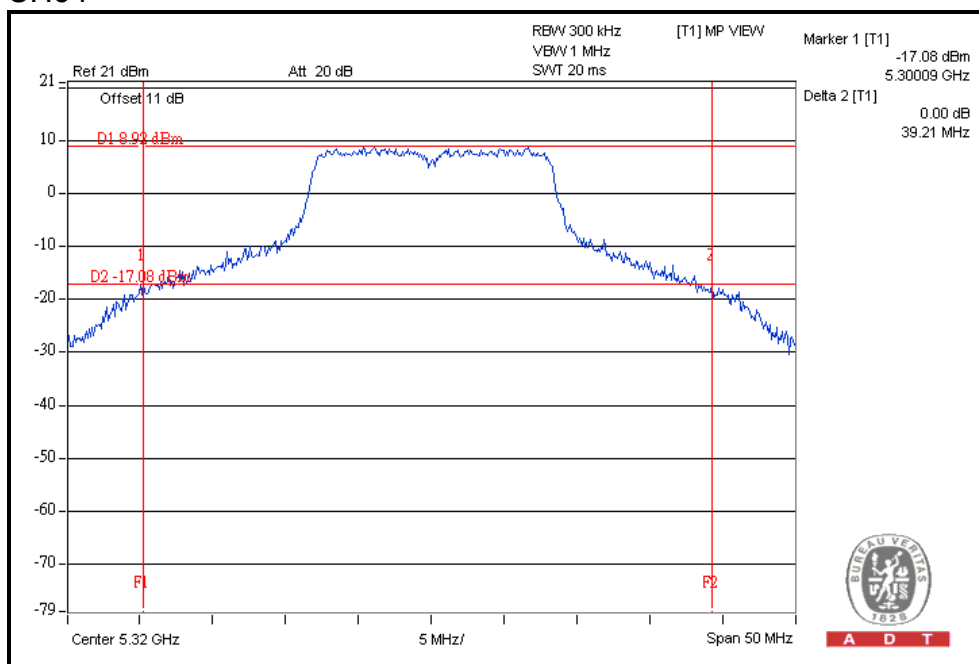
CH52



CH60

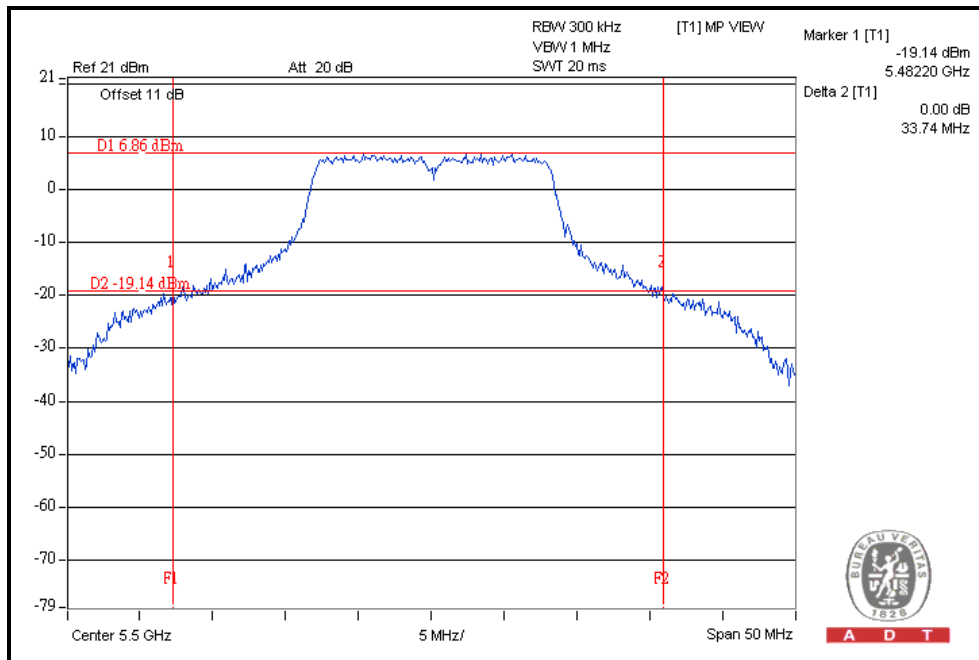


CH64



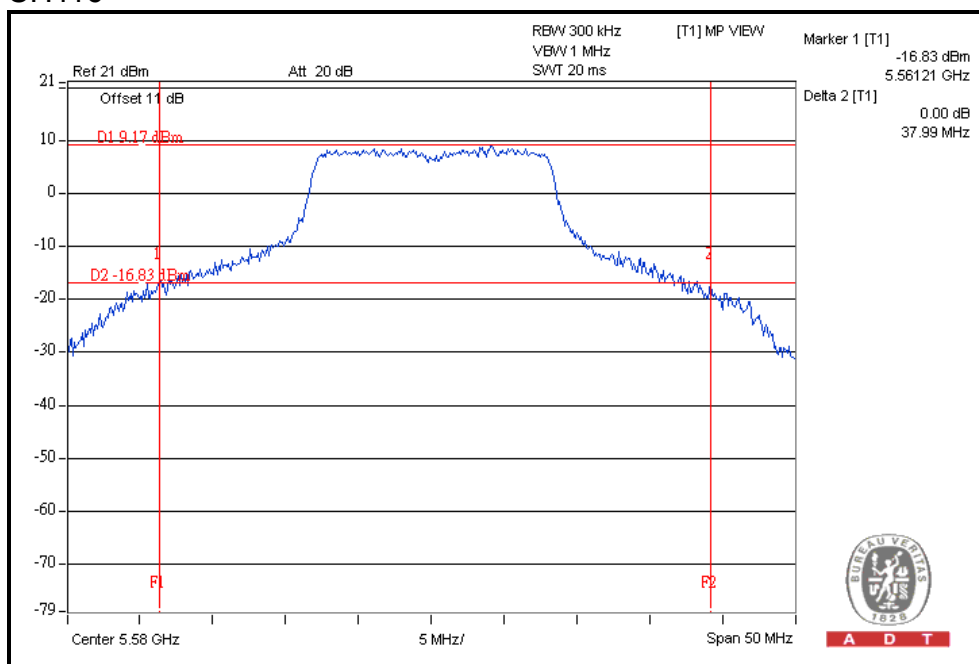
A D T

CH100

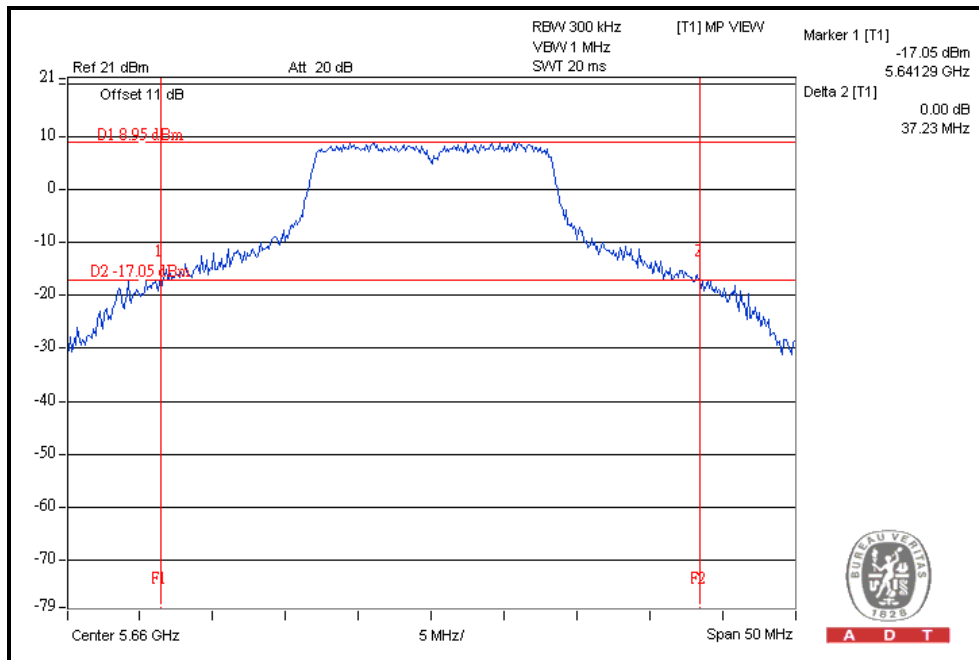


A D T

CH116



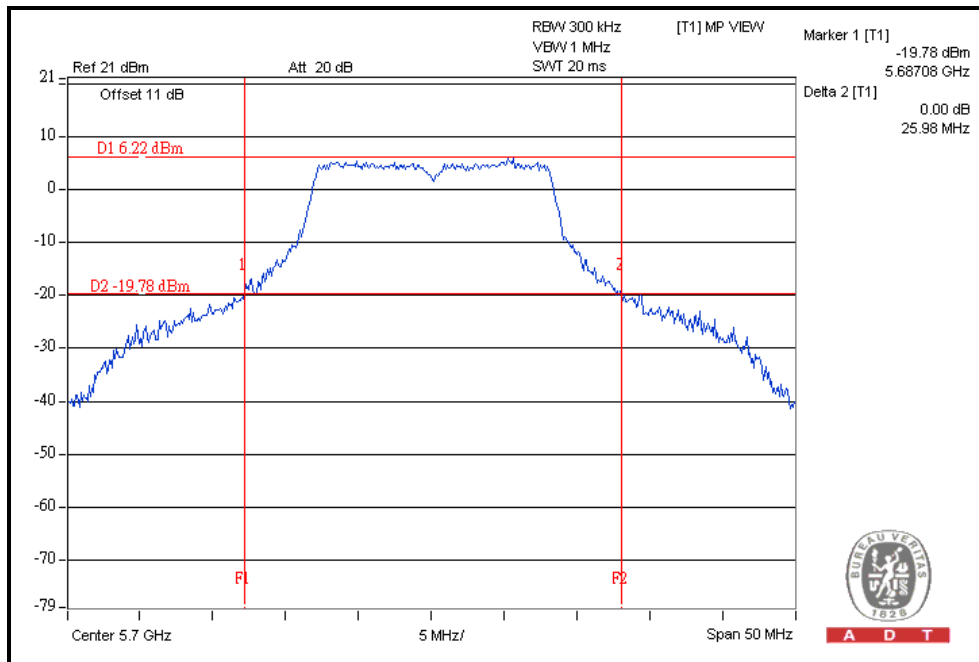
CH132





A D T

CH140



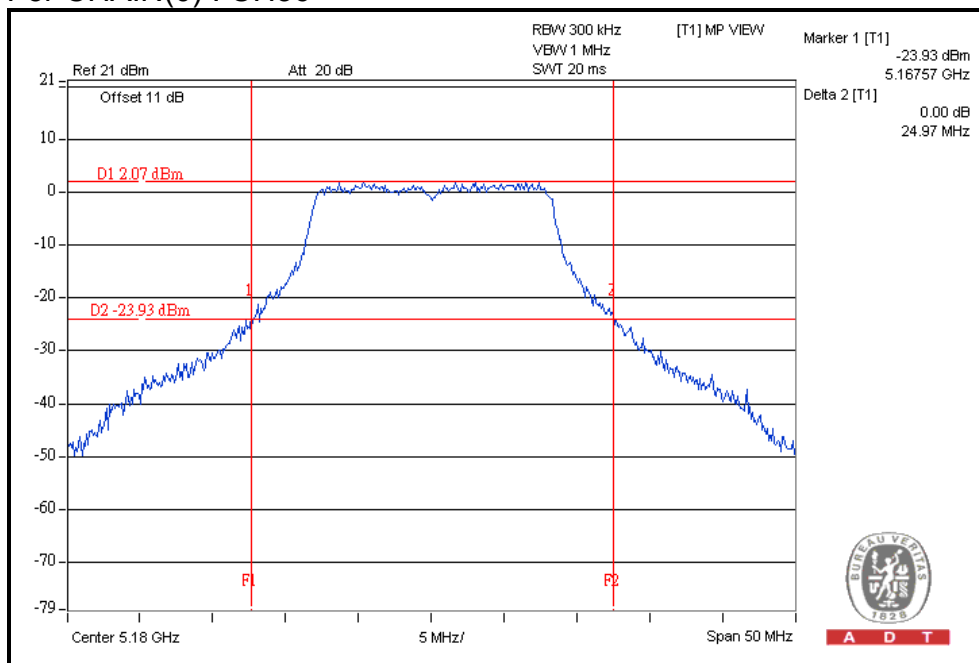
A D T

26dB OCCUPIED BANDWIDTH

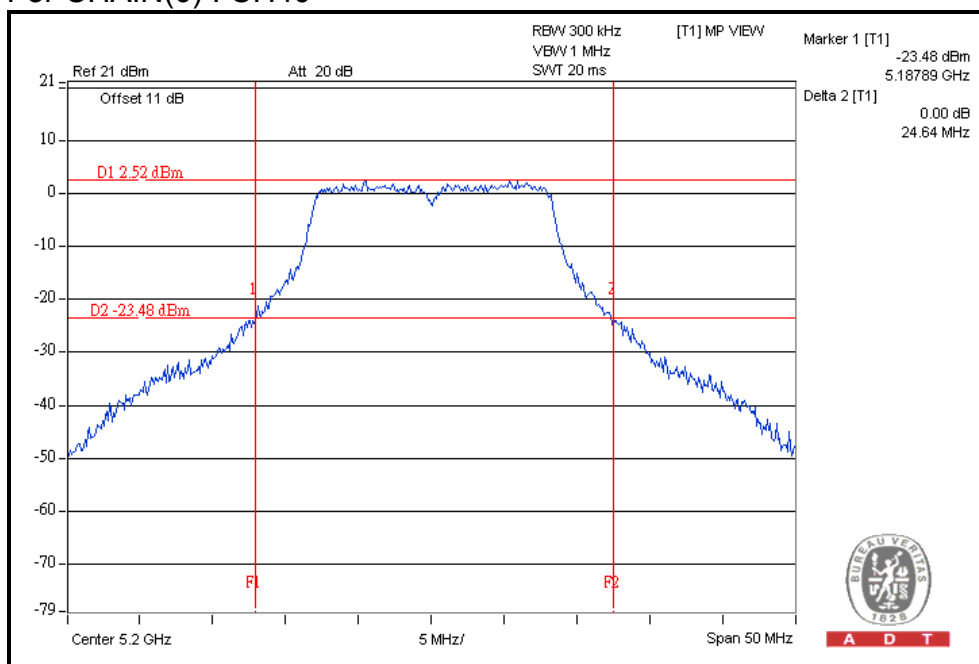
Multiple chain - 802.11a OFDM

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
36	5180	24.97	25.21
40	5200	24.64	24.78
48	5240	25.42	25.09
52	5260	27.01	29.44
60	5300	27.14	29.69
64	5320	27.63	29.74
100	5500	29.87	27.30
116	5580	36.81	31.05
132	5660	38.11	30.77
140	5700	25.74	24.57

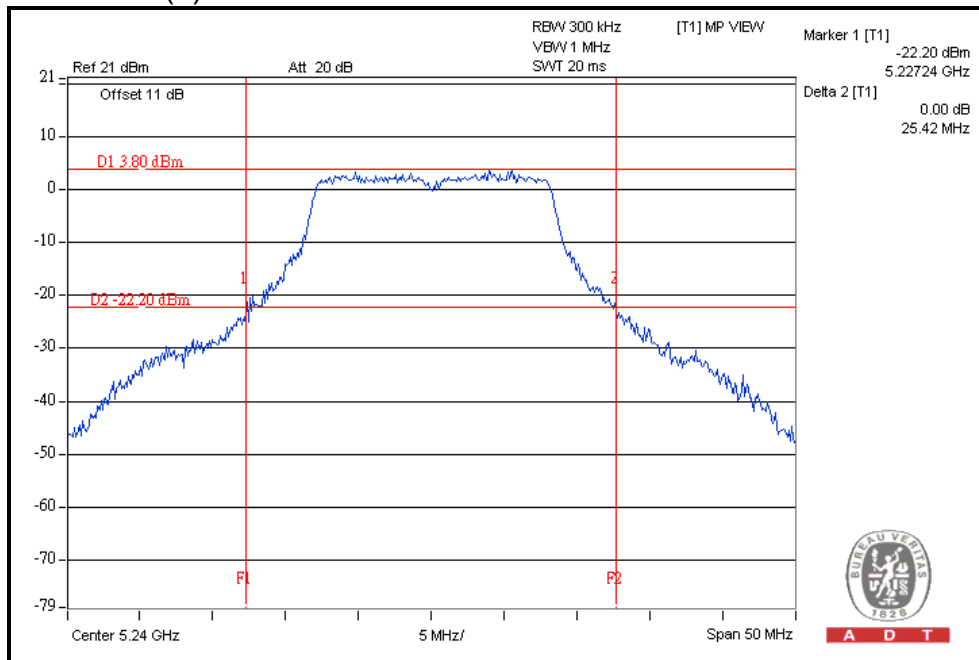
For CHAIN(0) : CH36



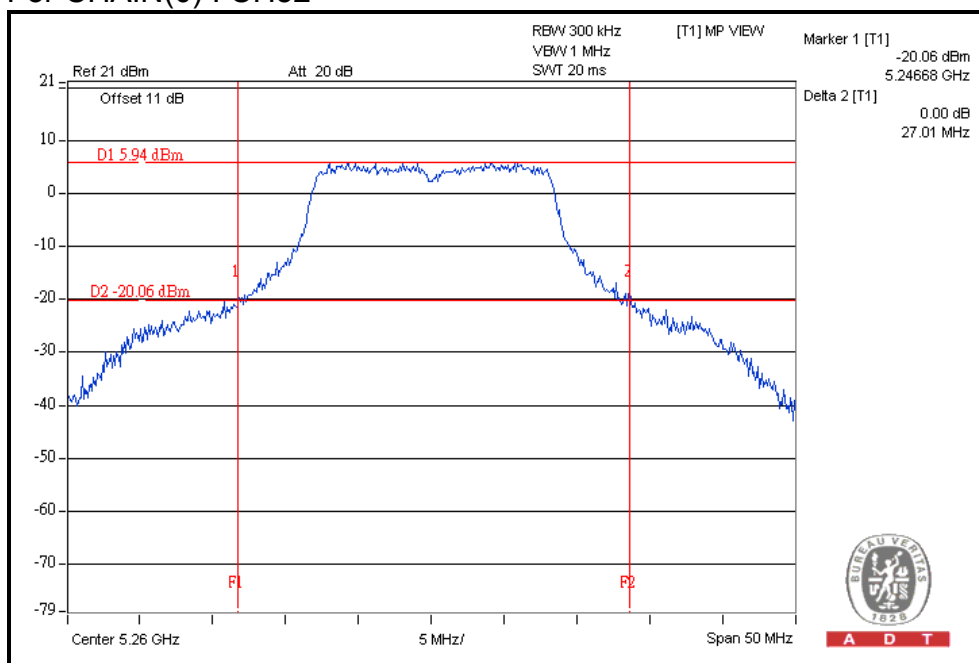
For CHAIN(0) : CH40



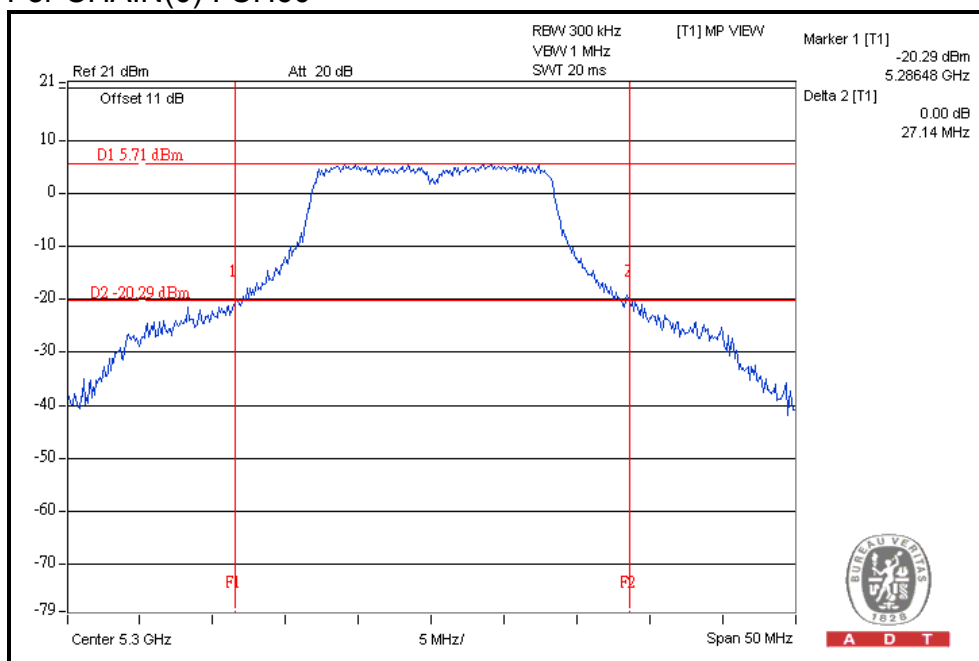
For CHAIN(0) : CH48



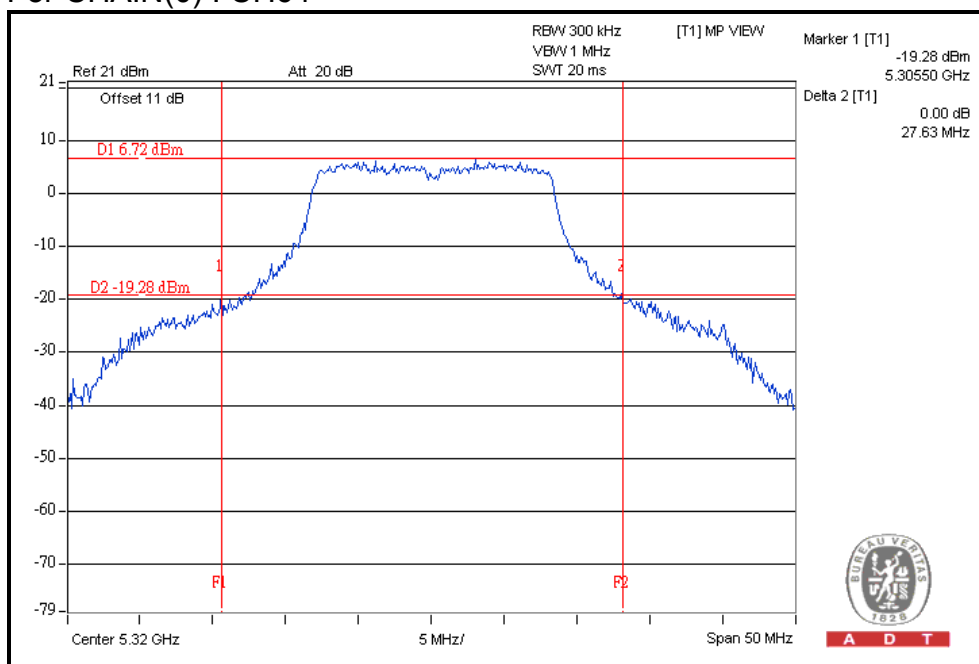
For CHAIN(0) : CH52



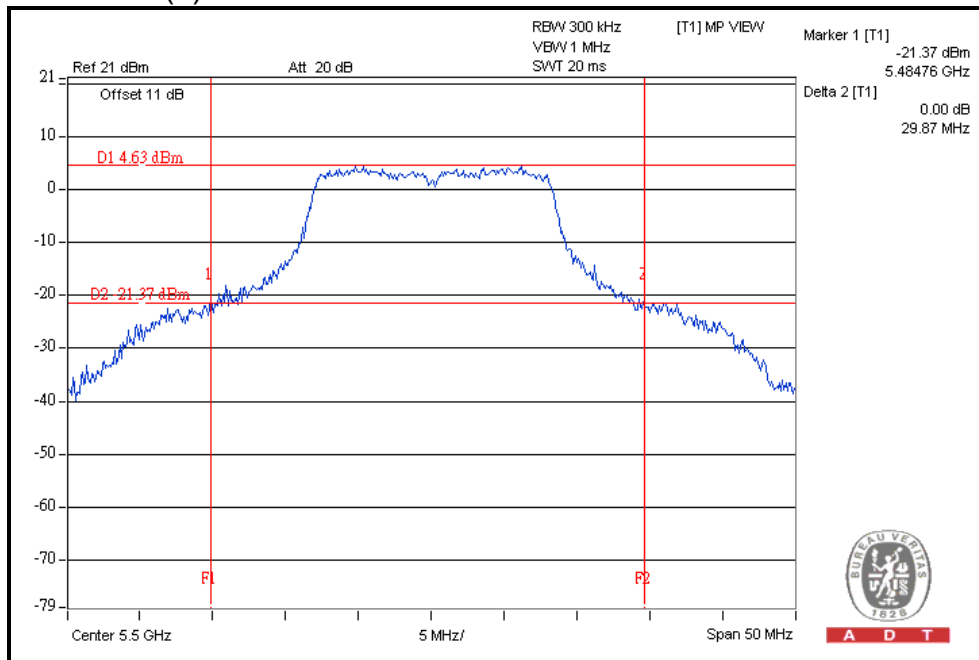
For CHAIN(0) : CH60



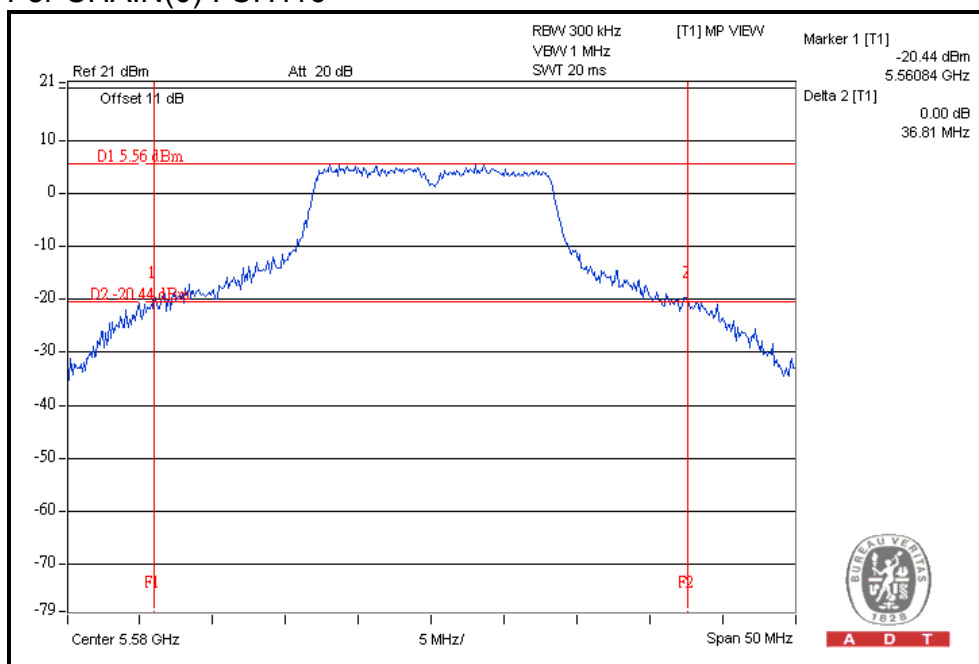
For CHAIN(0) : CH64



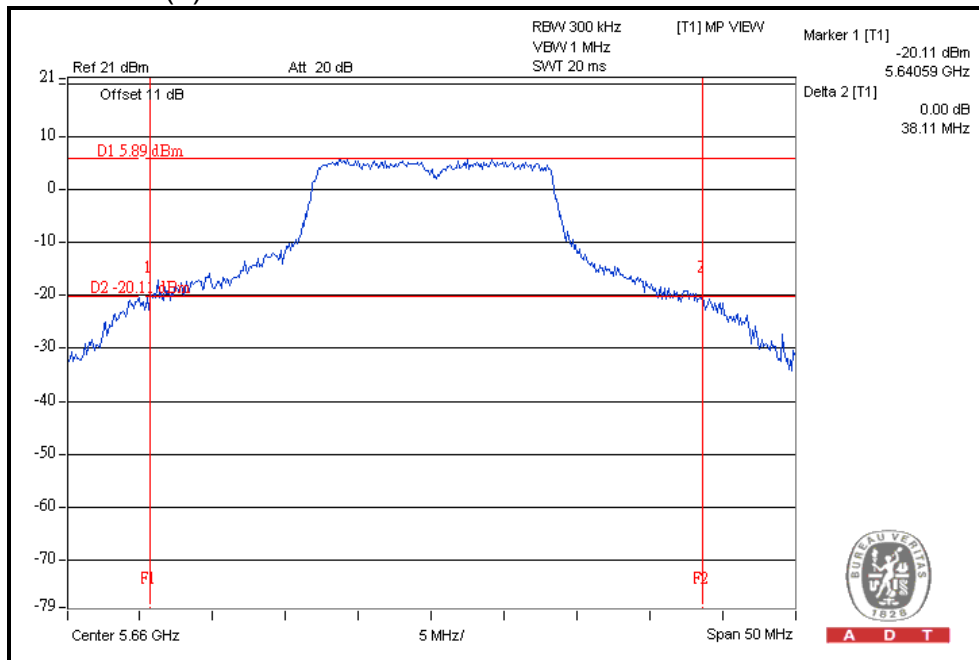
For CHAIN(0) : CH100



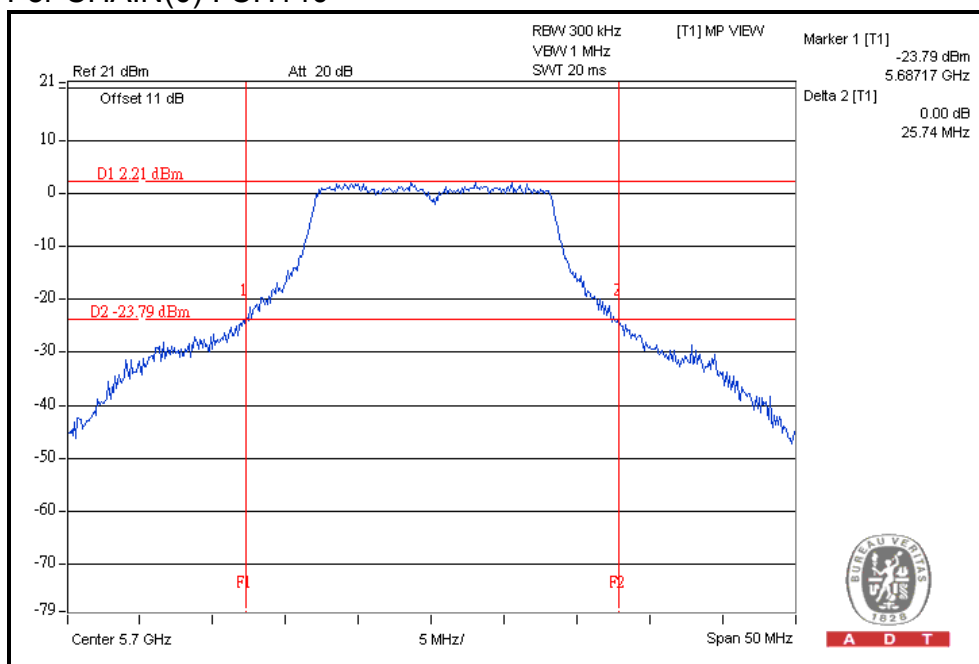
For CHAIN(0) : CH116



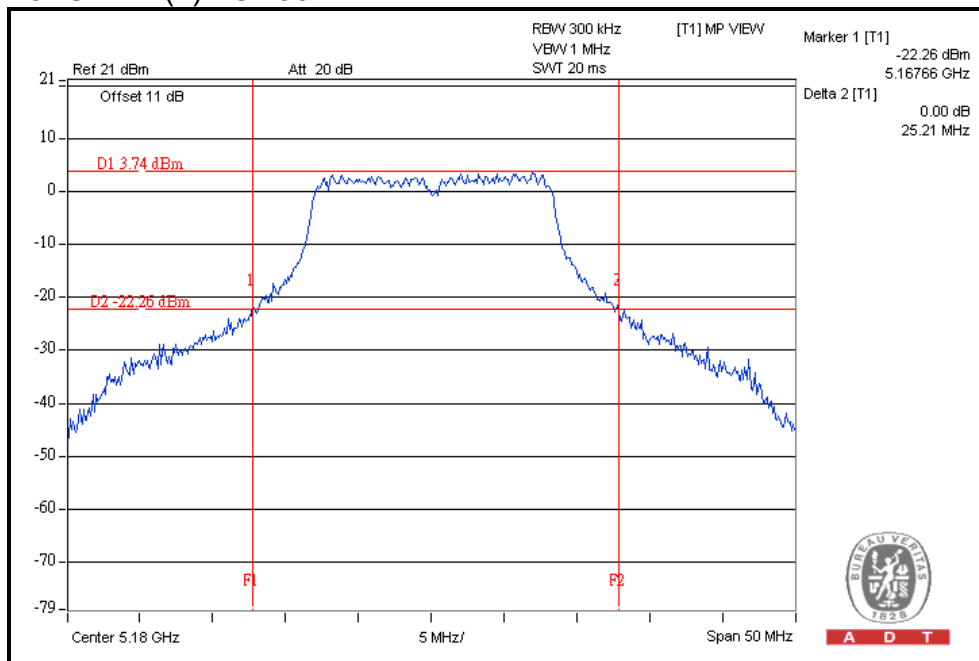
For CHAIN(0) : CH132



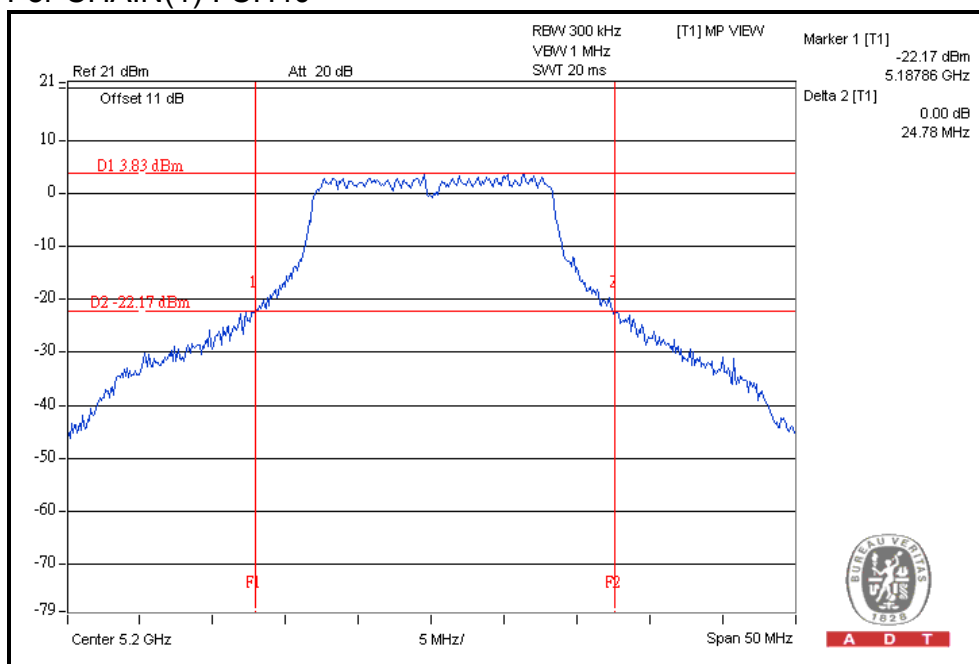
For CHAIN(0) : CH140



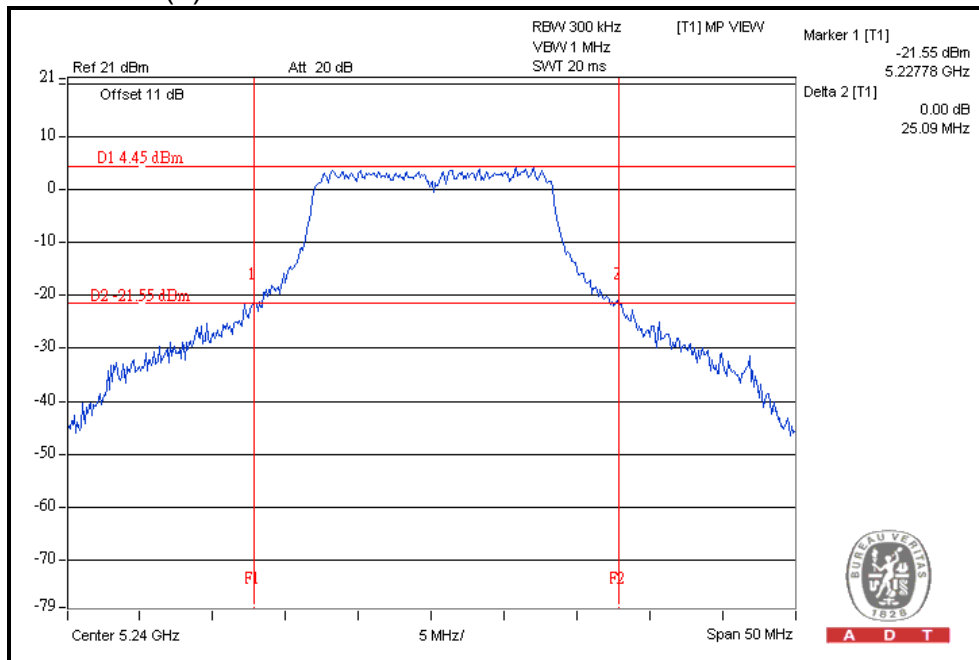
For CHAIN(1) : CH36



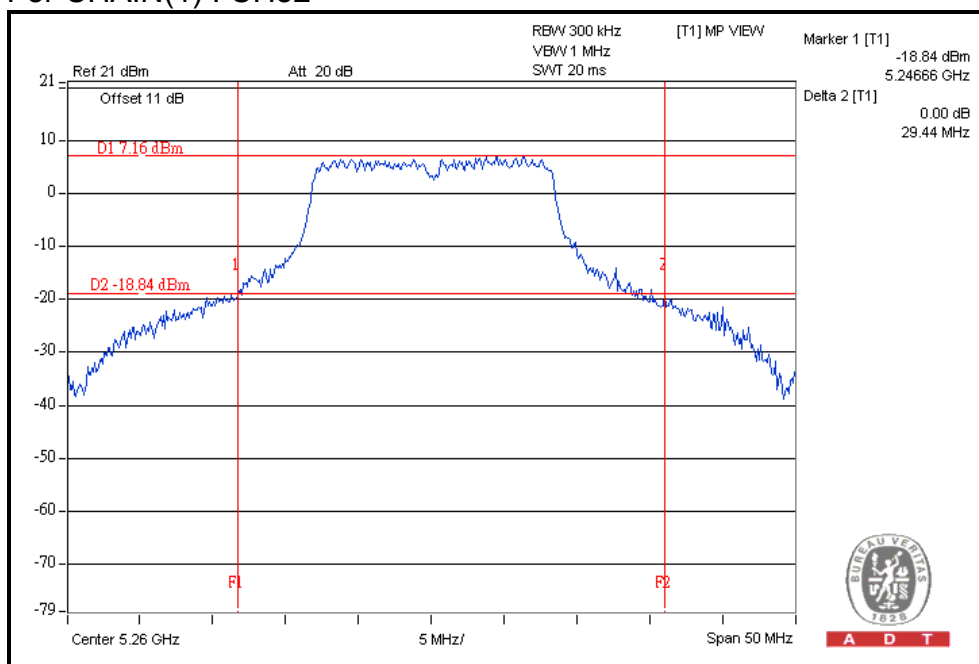
For CHAIN(1) : CH40



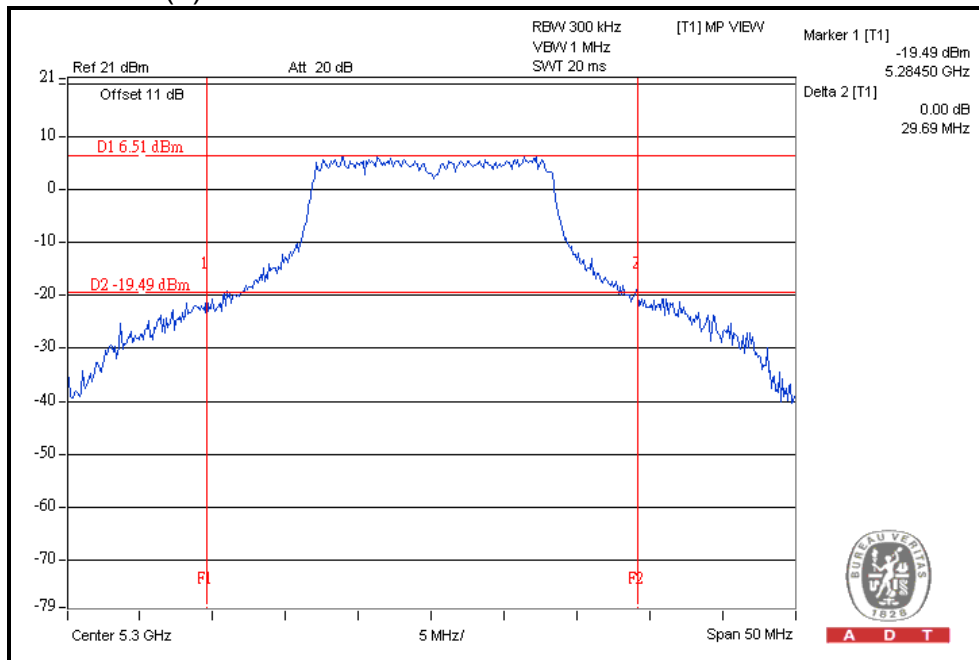
For CHAIN(1) : CH48



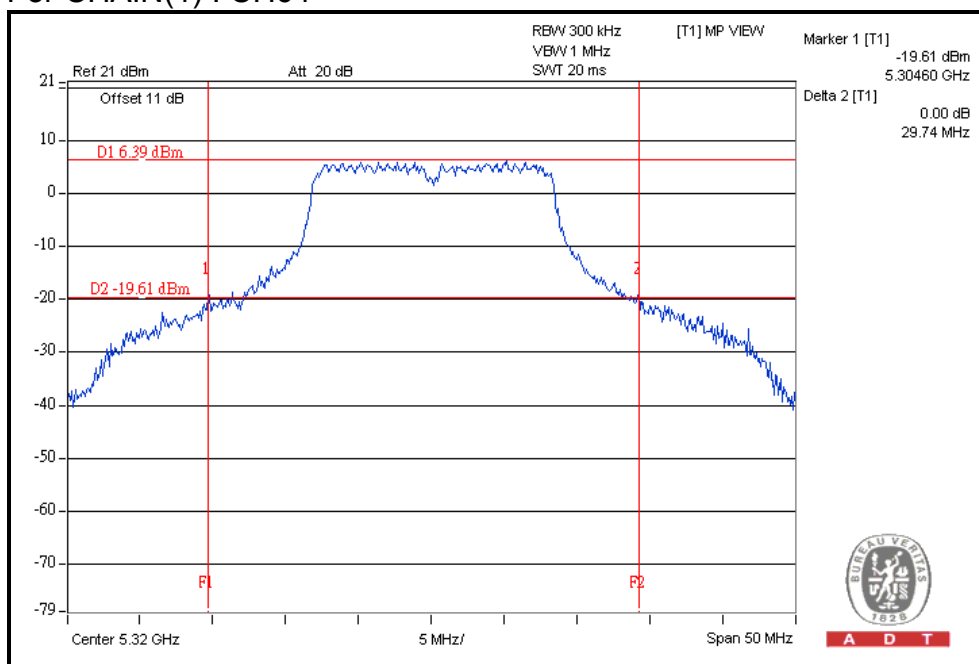
For CHAIN(1) : CH52



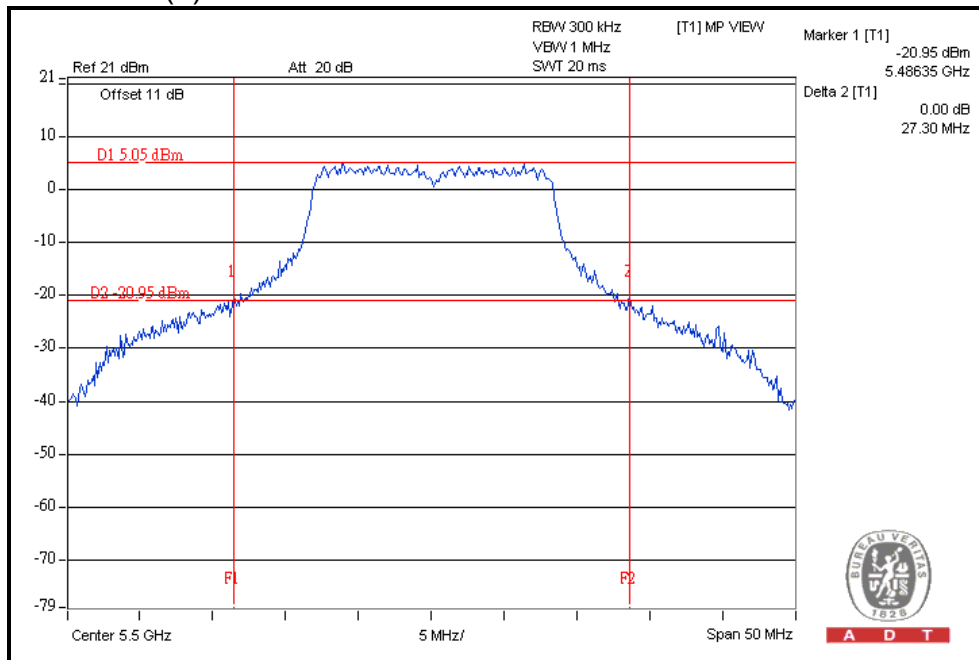
For CHAIN(1) : CH60



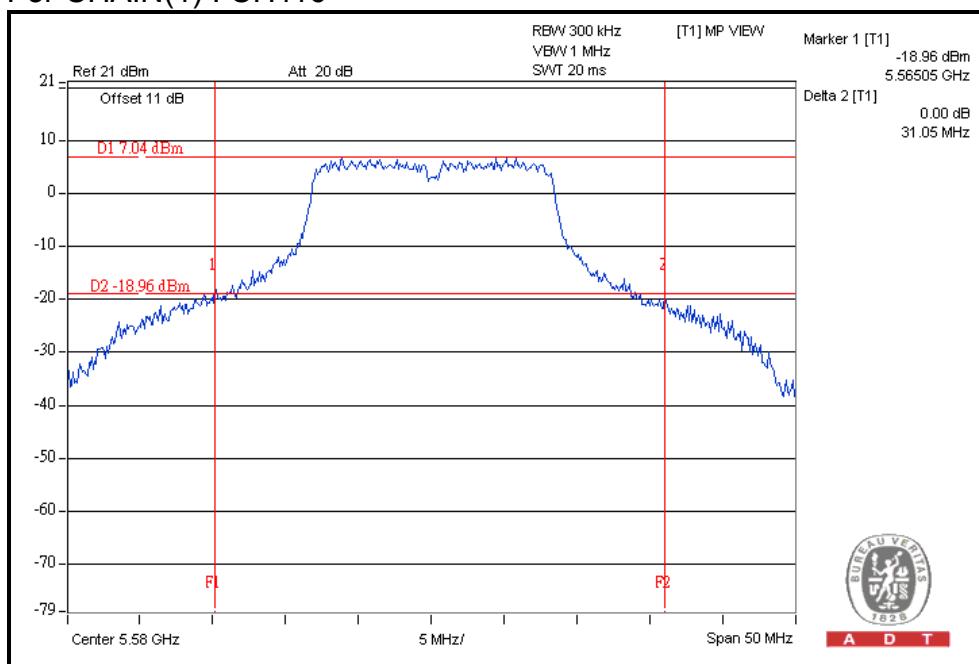
For CHAIN(1) : CH64



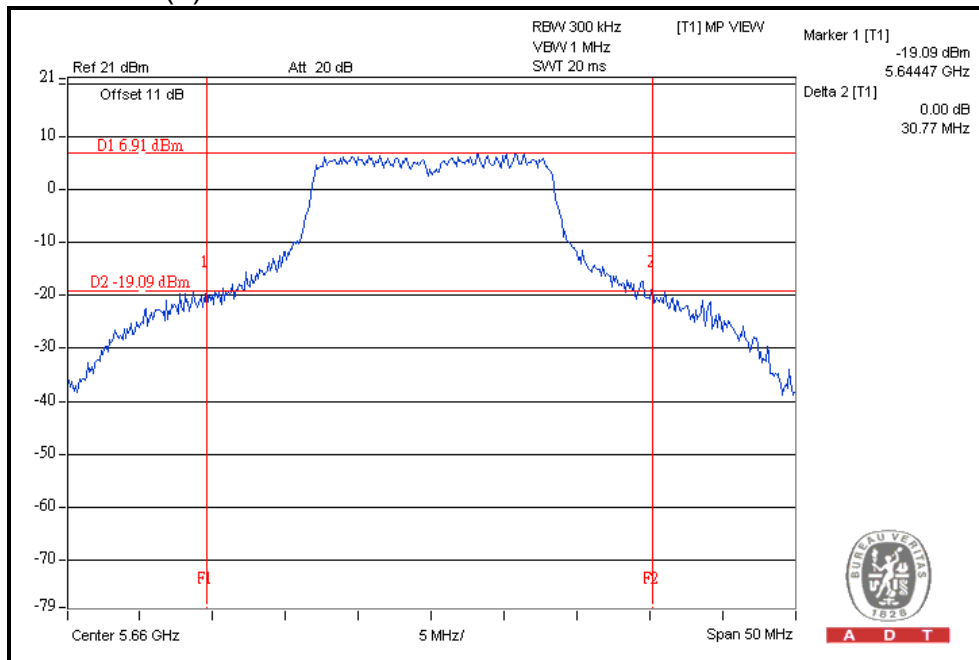
For CHAIN(1) : CH100



For CHAIN(1) : CH116



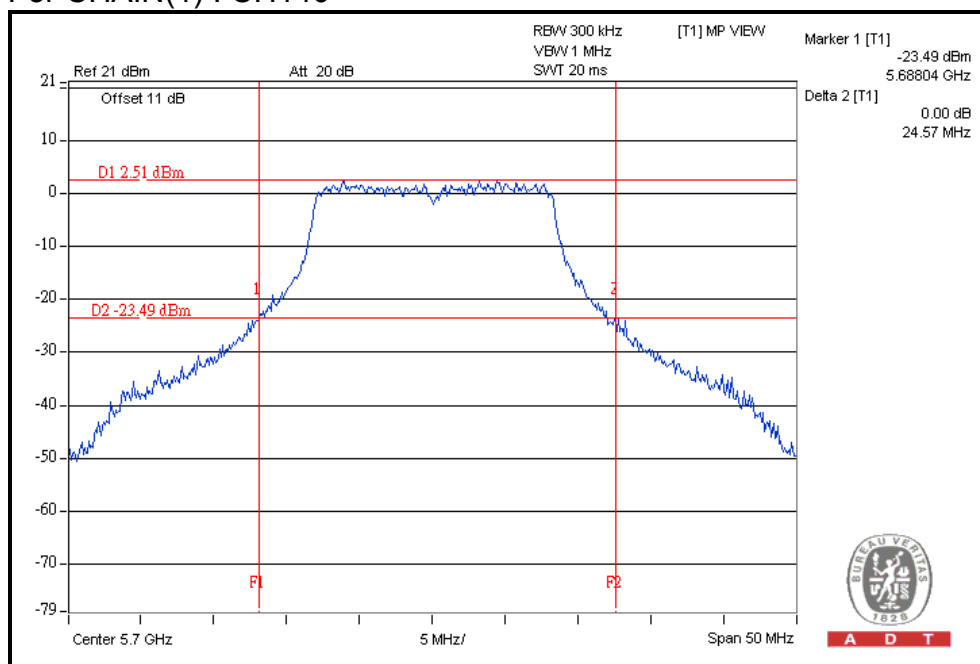
For CHAIN(1) : CH132





A D T

For CHAIN(1) : CH140



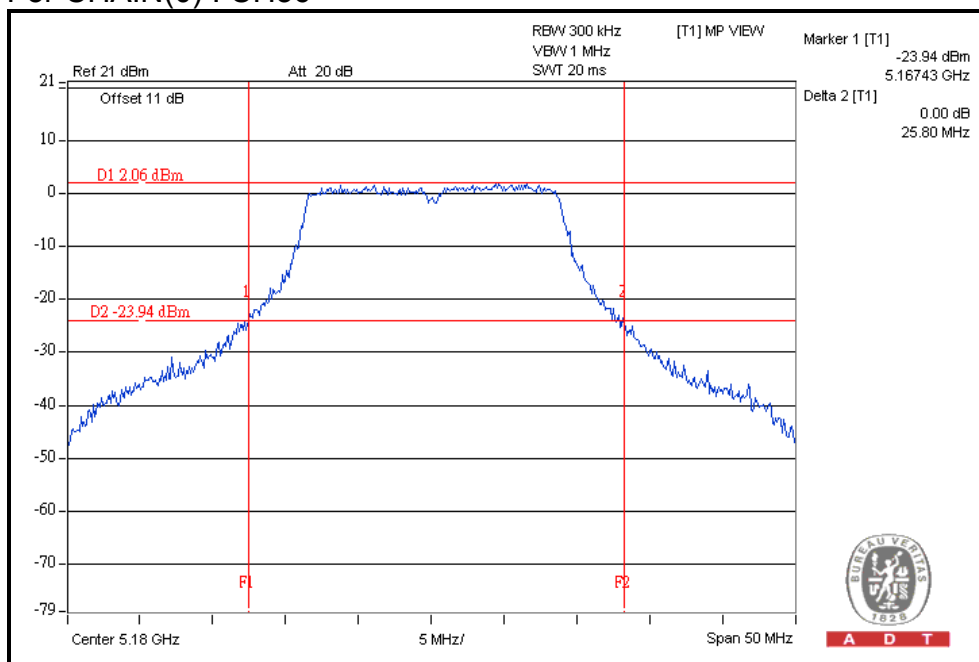
A D T

26dB OCCUPIED BANDWIDTH

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
36	5180	25.80	26.30
40	5200	25.53	26.02
48	5240	25.95	26.57
52	5260	27.15	27.18
60	5300	27.27	27.75
64	5320	27.50	27.79
100	5500	34.67	30.13
116	5580	36.44	27.70
132	5660	39.39	27.50
140	5700	29.67	26.24

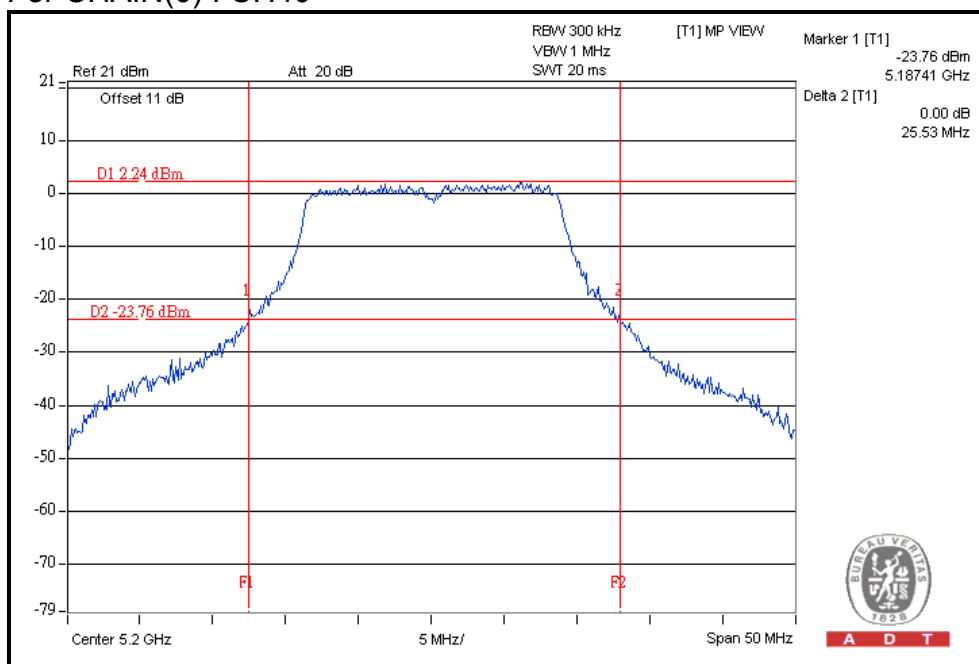
For CHAIN(0) : CH36



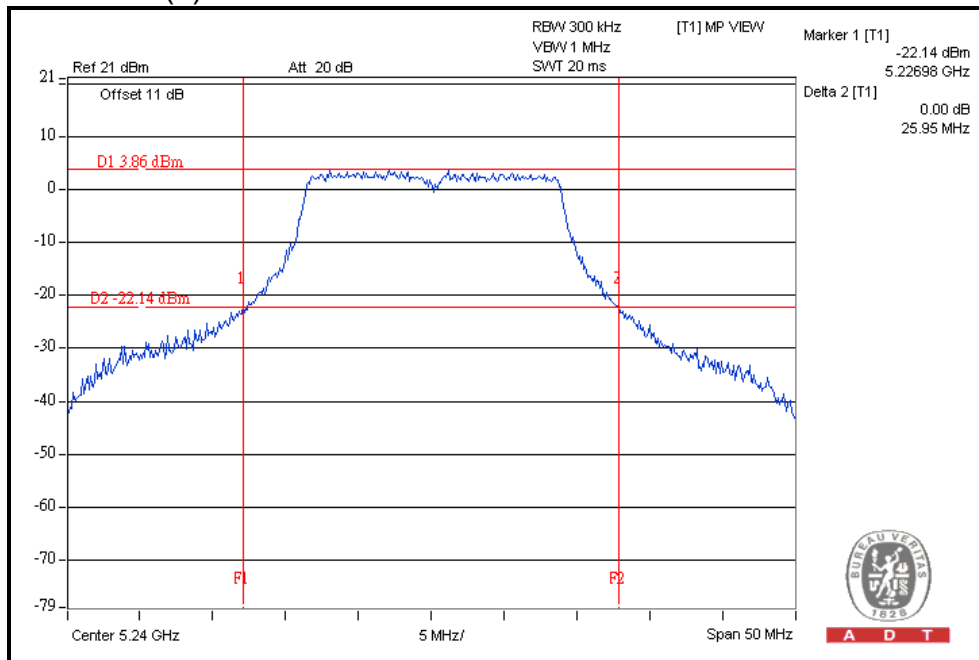


A D T

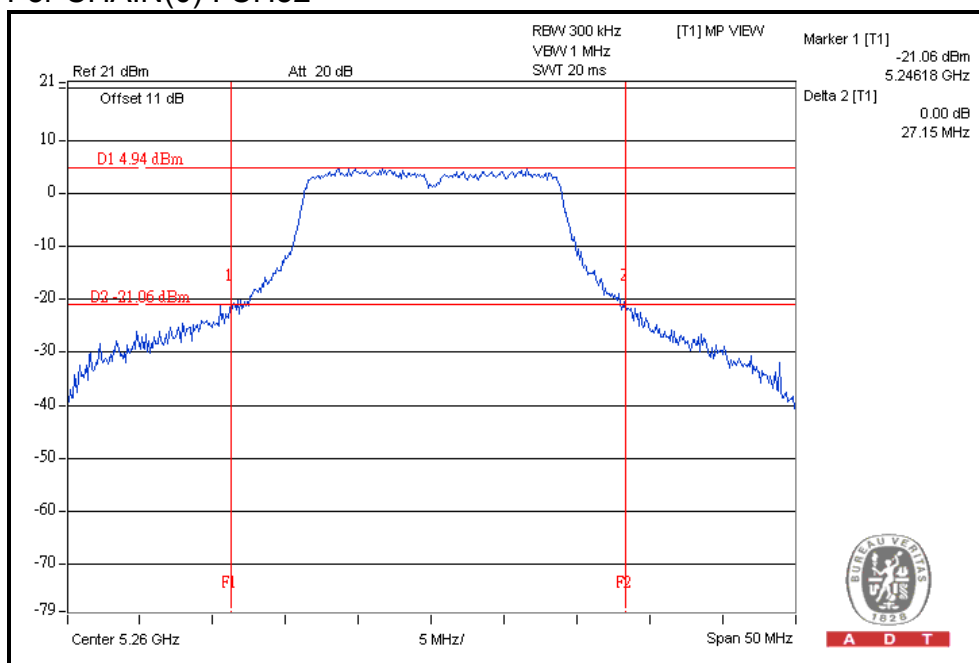
For CHAIN(0) : CH40



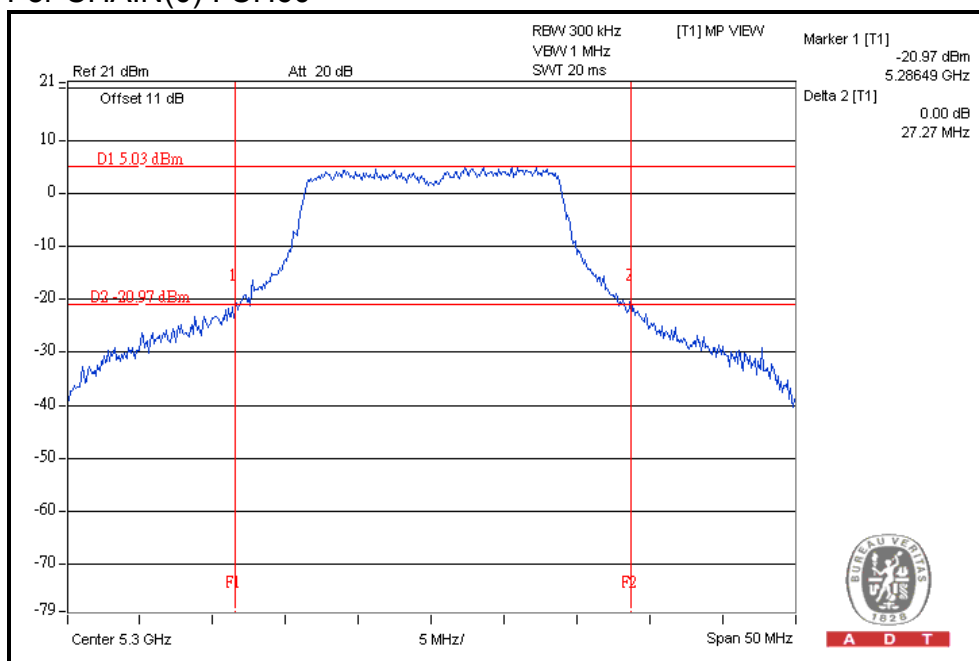
For CHAIN(0) : CH48



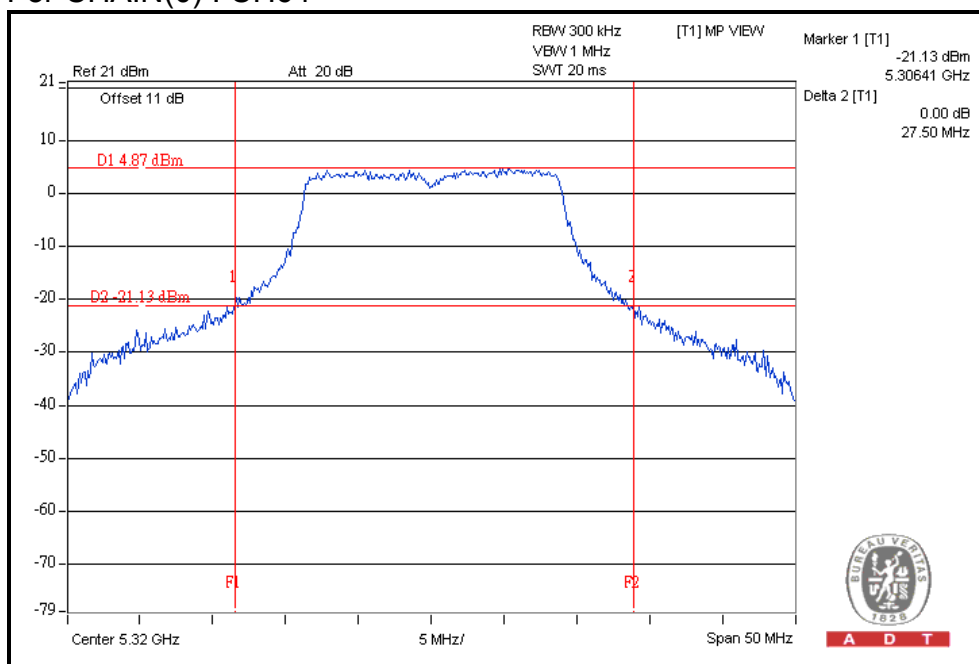
For CHAIN(0) : CH52



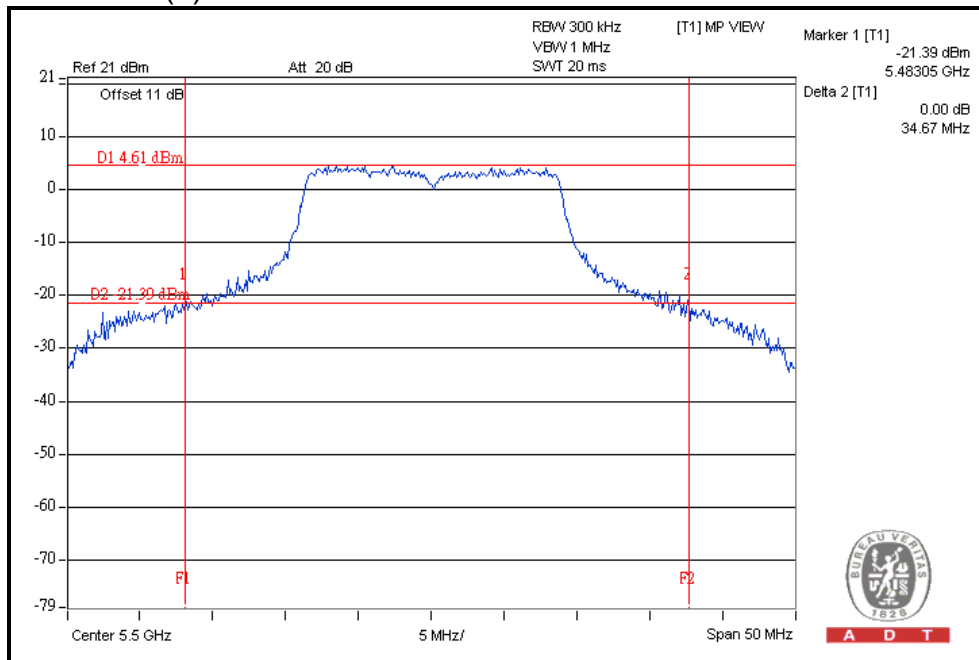
For CHAIN(0) : CH60



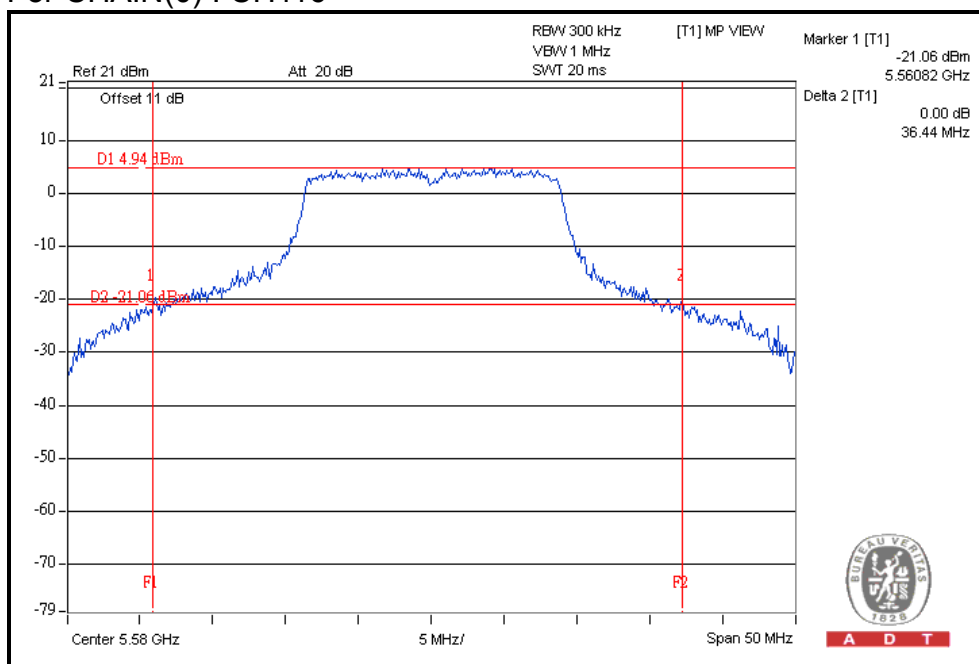
For CHAIN(0) : CH64



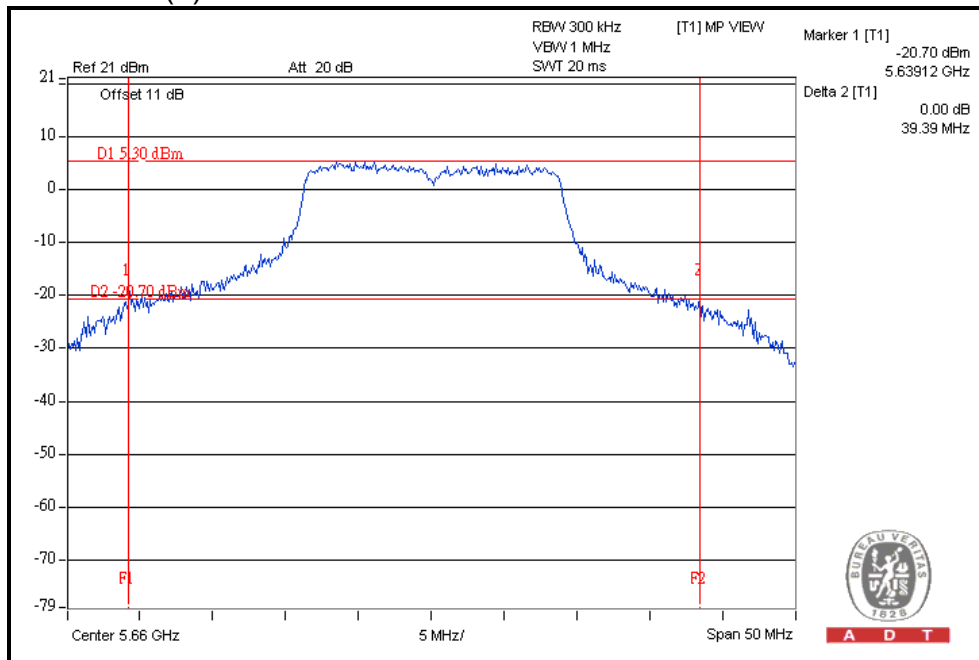
For CHAIN(0) : CH100



For CHAIN(0) : CH116



For CHAIN(0) : CH132



Ref 21 dBm Att 20 dB RBW 300 kHz VBW 1 MHz SWT 20 ms [T1] MP VIEW

Marker 1 [T1] -23.21 dBm 5.16730 GHz

Delta 2 [T1] 0.00 dB 26.30 MHz

Offset 11 dB

D1 2.79 dBm

D2 -23.21 dBm

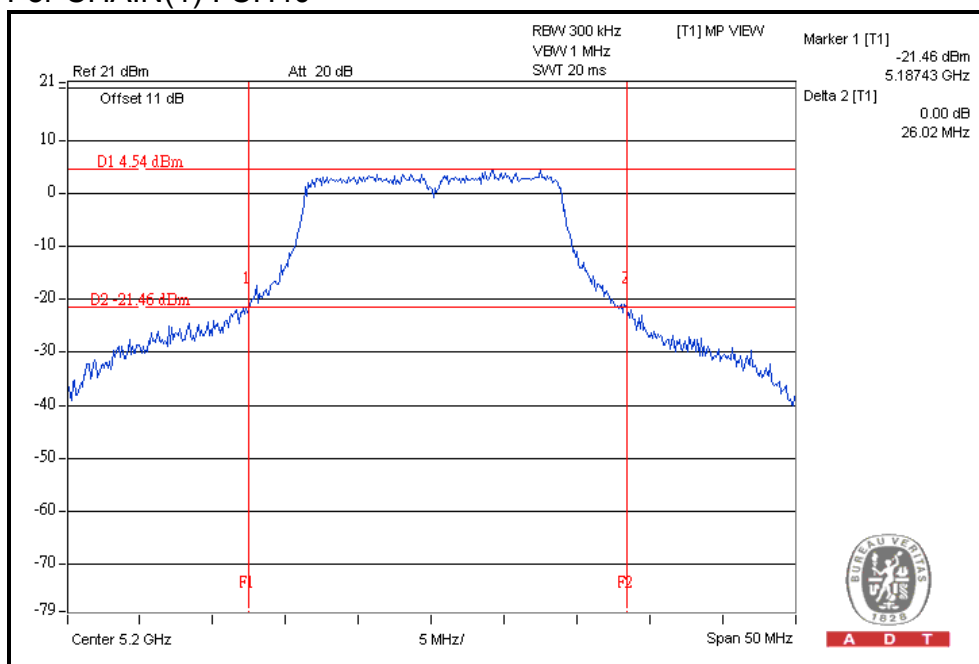
F1 F2

Center 5.18 GHz 5 MHz/ Span 50 MHz

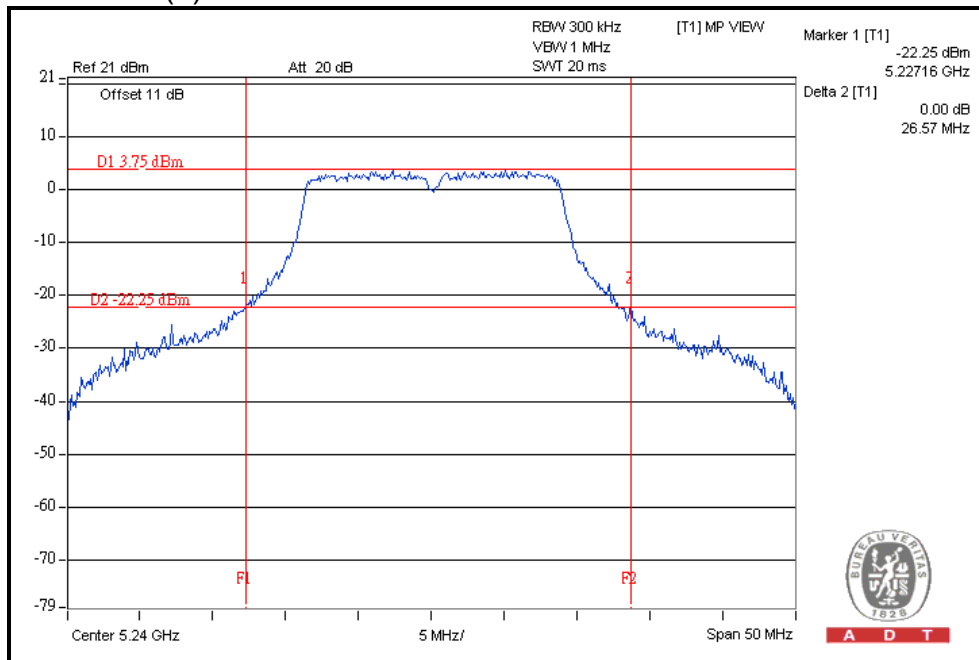
BUREAU VERITAS 1928

A D T

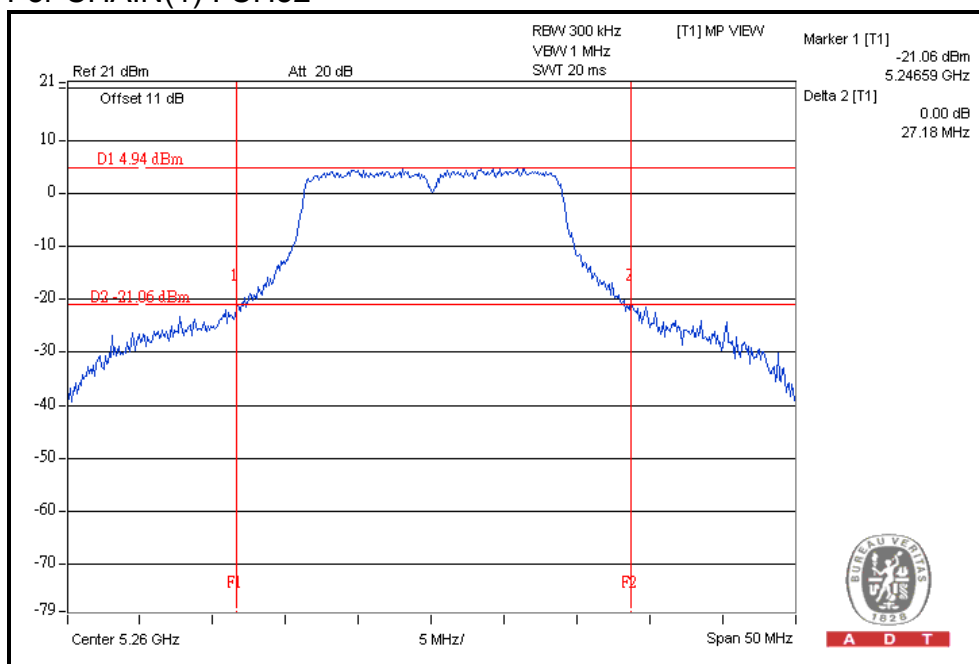
For CHAIN(1) : CH40



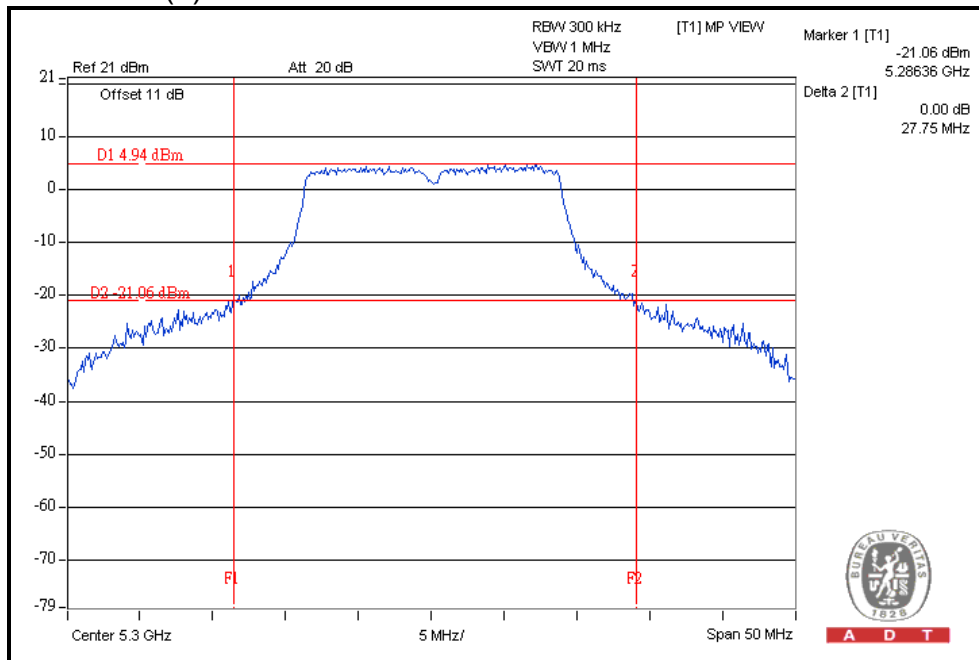
For CHAIN(1) : CH48



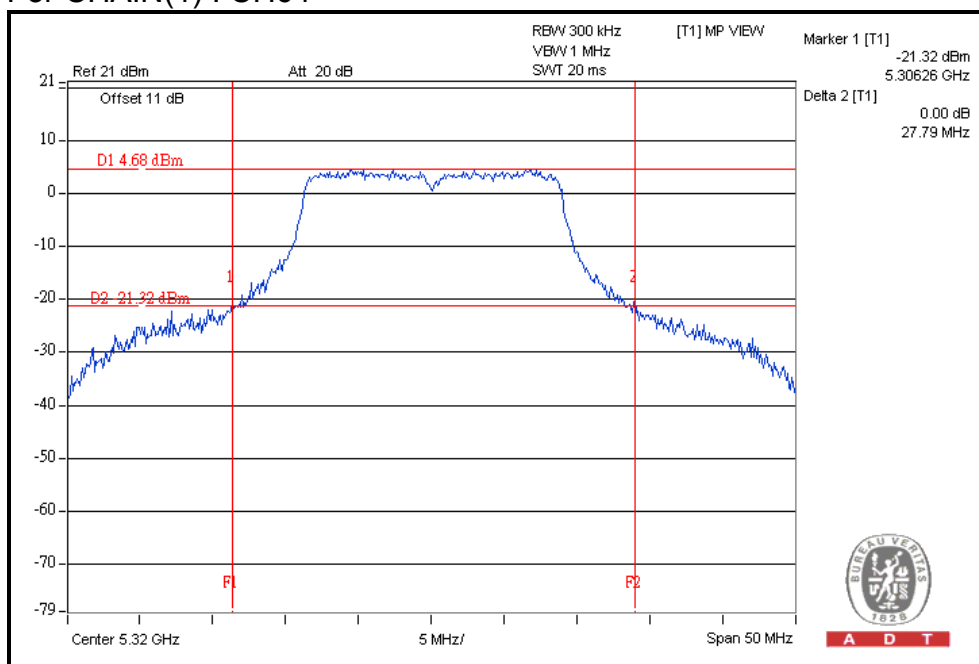
For CHAIN(1) : CH52



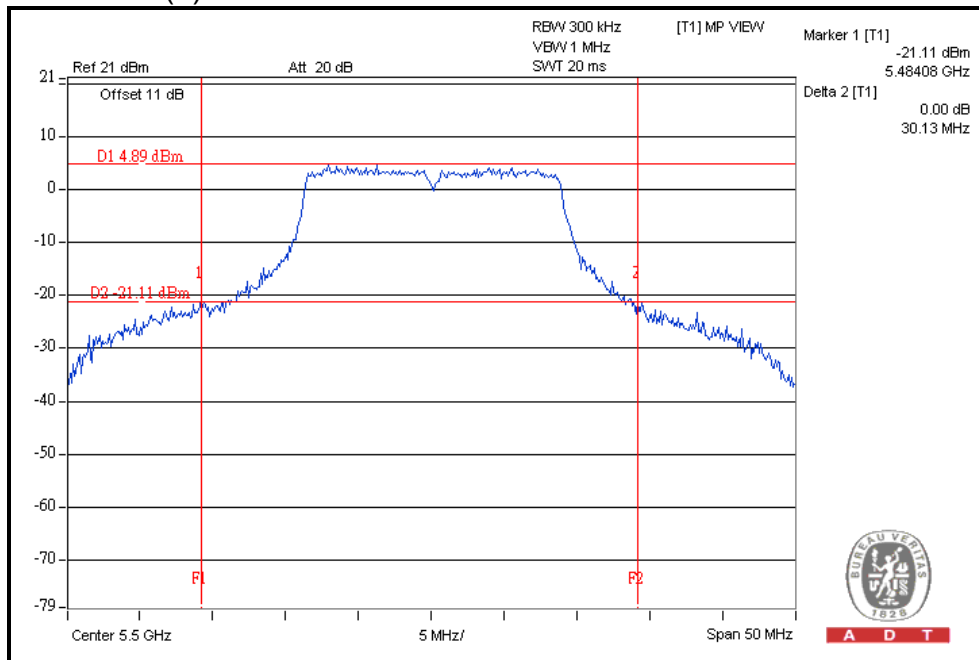
For CHAIN(1) : CH60



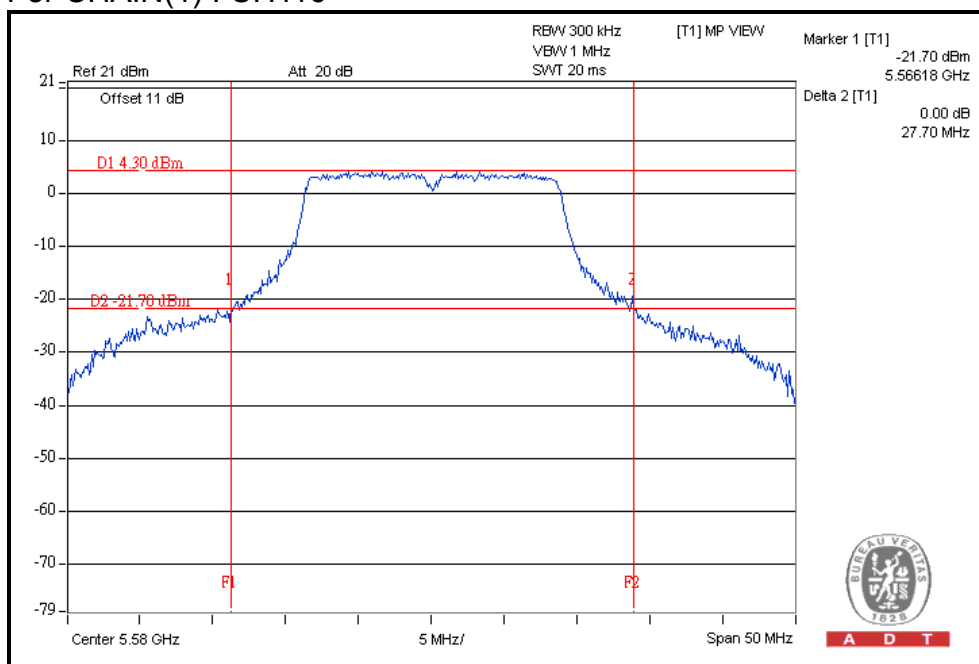
For CHAIN(1) : CH64



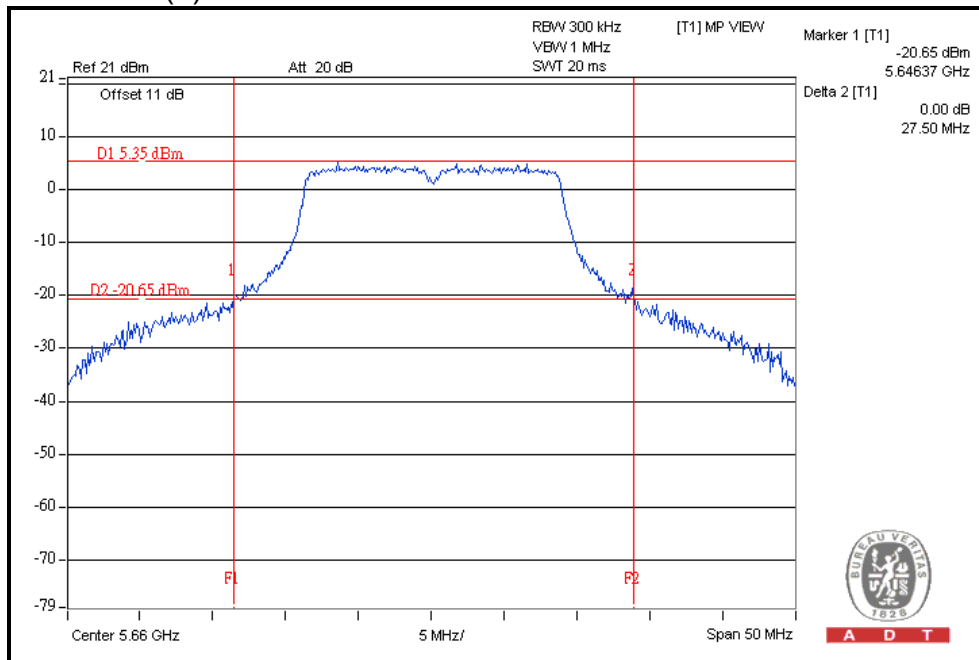
For CHAIN(1) : CH100



For CHAIN(1) : CH116



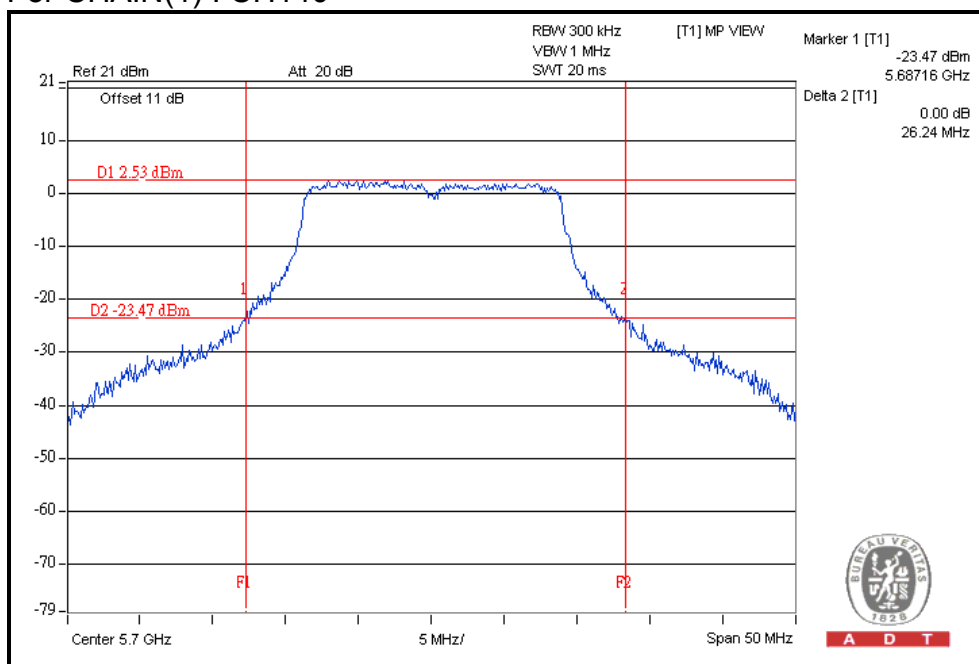
For CHAIN(1) : CH132





A D T

For CHAIN(1) : CH140

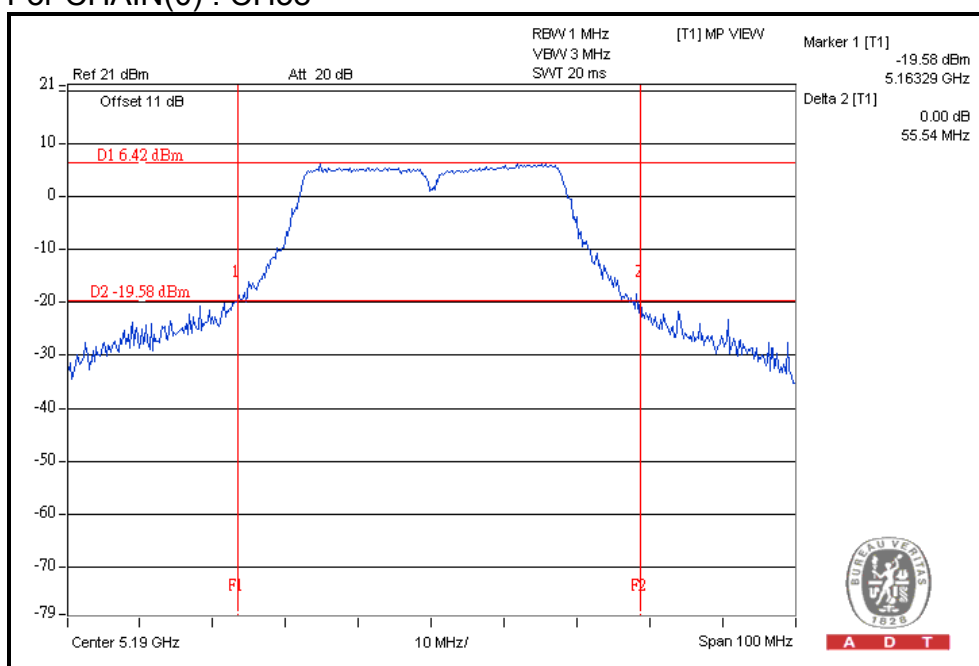


26dB OCCUPIED BANDWIDTH

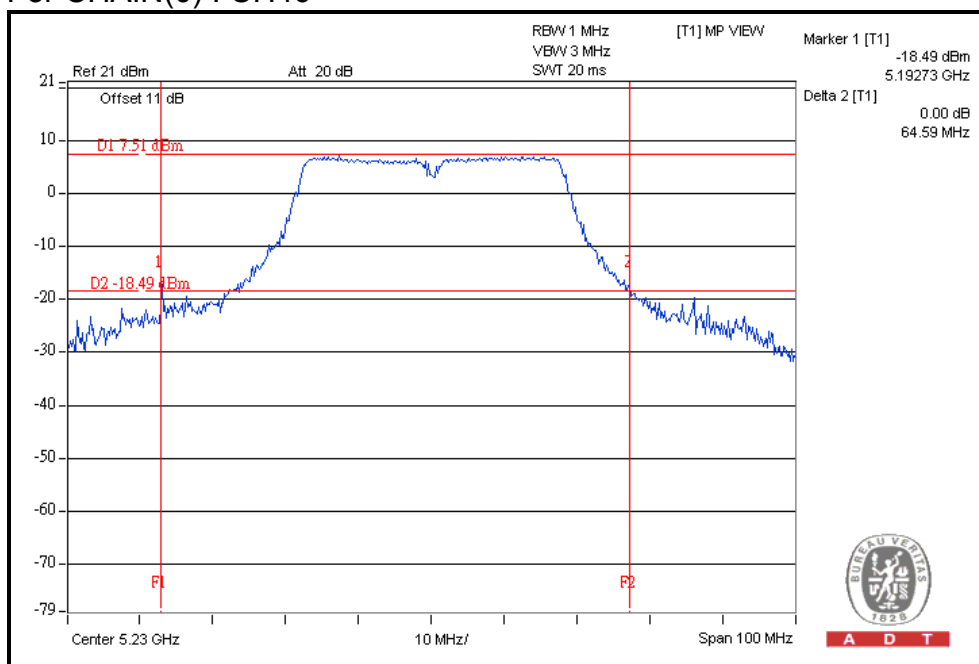
802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
38	5190	55.54	55.16
46	5230	64.59	62.06
54	5270	54.76	57.90
62	5310	54.54	55.46
102	5510	54.70	53.67
110	5550	88.07	74.92
134	5670	84.80	74.17

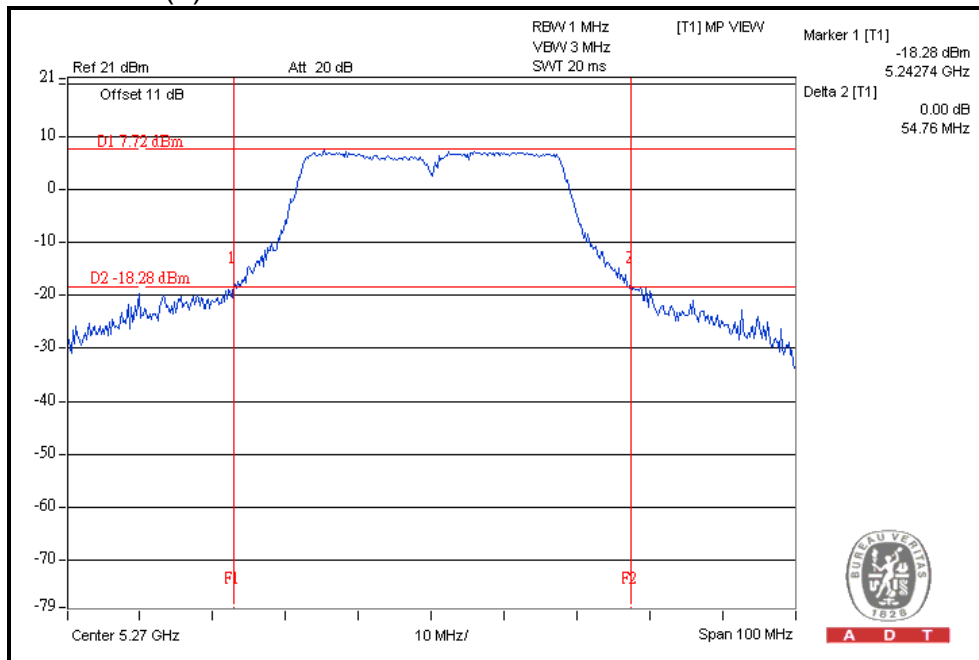
For CHAIN(0) : CH38



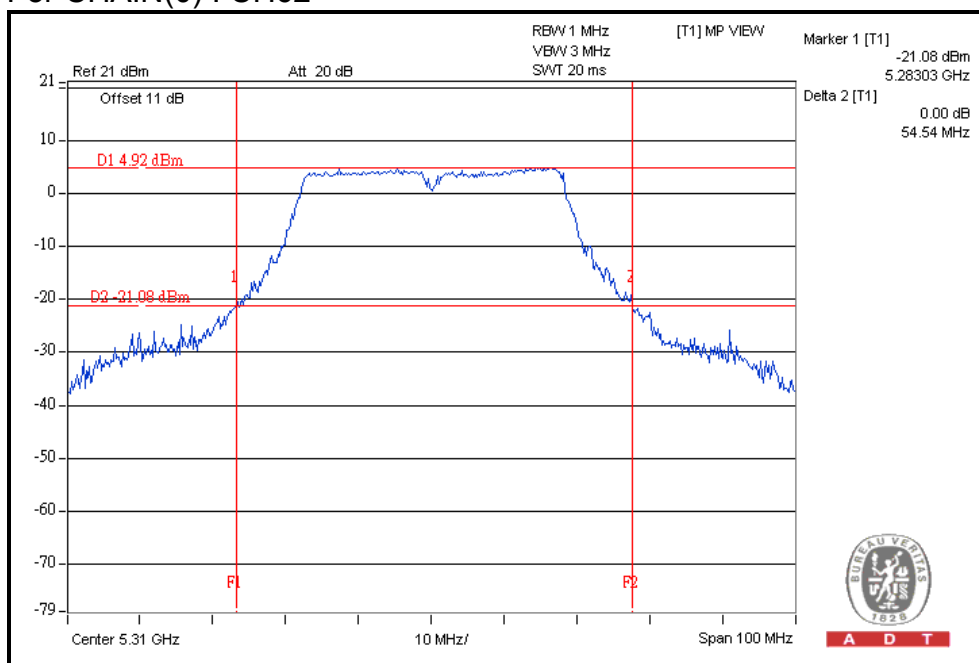
For CHAIN(0) : CH46



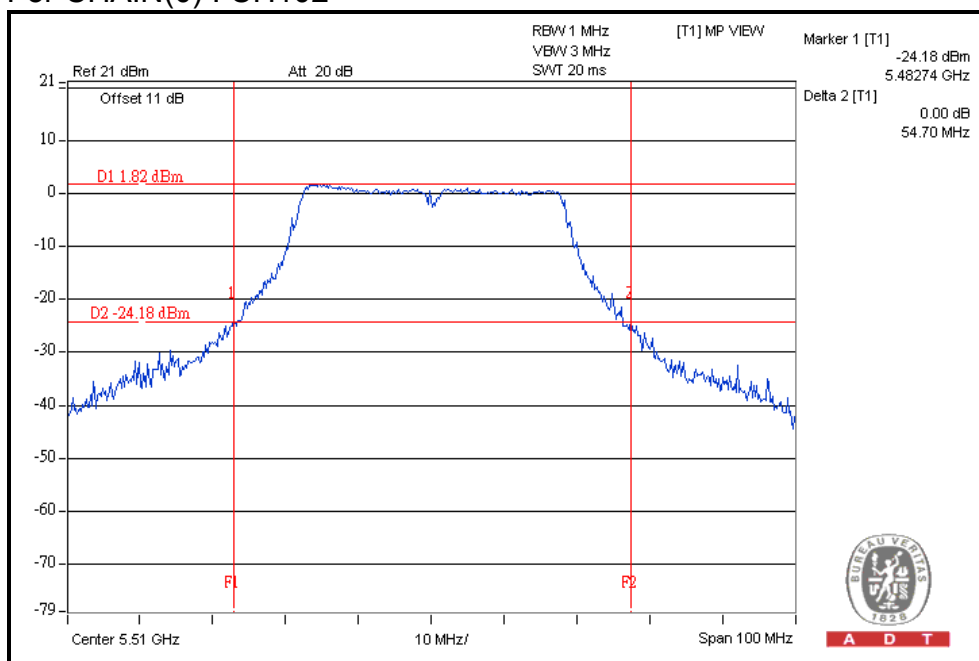
For CHAIN(0) : CH54



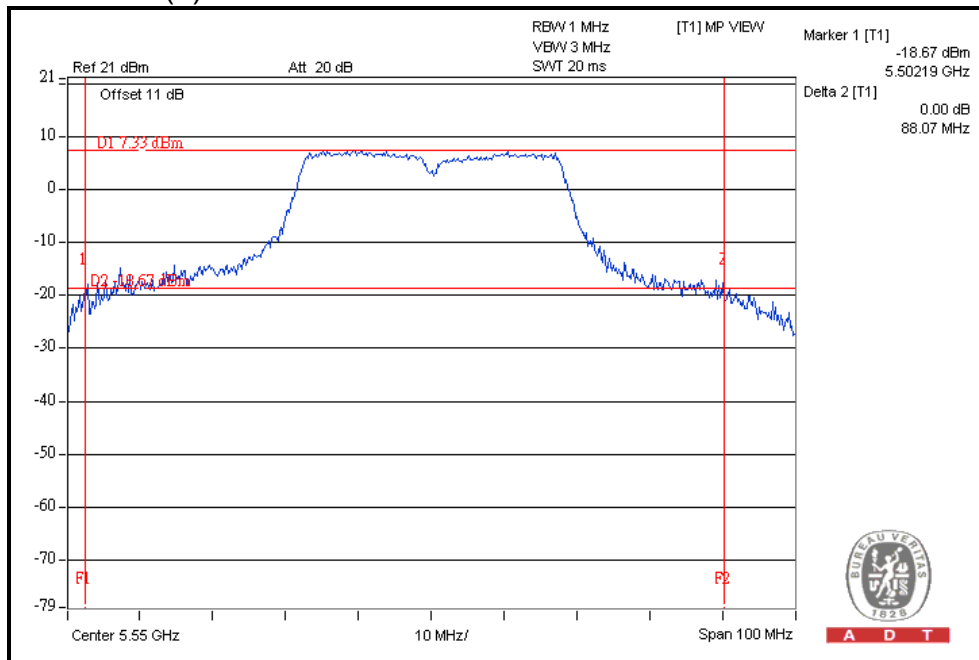
For CHAIN(0) : CH62



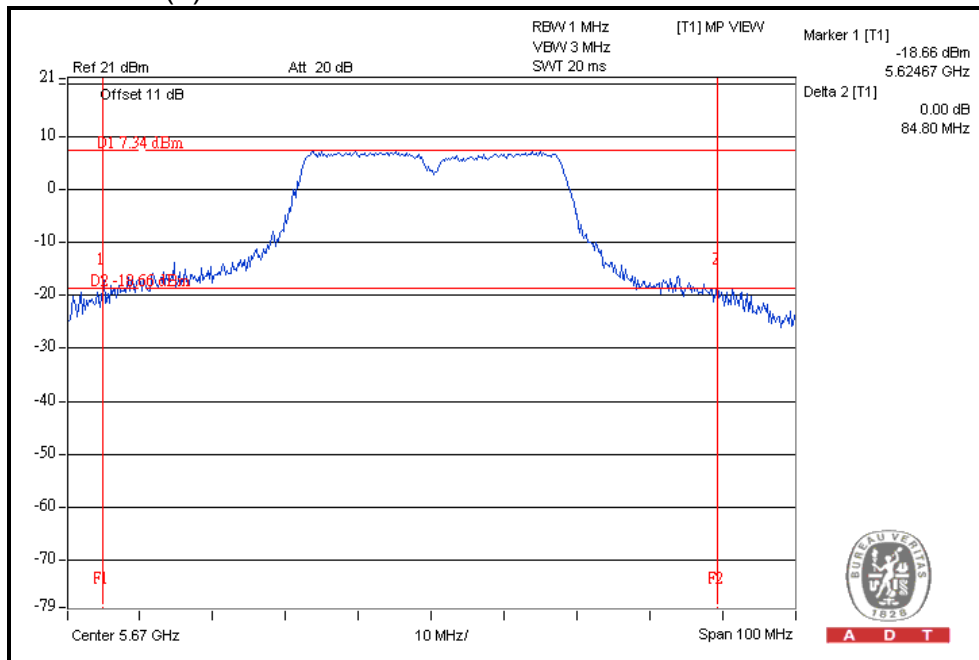
For CHAIN(0) : CH102



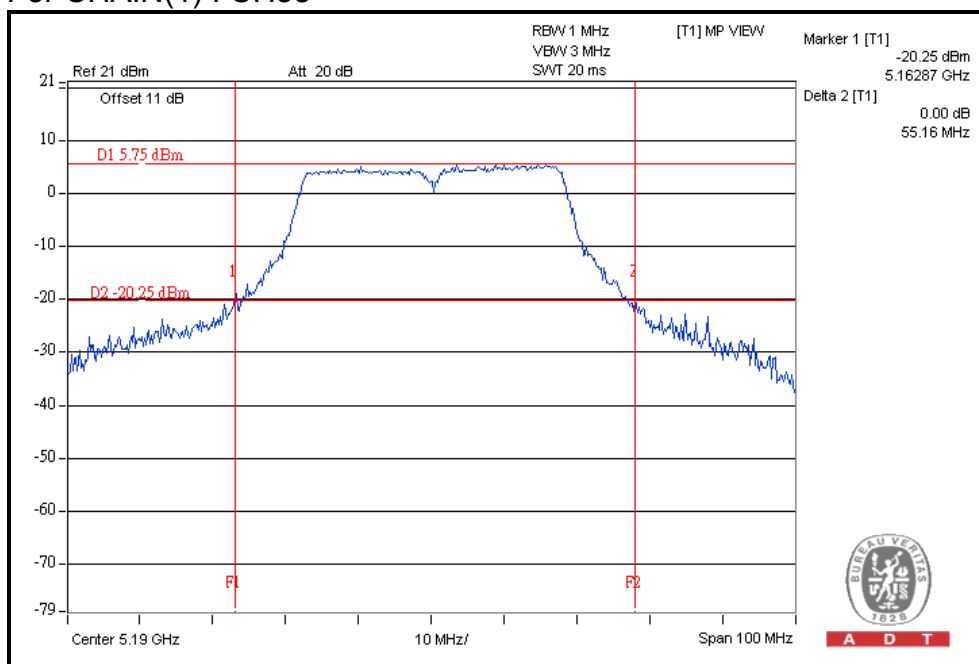
For CHAIN(0) : CH110



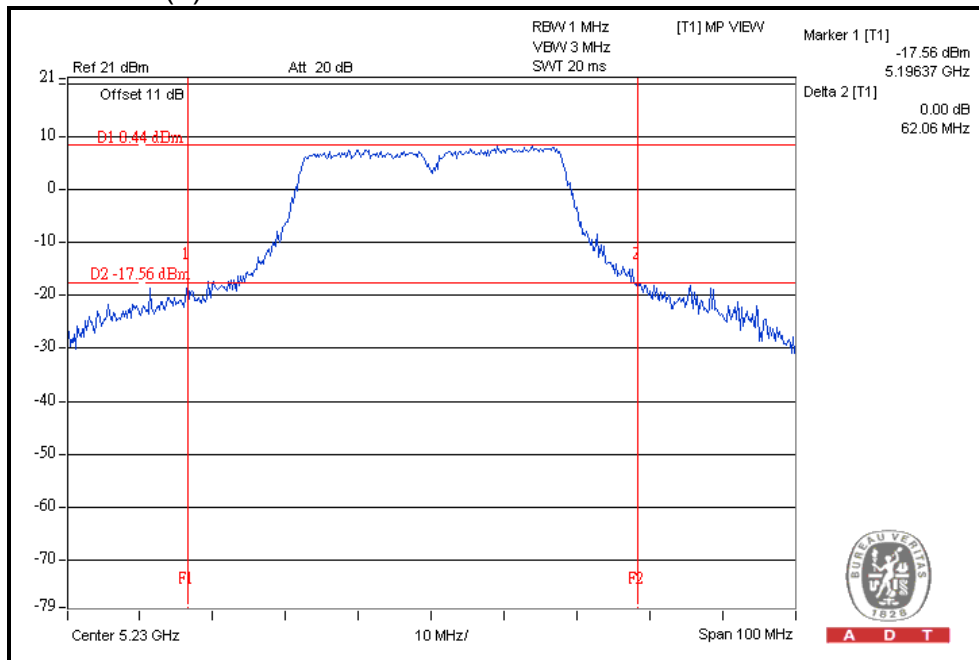
For CHAIN(0) : CH134



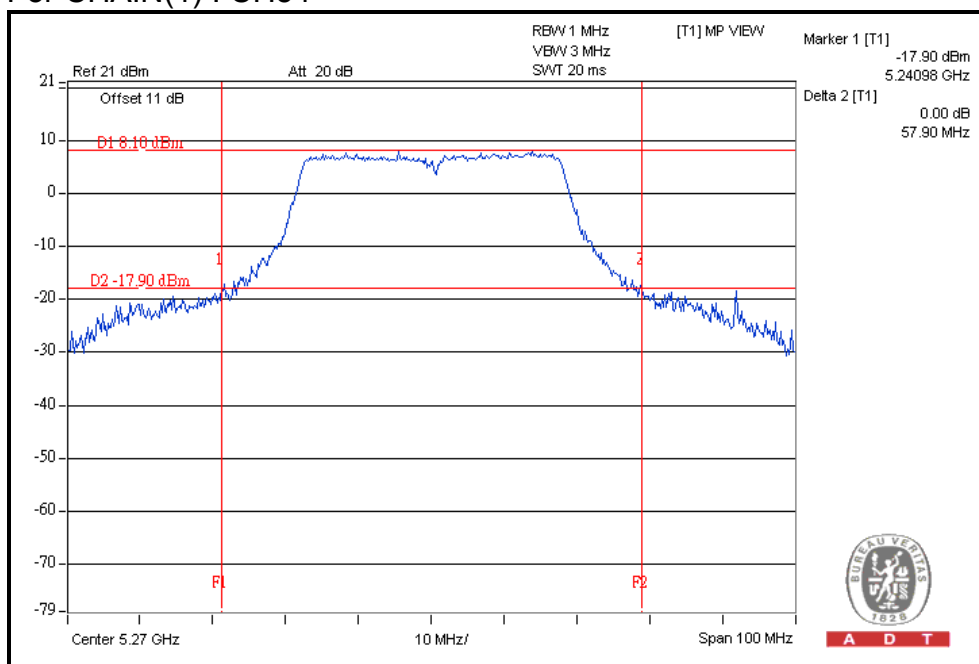
For CHAIN(1) : CH38



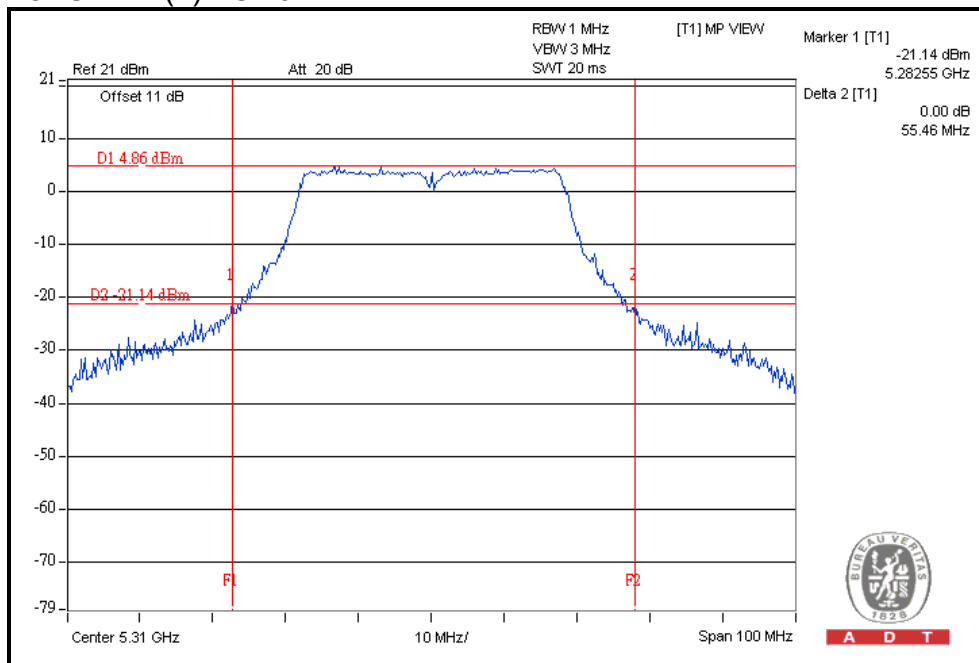
For CHAIN(1) : CH46



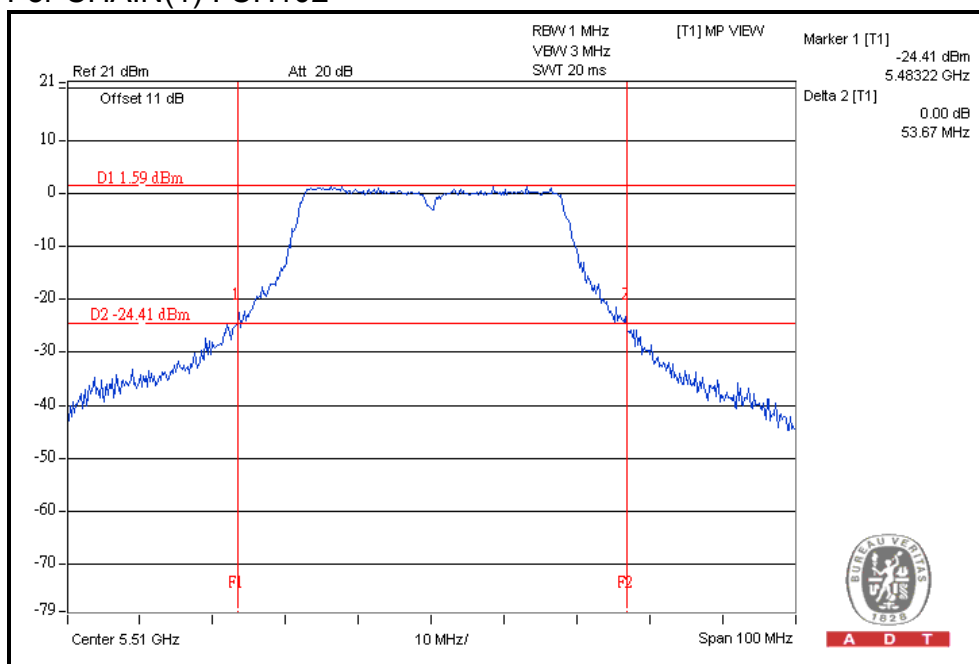
For CHAIN(1) : CH54



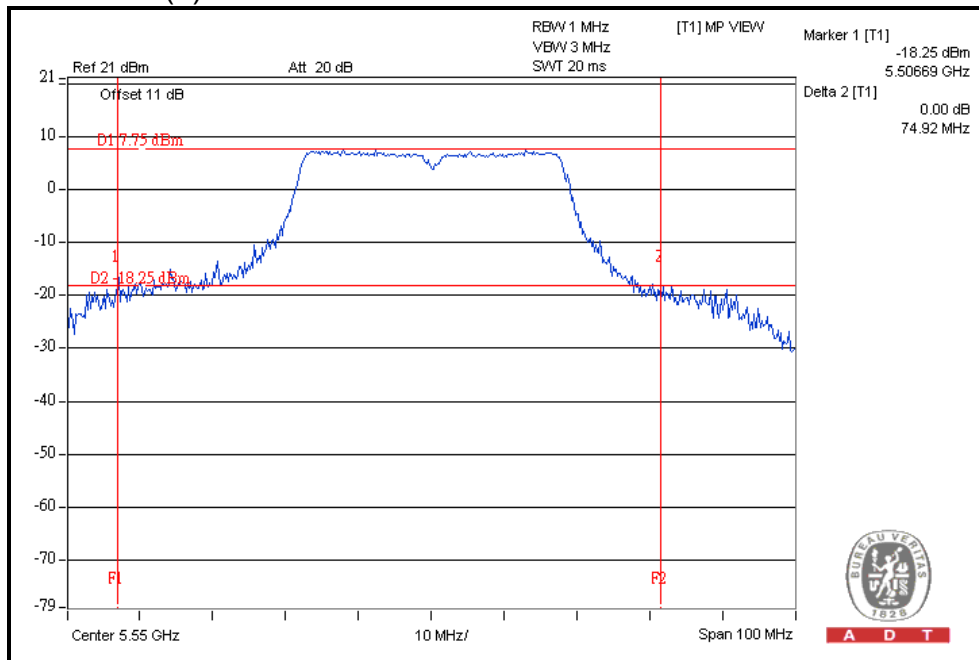
For CHAIN(1) : CH62



For CHAIN(1) : CH102



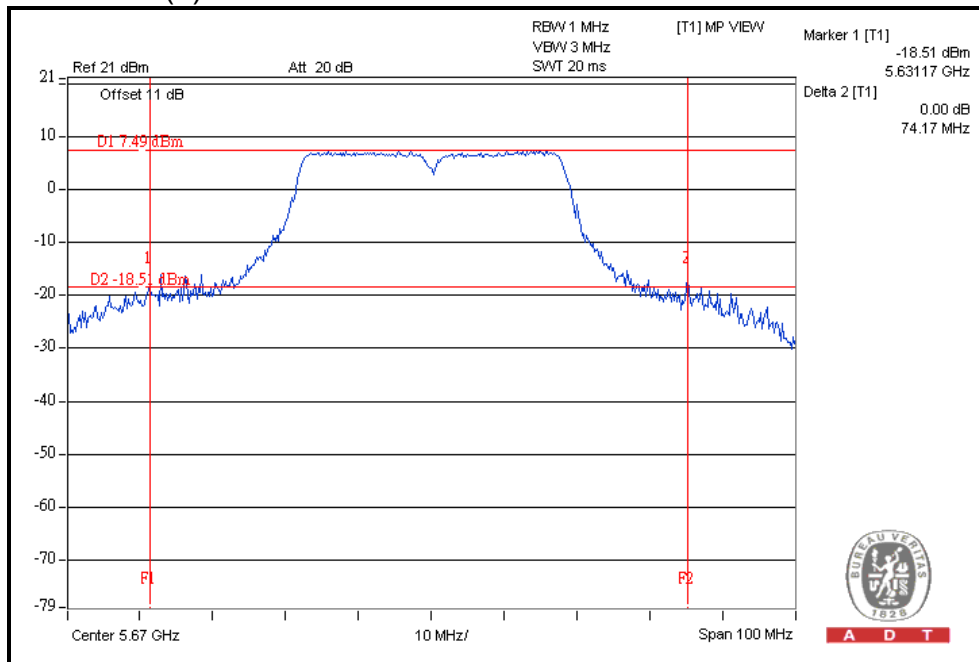
For CHAIN(1) : CH110





A D T

For CHAIN(1) : CH134



4.4 PEAK POWER EXCURSION MEASUREMENT

4.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Shall not exceed 13 dB.

4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Apr. 12, 2012

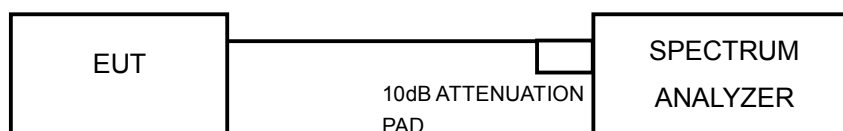
4.4.3 TEST PROCEDURE

- 1) Set RBW = 1 MHz, VBW $\geq$ 3 MHz, Detector = peak.
- 2) Trace mode = max-hold. Allow the sweeps to continue until the trace stabilizes.
- 3) Use the peak search function to find the peak of the spectrum.
- 4) Measure the PPSD.
(Detector = RMS, Sweep time = auto, trigger set to "free run", Trace average at least 100 traces in power averaging mode.)
- 5) Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

4.4.7 TEST RESULTS

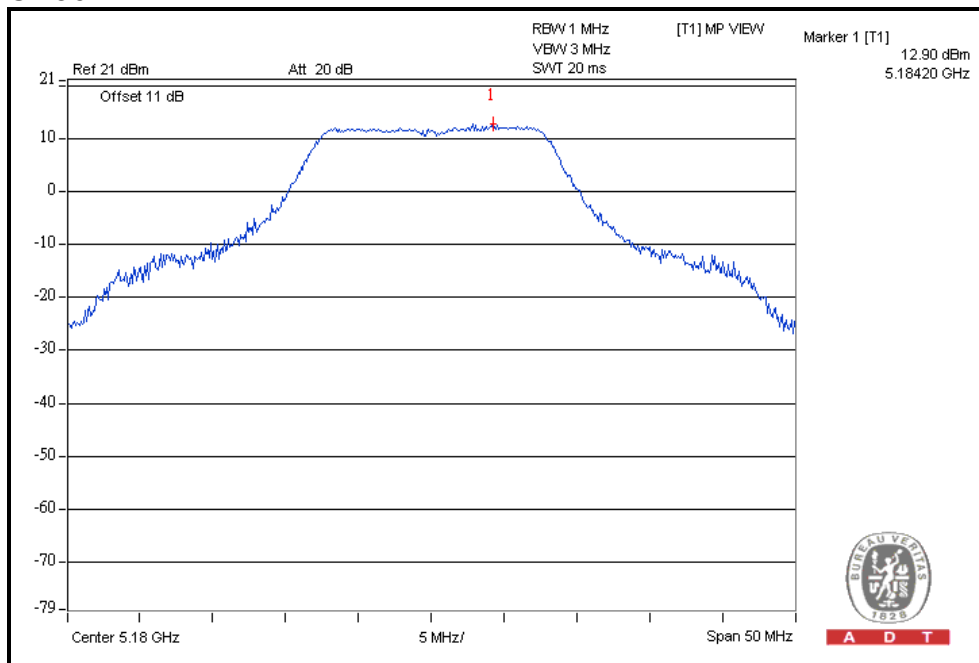
Single chain - 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK VALUE (dBm)	PPSD (dBm)	PEAK EXCURSION (dB)	LIMIT (dB)	PASS/FAIL
36	5180	12.90	3.43	9.47	13	PASS
40	5200	12.45	3.05	9.40	13	PASS
48	5240	12.83	3.22	9.61	13	PASS
52	5260	14.53	5.31	9.22	13	PASS
60	5300	15.00	5.50	9.50	13	PASS
64	5320	14.87	5.41	9.46	13	PASS
100	5500	13.12	3.57	9.55	13	PASS
116	5580	14.94	5.49	9.45	13	PASS
132	5660	15.13	5.58	9.55	13	PASS
140	5700	11.84	2.24	9.60	13	PASS

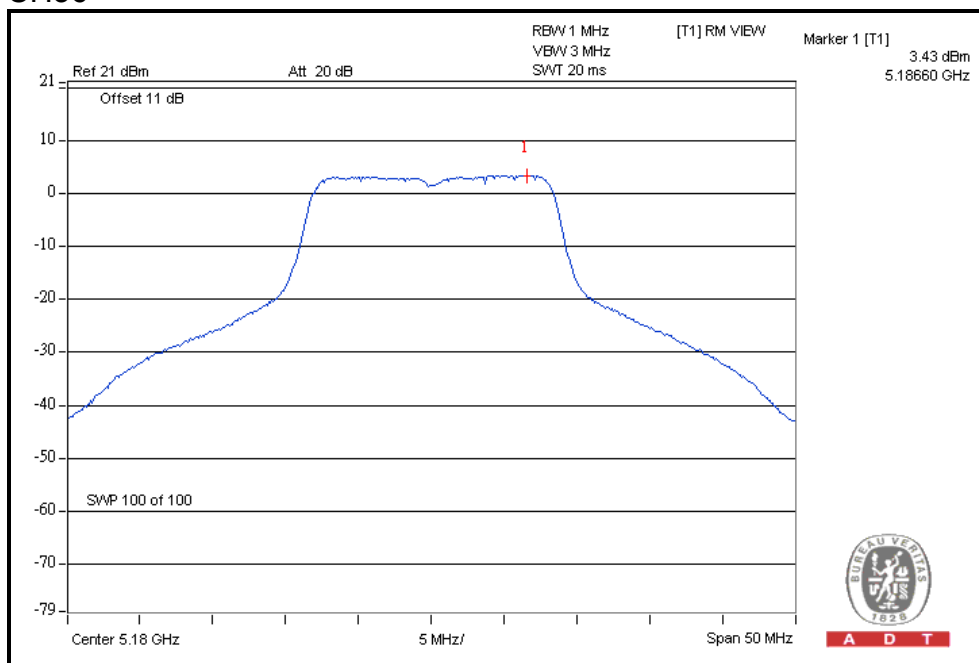


A D T

PEAK VALUE CH36



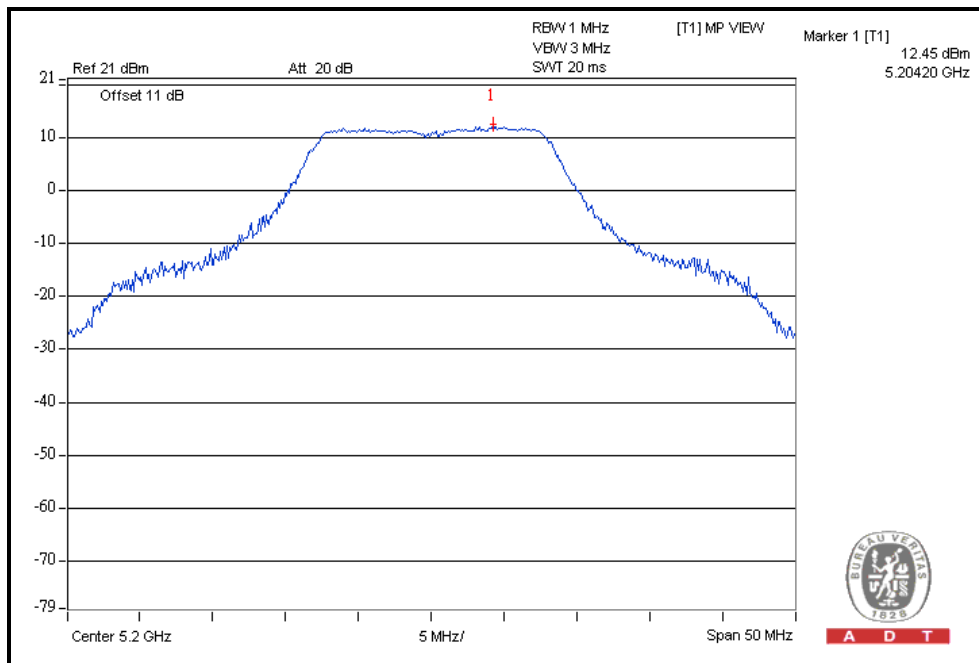
PPSD CH36



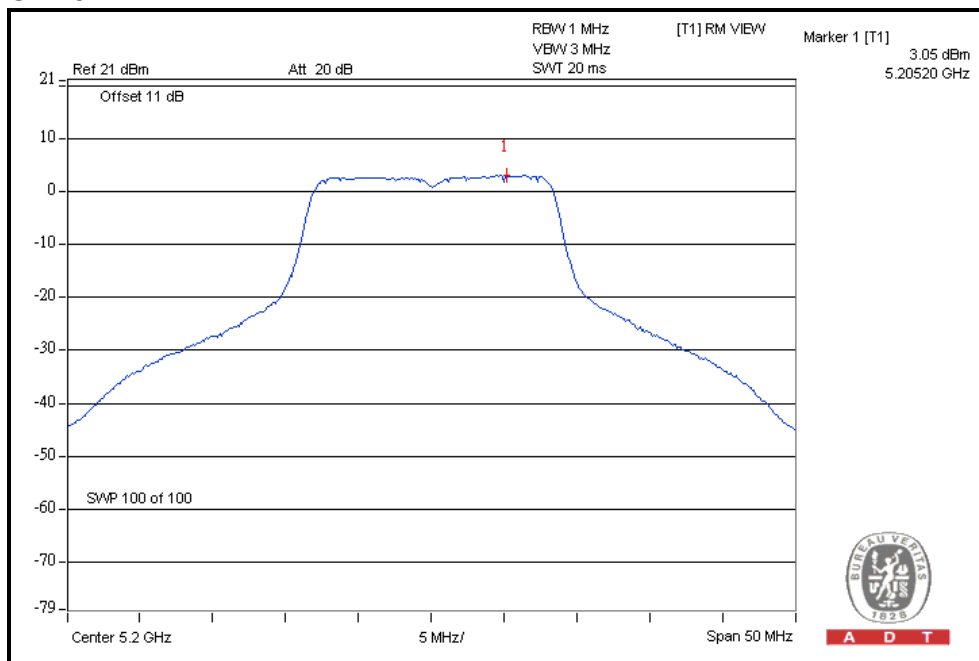


A D T

PEAK VALUE CH40



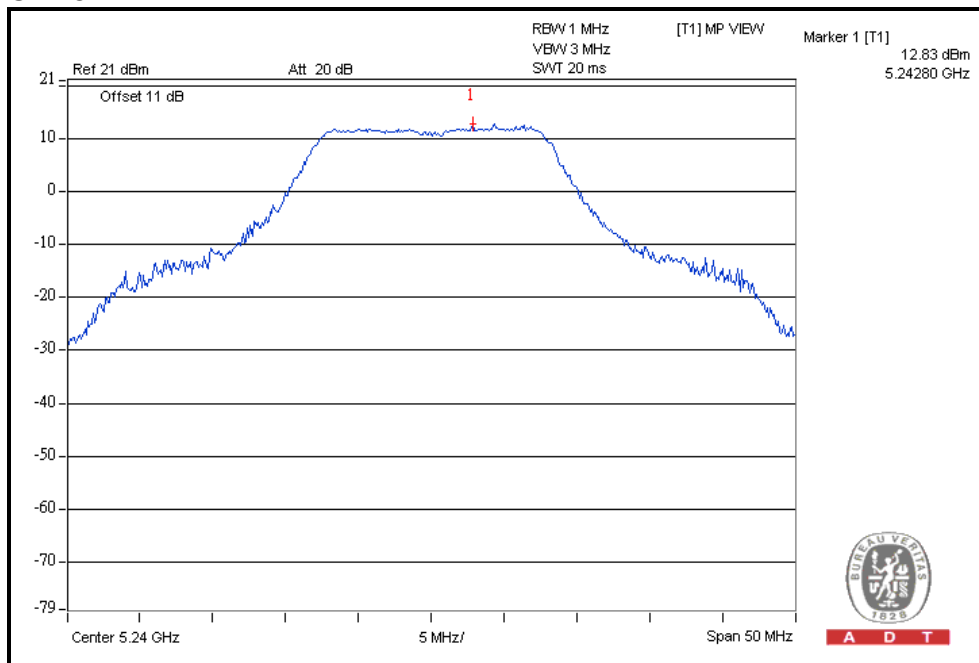
PPSD CH40



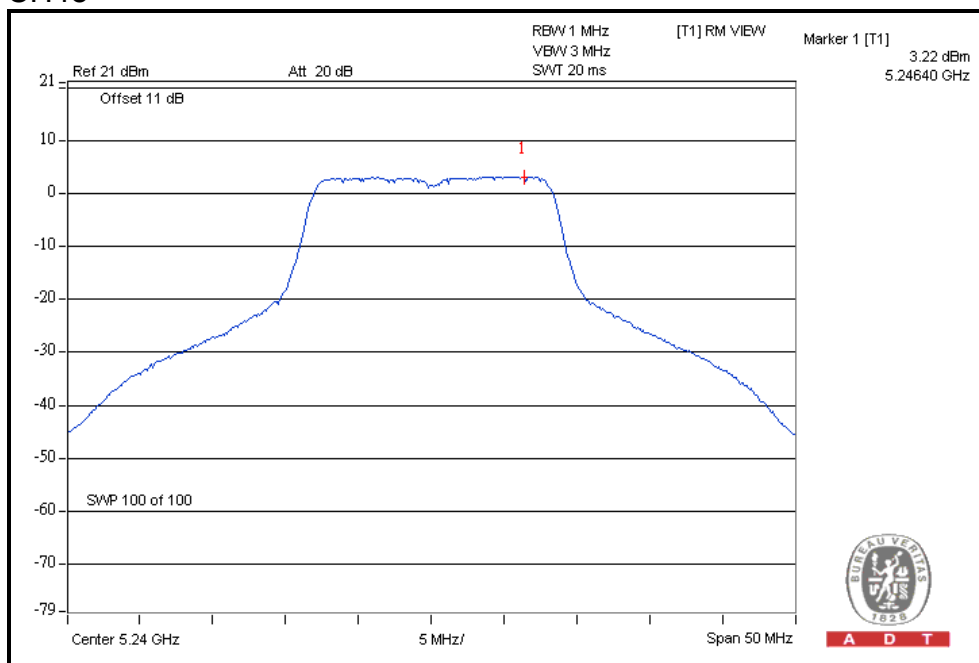


A D T

PEAK VALUE CH48



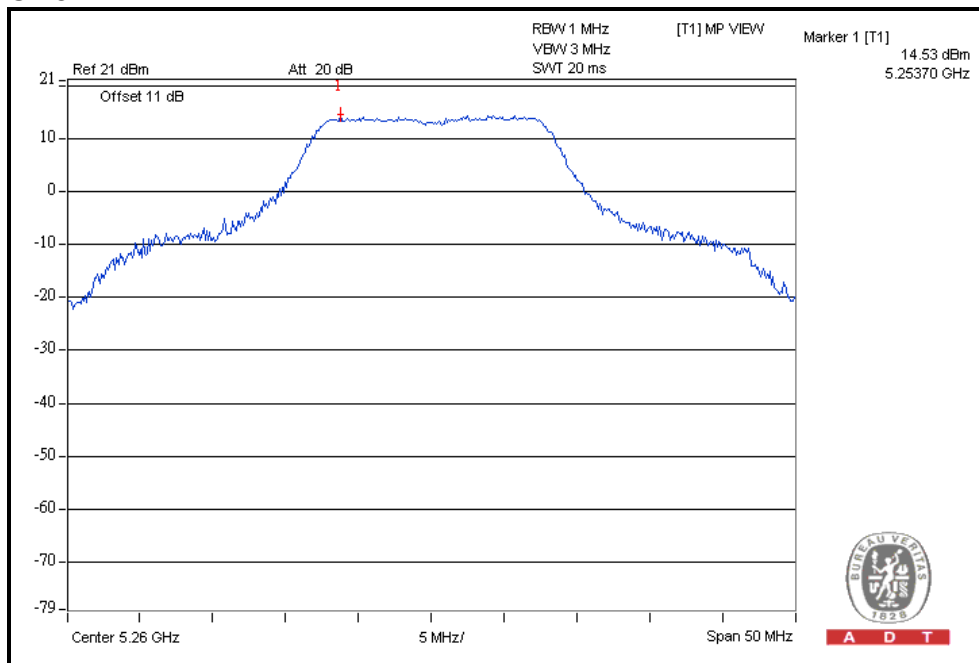
PPSD CH48



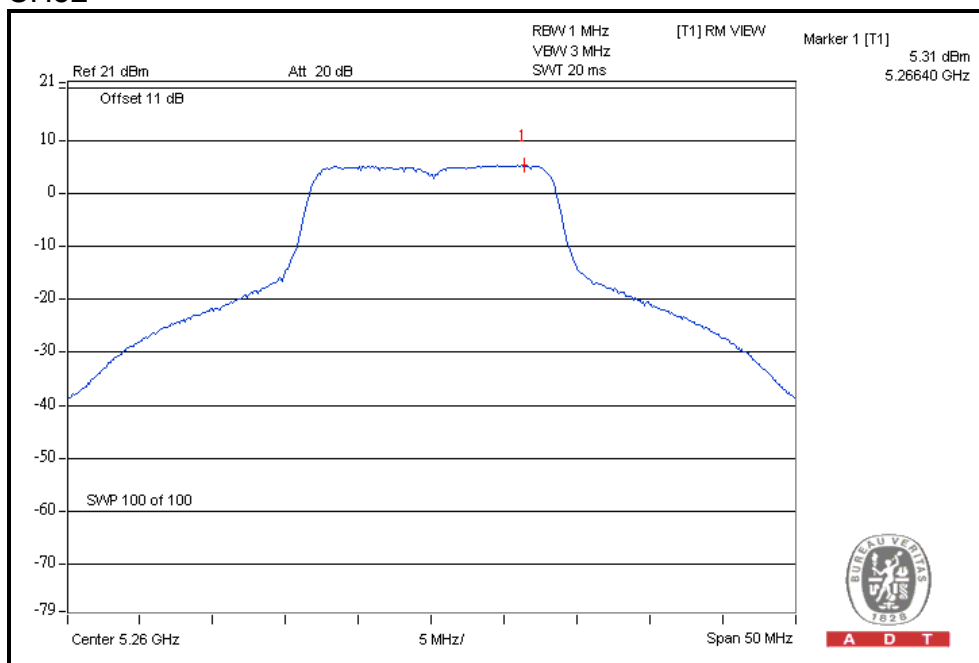


A D T

PEAK VALUE CH52



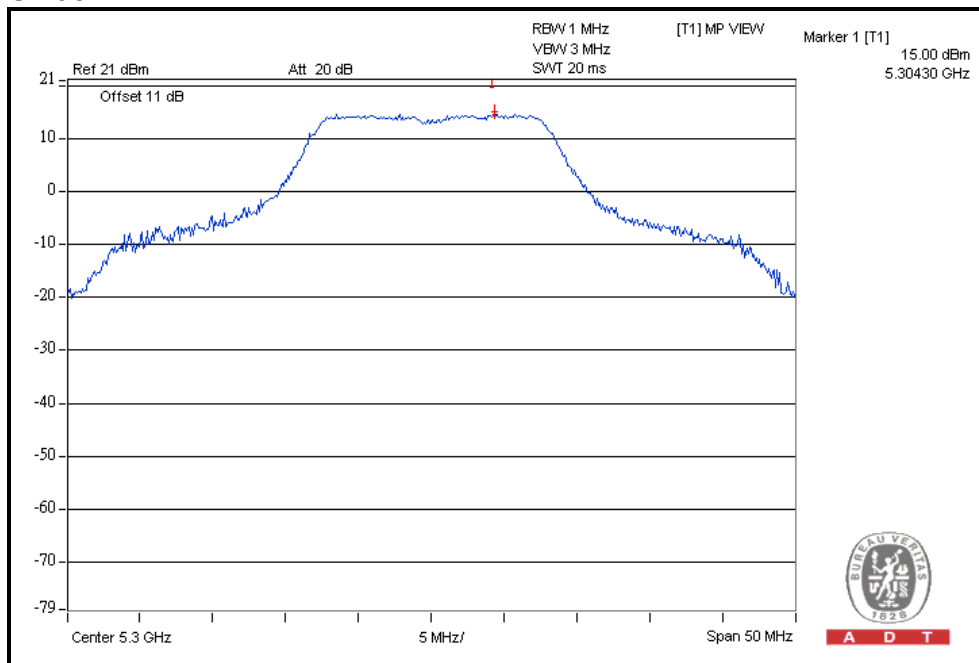
PPSD CH52



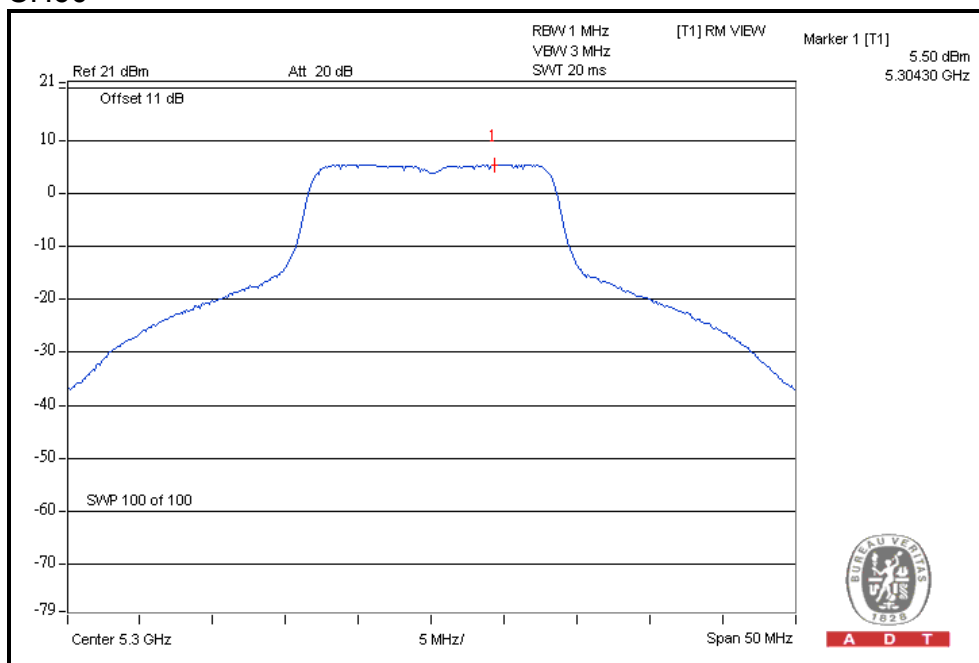


A D T

PEAK VALUE CH60



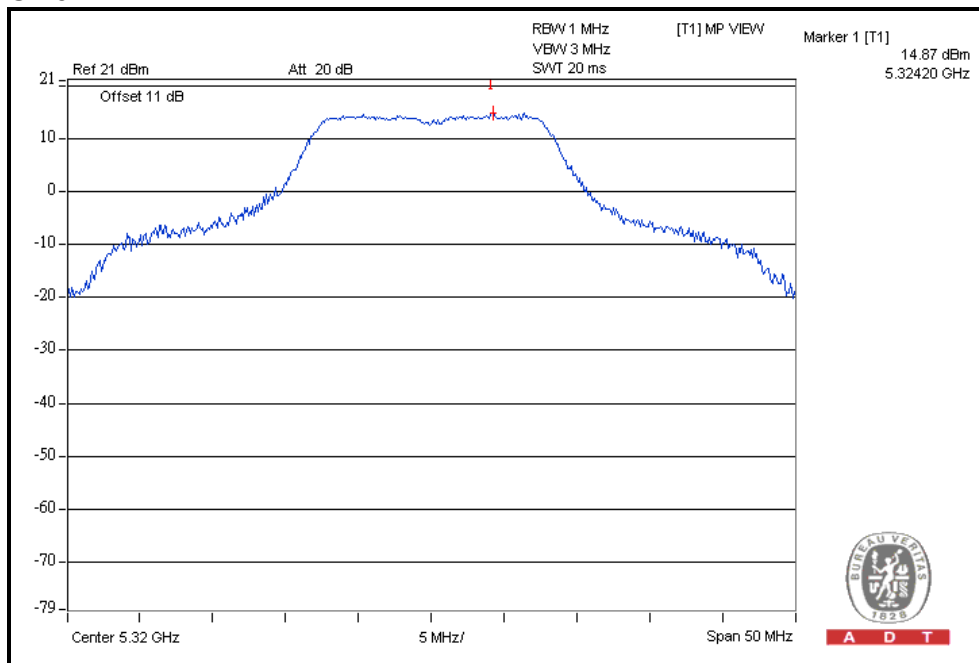
PPSD CH60



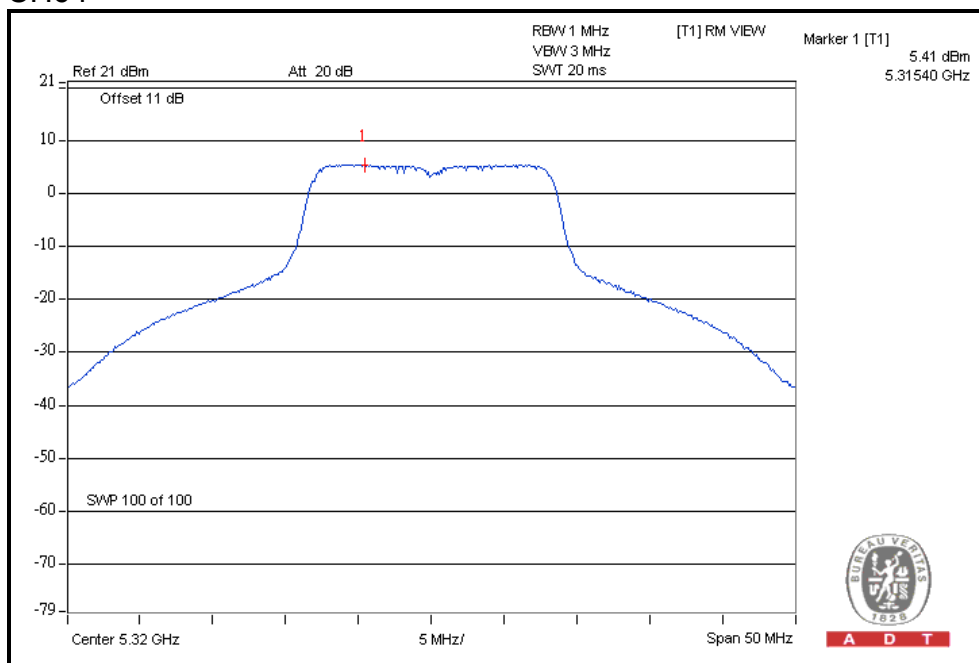


A D T

PEAK VALUE CH64



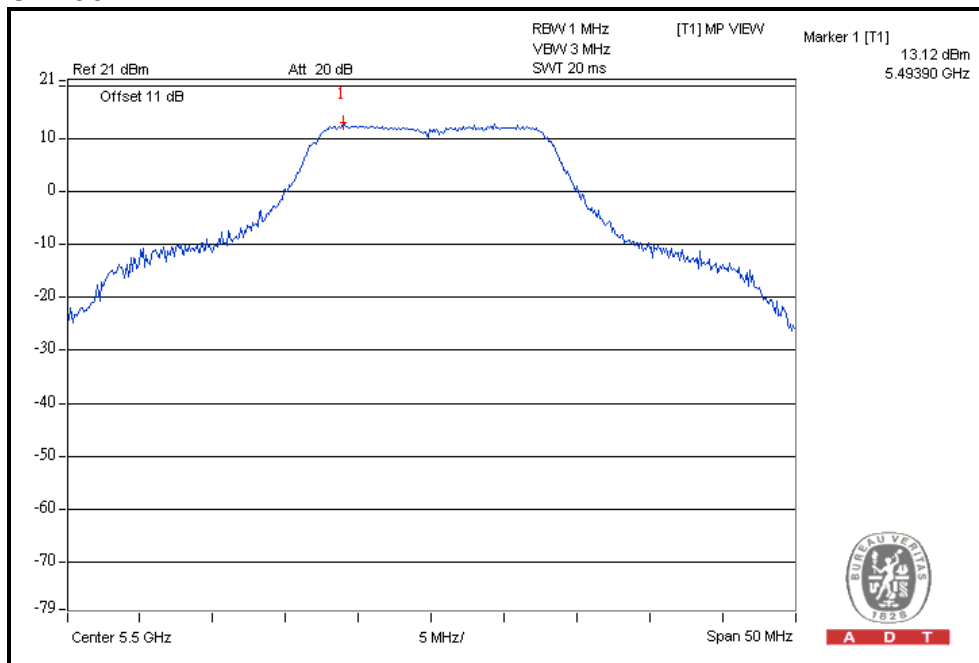
PPSD CH64



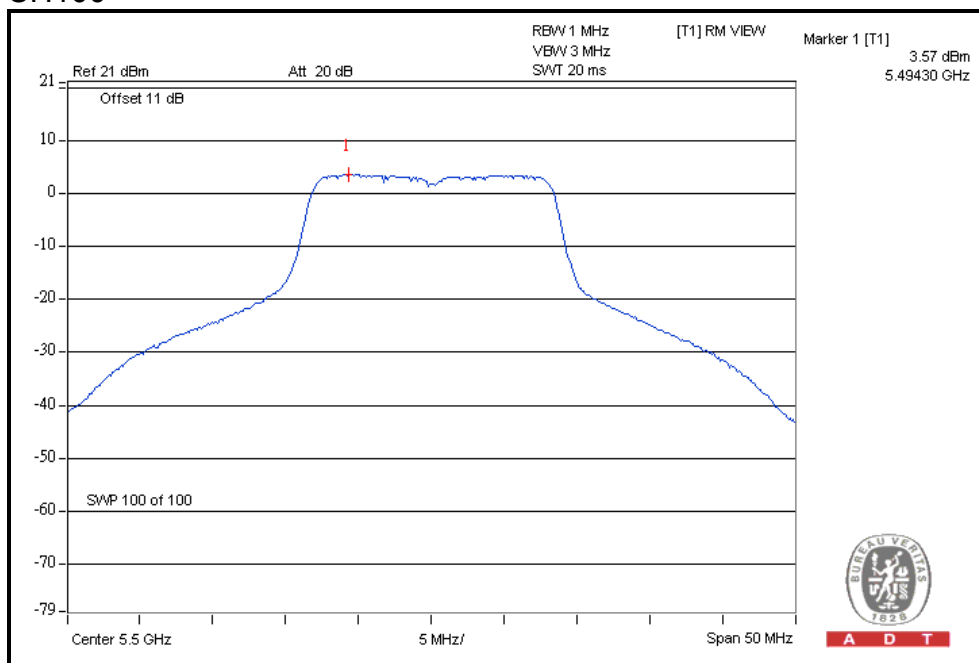


A D T

PEAK VALUE CH100



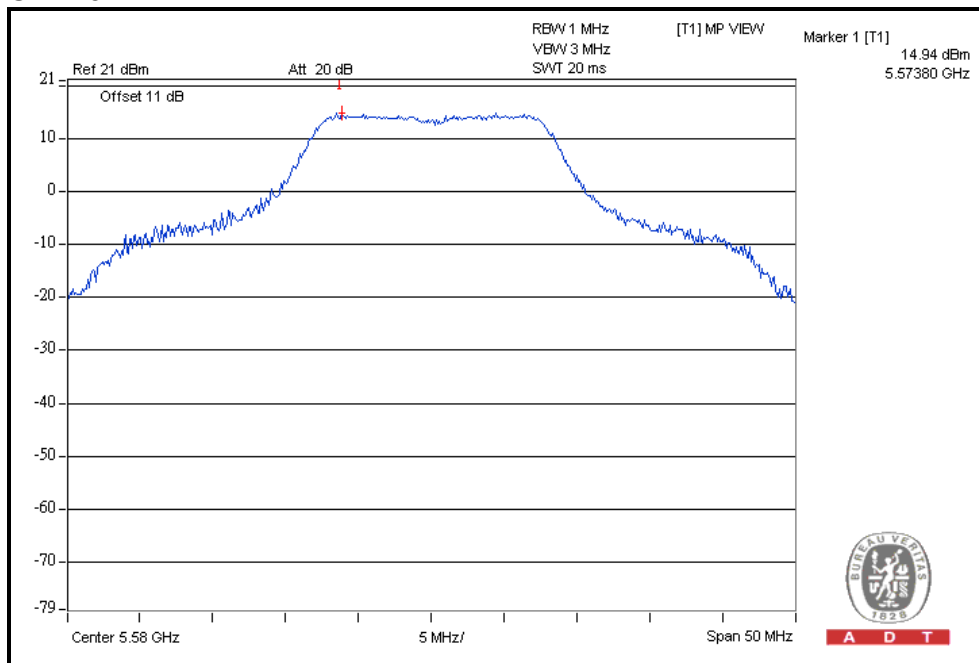
PPSD CH100



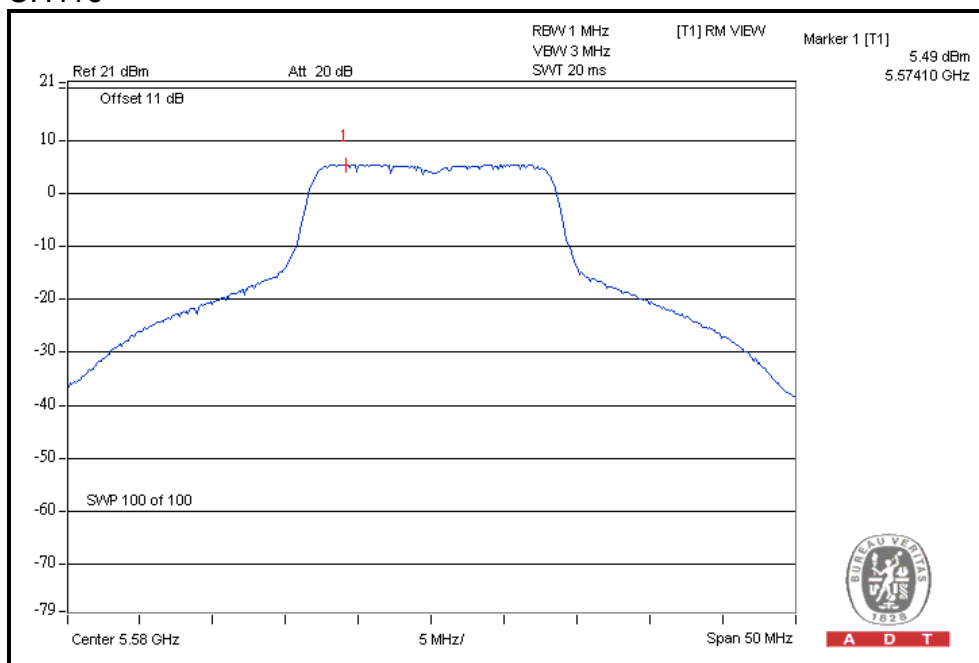


A D T

PEAK VALUE CH116



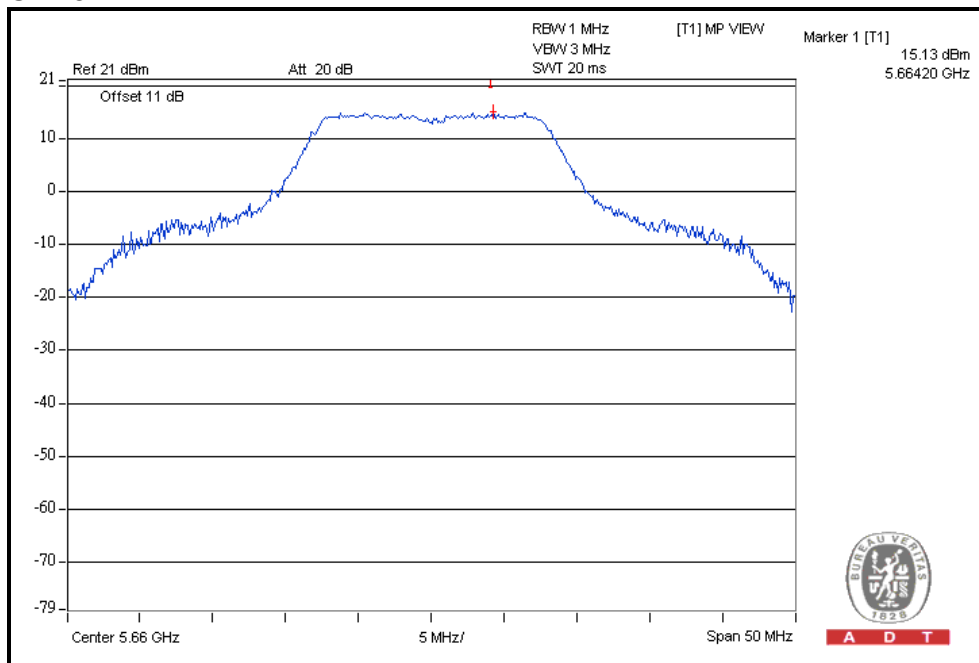
PPSD CH116



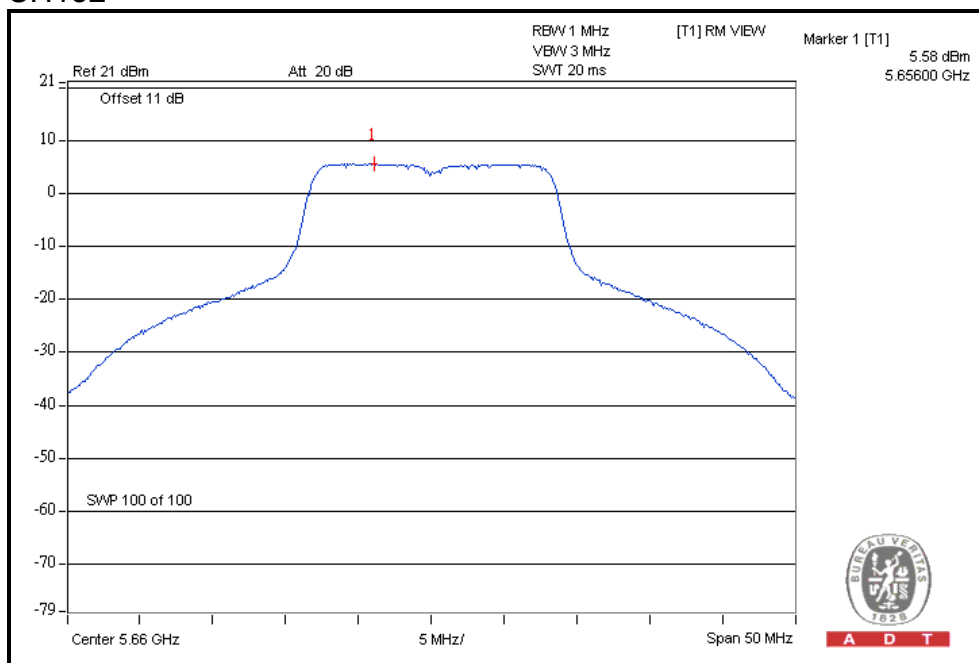


A D T

PEAK VALUE CH132



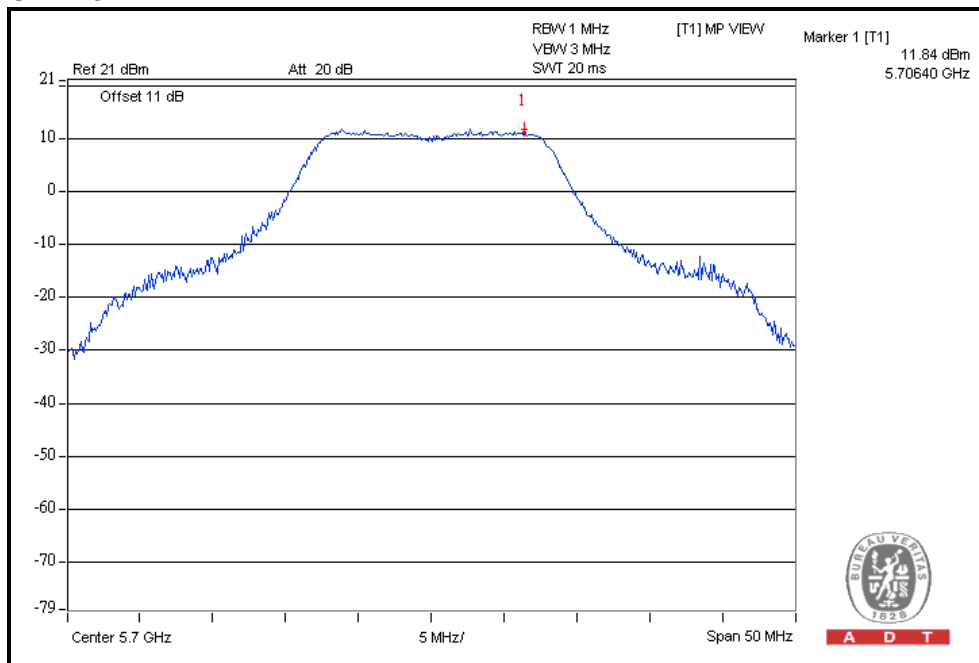
PPSD CH132



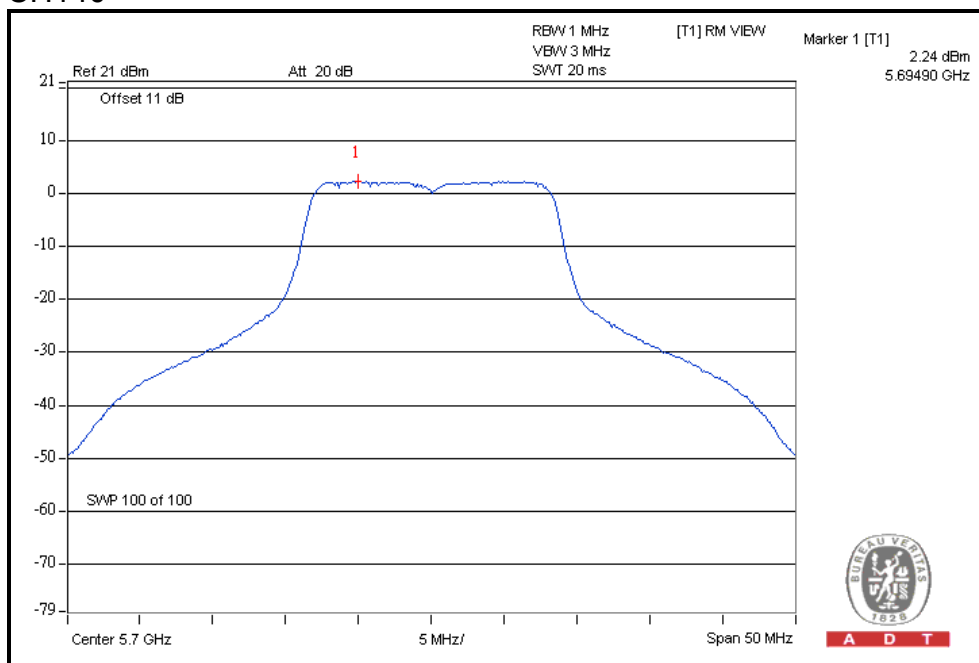


A D T

PEAK VALUE CH140



PPSD CH140





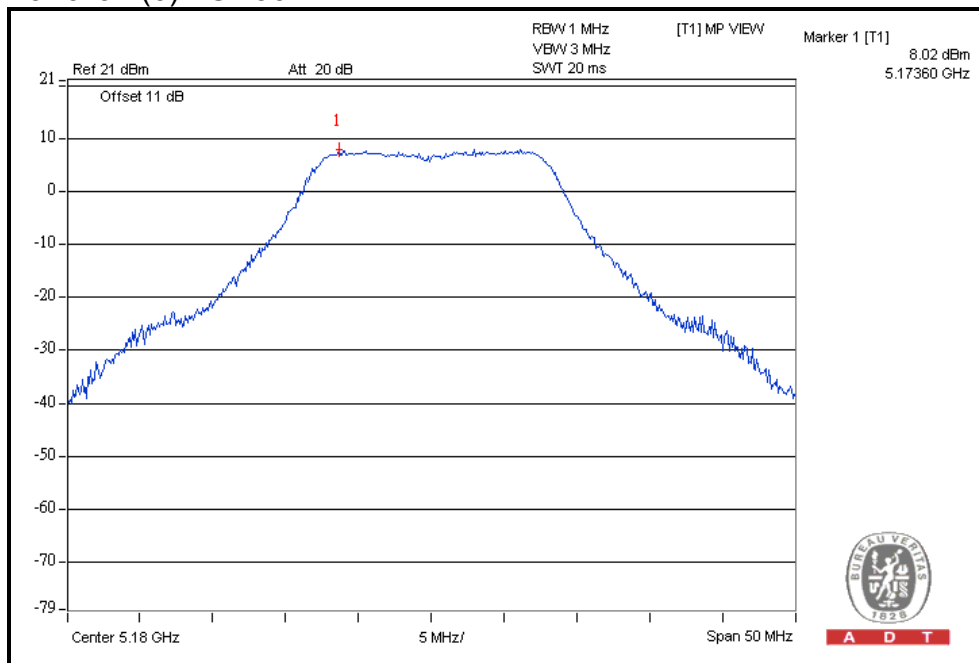
A D T

Multiple chain - 802.11a

CHAN.	CHAN. FREQ. (MHz)	PEAK VALUE (dBm)		PPSD (dBm)		PEAK EXCURSION (dB)		LIMIT (dB)	PASS/ FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1		
36	5180	8.02	10.41	-1.10	-0.21	9.12	10.62	13	PASS
40	5200	8.13	10.46	-1.05	-0.10	9.18	10.56	13	PASS
48	5240	9.43	11.20	0.10	0.38	9.33	10.82	13	PASS
52	5260	12.48	13.95	2.49	3.20	9.99	10.75	13	PASS
60	5300	12.07	12.77	2.68	2.39	9.39	10.38	13	PASS
64	5320	12.08	12.94	2.76	2.29	9.32	10.65	13	PASS
100	5500	10.53	11.86	1.13	0.92	9.40	10.94	13	PASS
116	5580	11.23	13.27	2.21	2.59	9.02	10.68	13	PASS
132	5660	11.62	13.03	2.51	2.76	9.11	10.27	13	PASS
140	5700	8.55	9.03	-0.98	-1.46	9.53	10.49	13	PASS

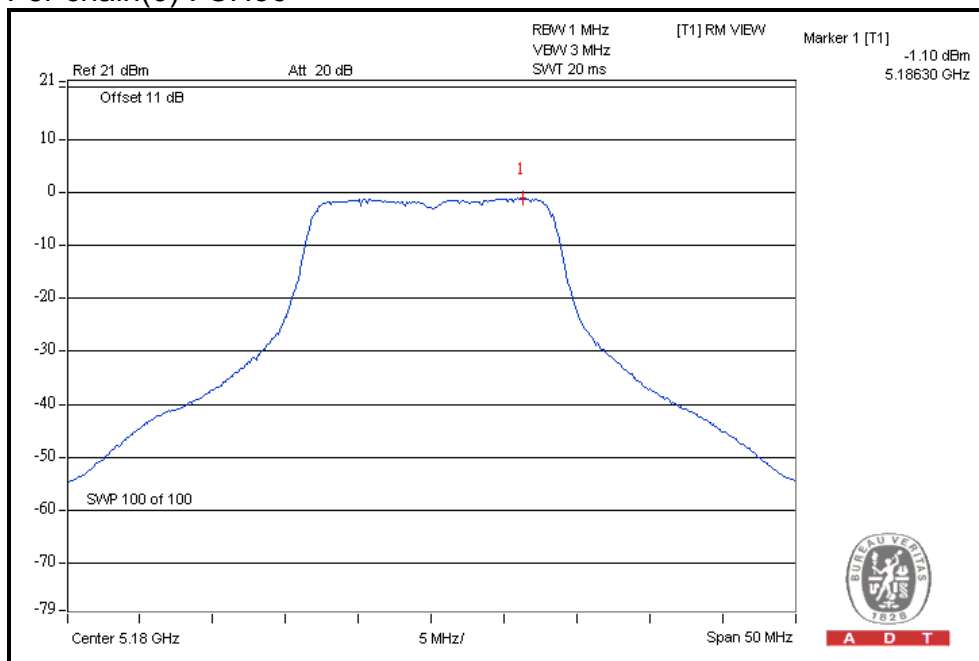
PEAK VALUE

For chain(0) : CH36



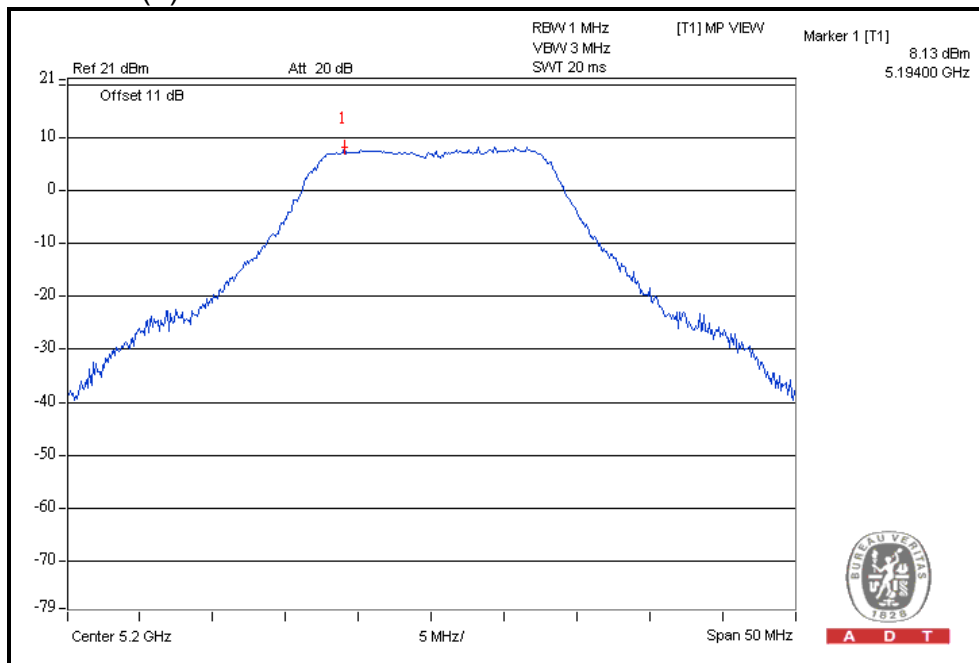
PPSD

For chain(0) : CH36



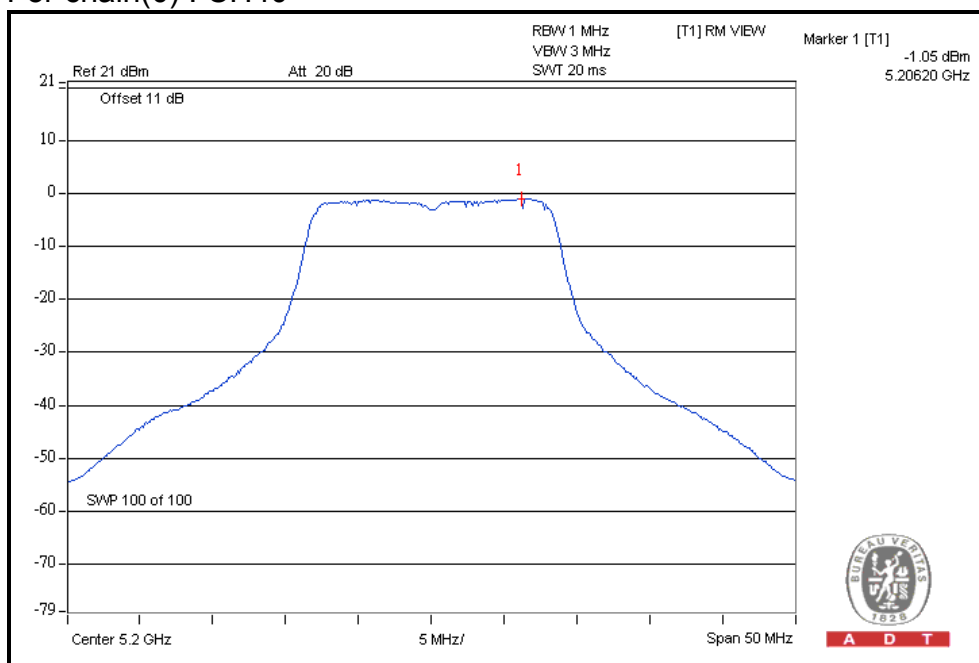
PEAK VALUE

For chain(0) : CH40



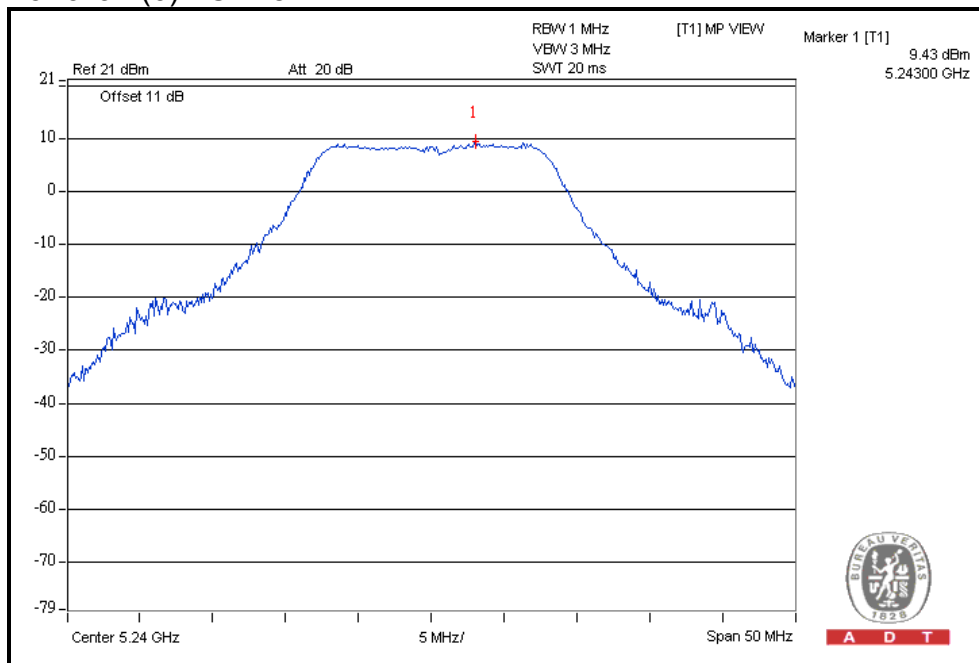
PPSD

For chain(0) : CH40



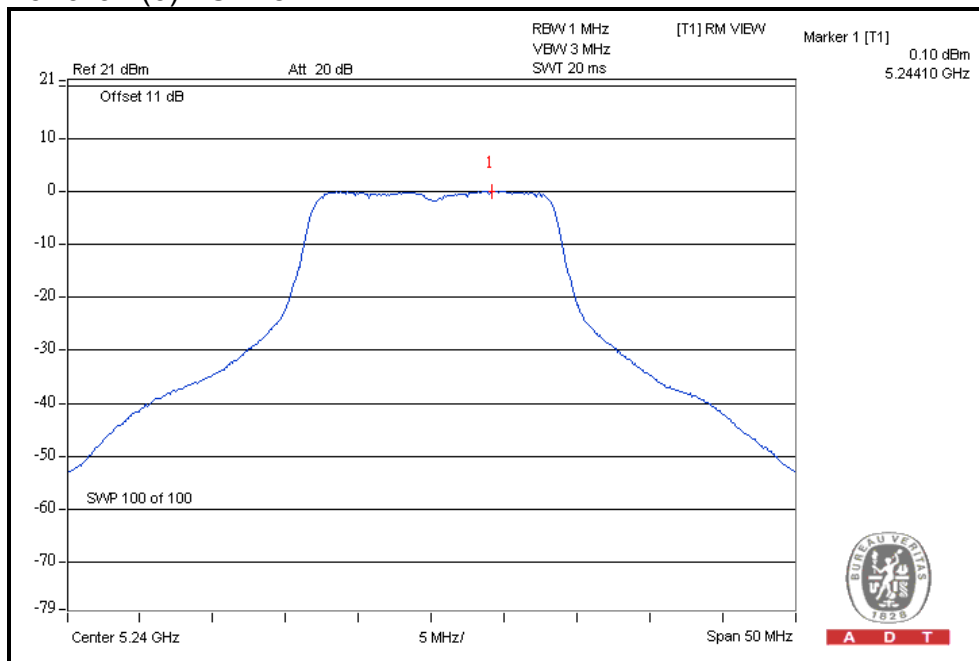
PEAK VALUE

For chain(0) : CH48



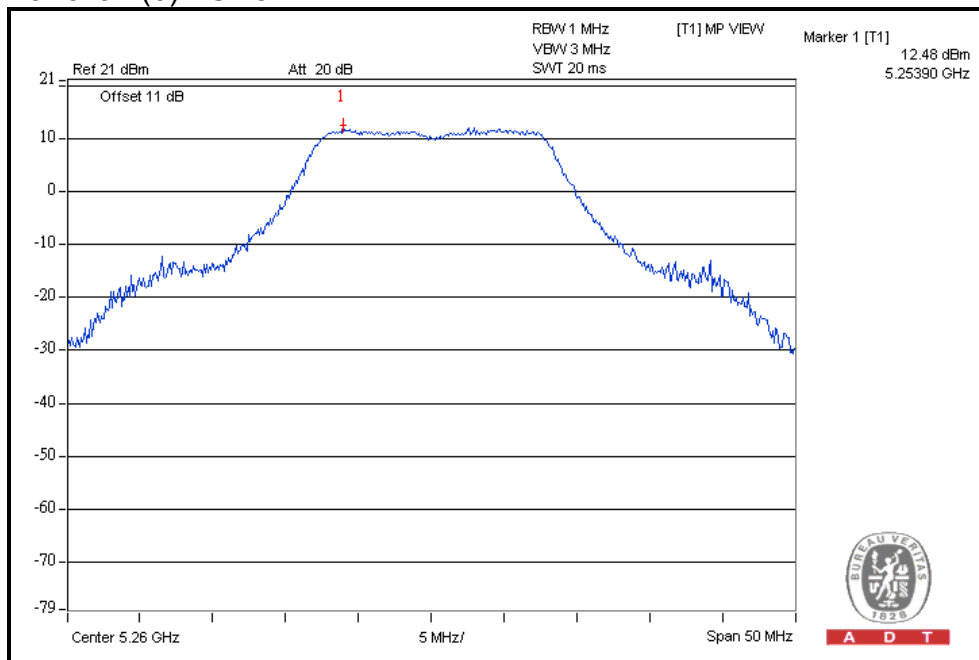
PPSD

For chain(0) : CH48



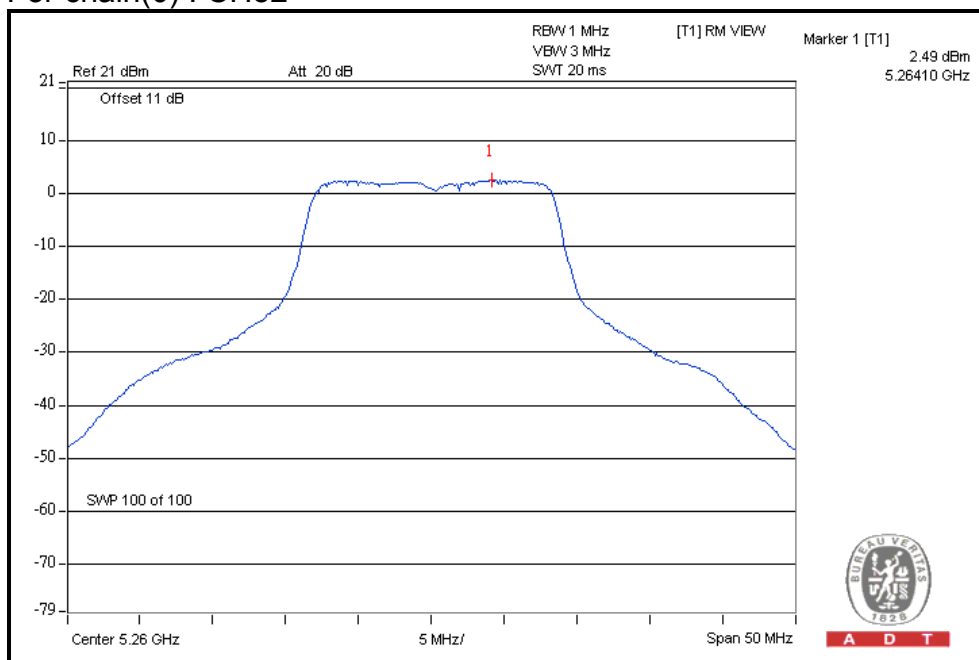
PEAK VALUE

For chain(0) : CH52



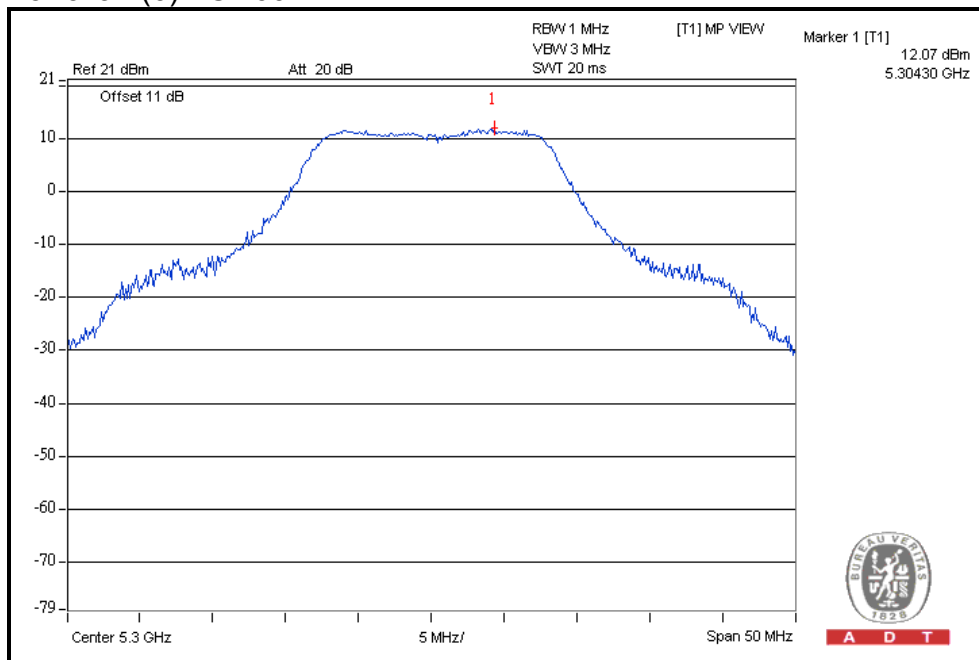
PPSD

For chain(0) : CH52



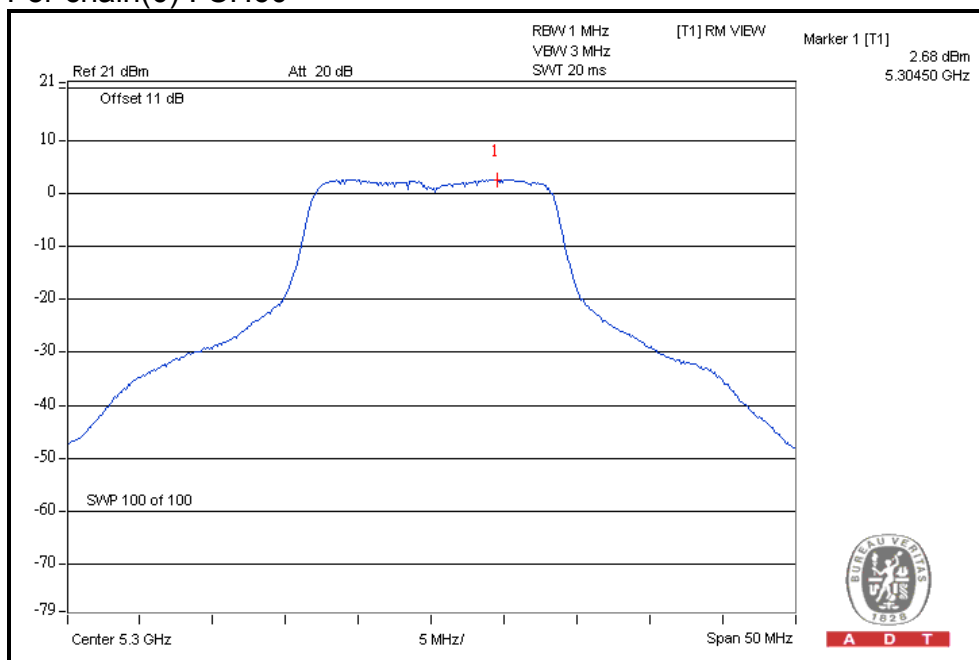
PEAK VALUE

For chain(0) : CH60



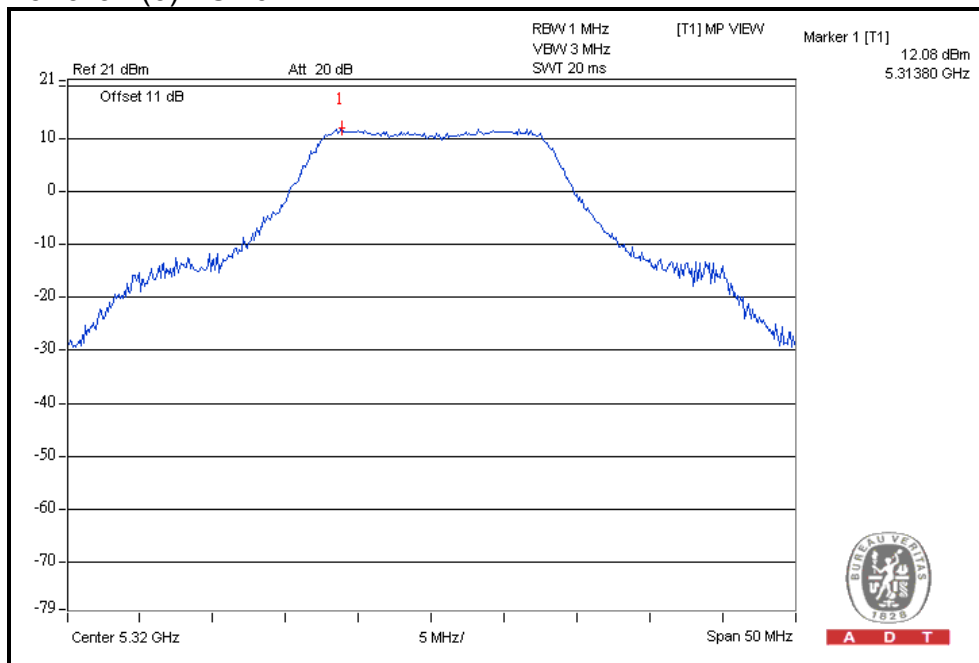
PPSD

For chain(0) : CH60



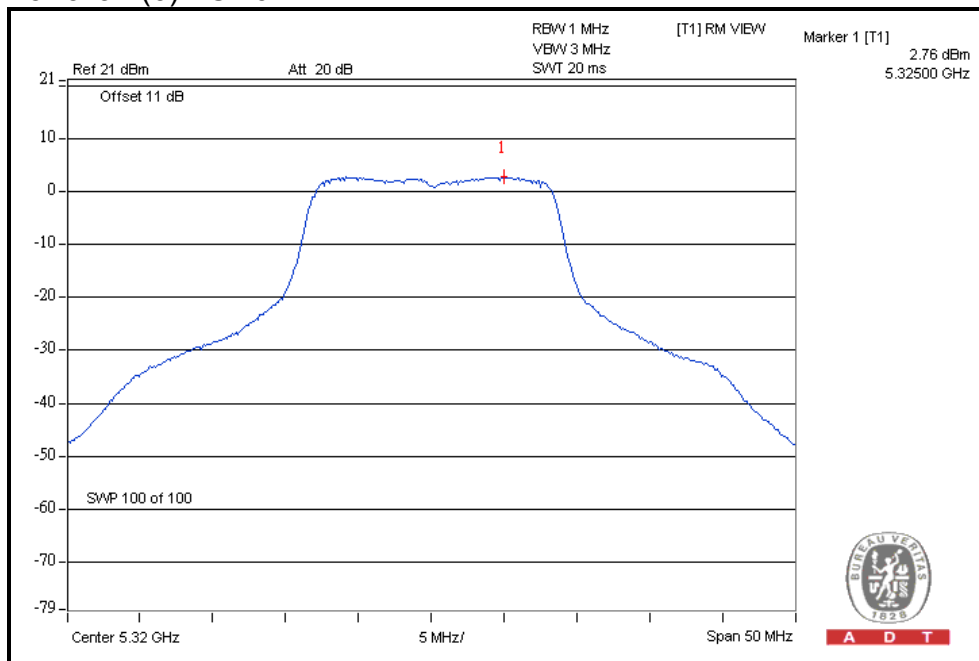
PEAK VALUE

For chain(0) : CH64



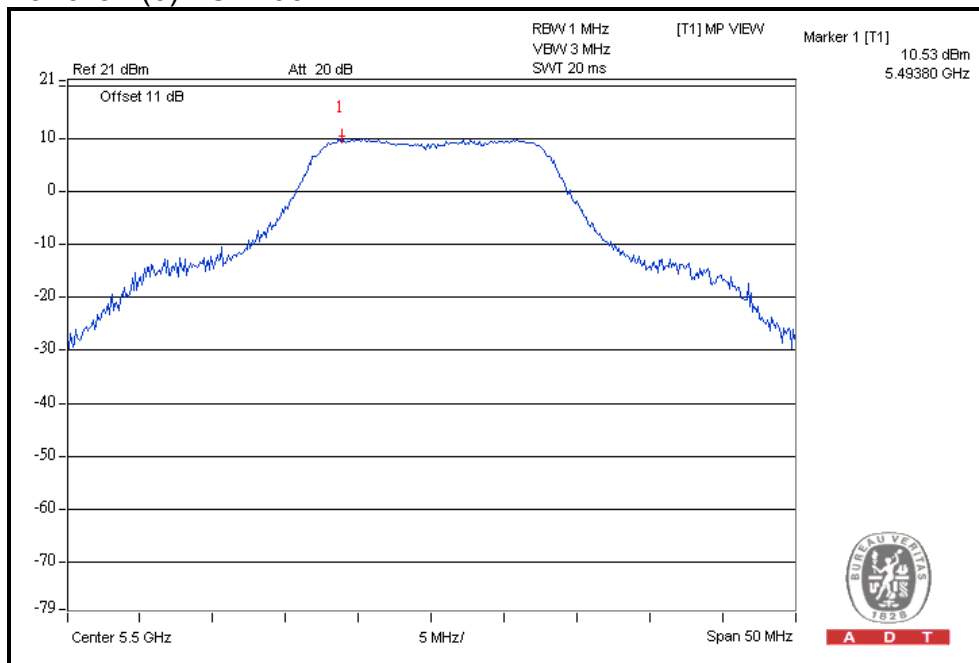
PPSD

For chain(0) : CH64



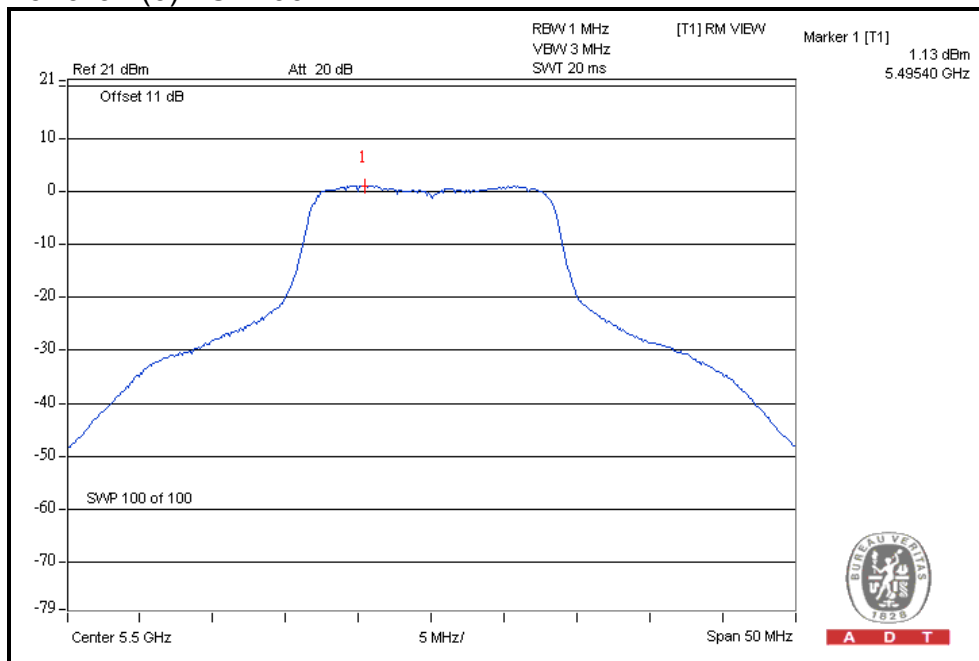
PEAK VALUE

For chain(0) : CH100



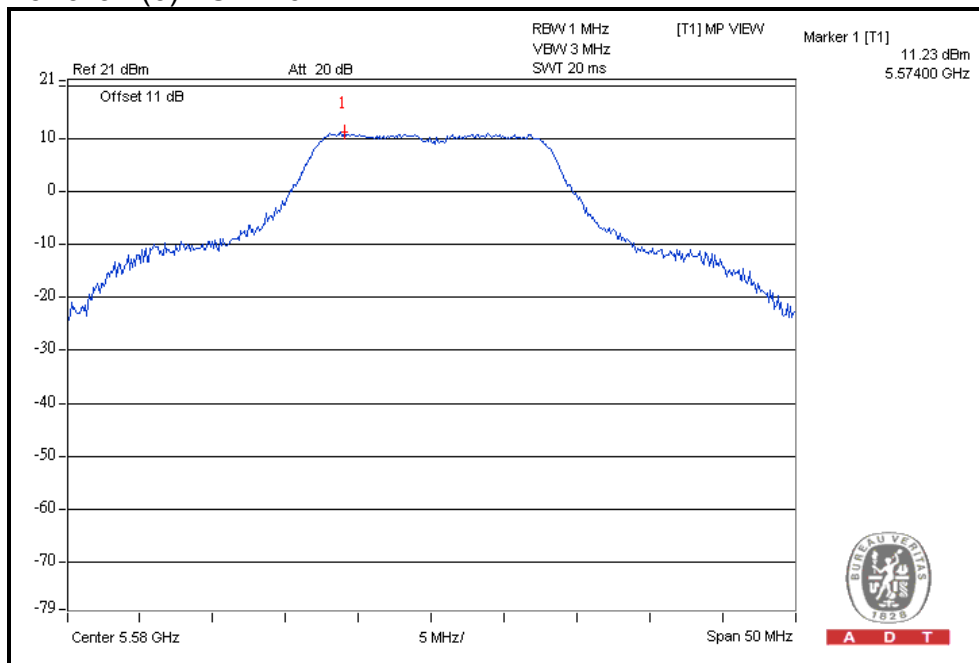
PPSD

For chain(0) : CH100



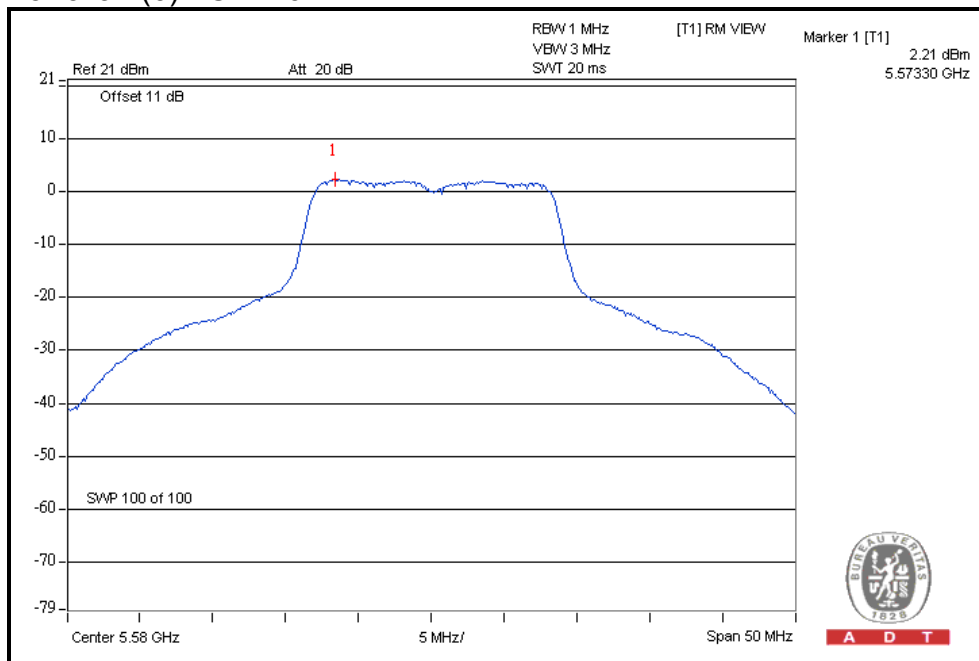
PEAK VALUE

For chain(0) : CH116



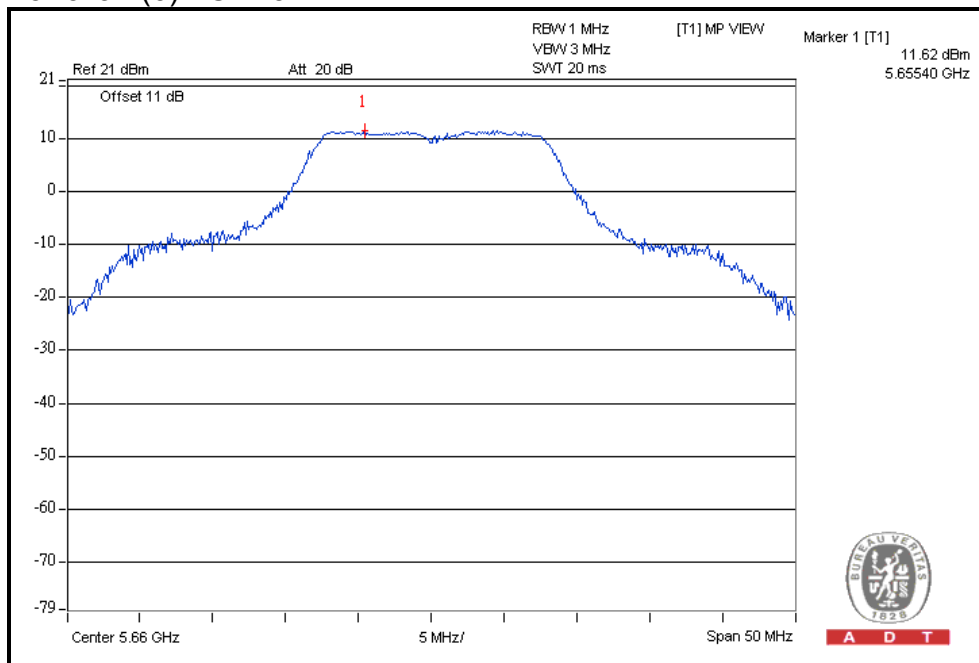
PPSD

For chain(0) : CH116



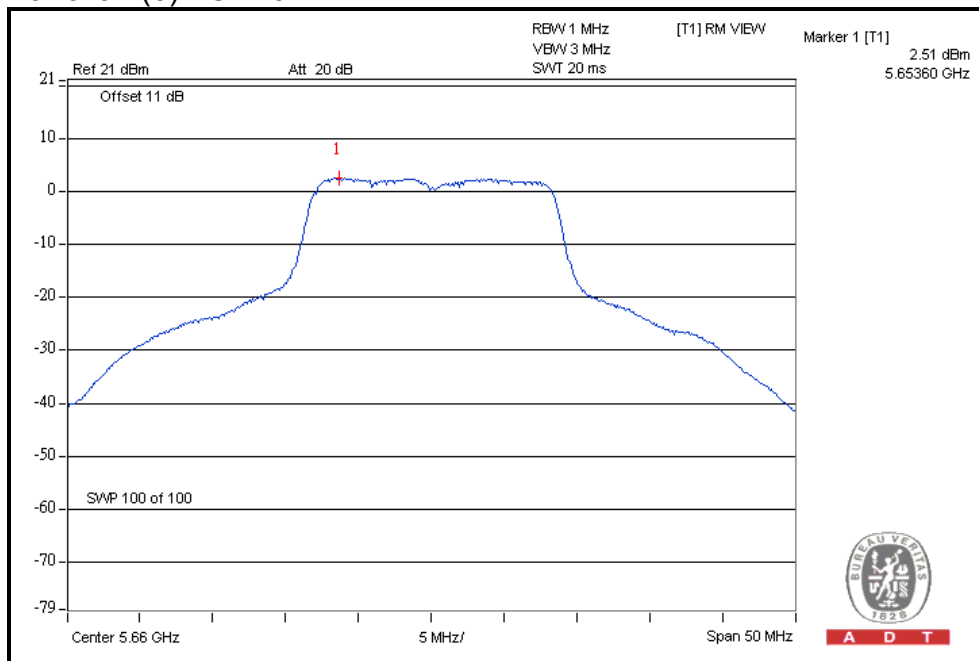
PEAK VALUE

For chain(0) : CH132



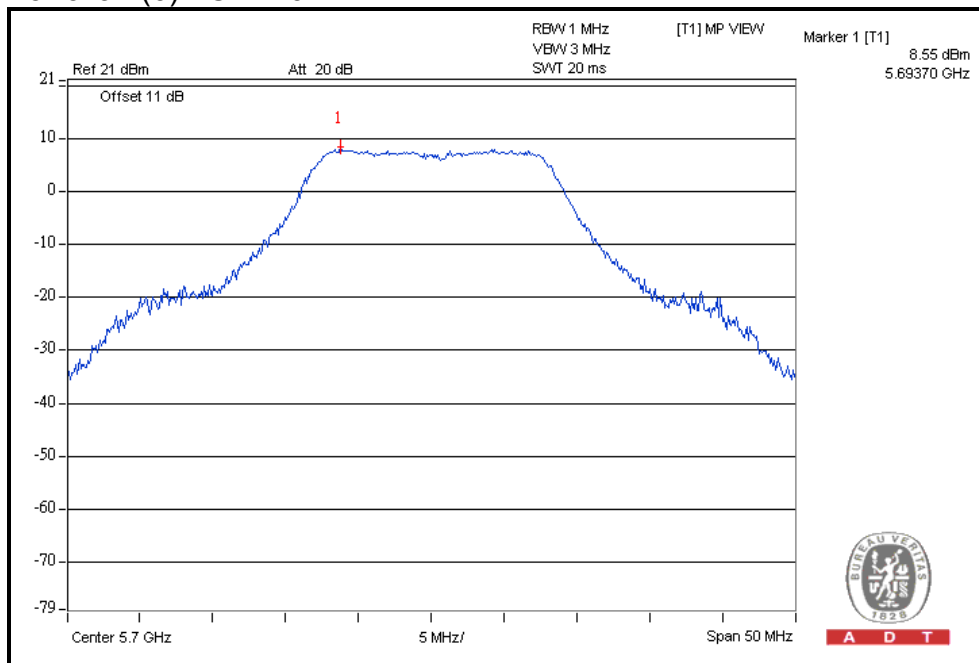
PPSD

For chain(0) : CH132



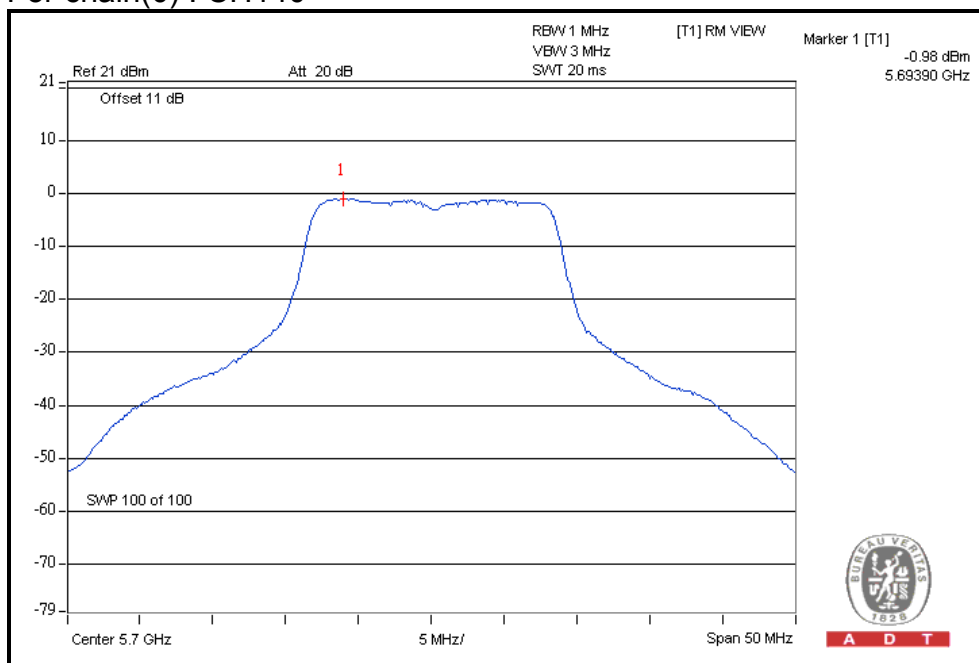
PEAK VALUE

For chain(0) : CH140



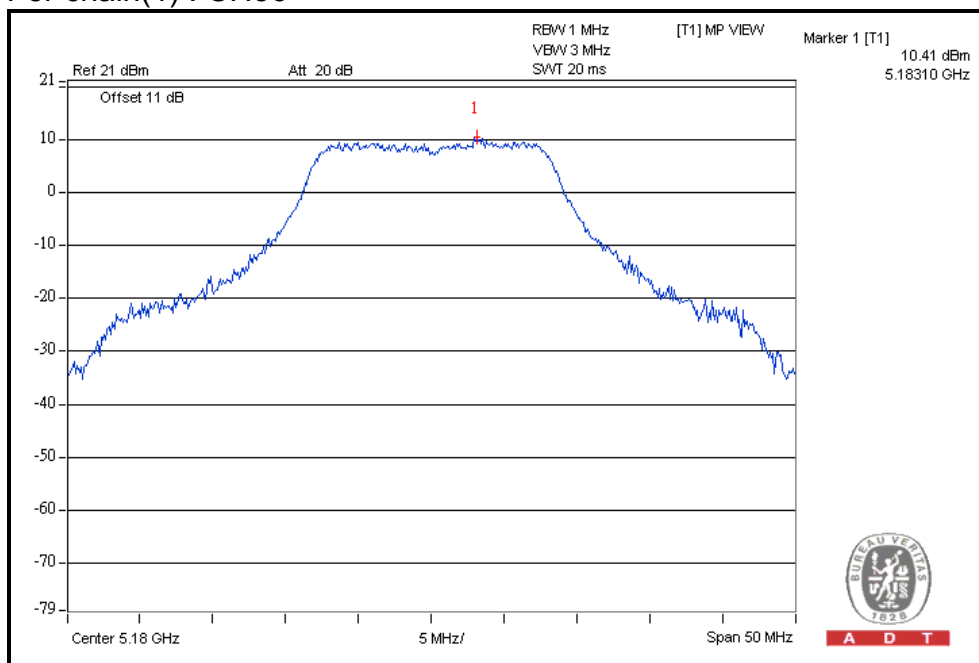
PPSD

For chain(0) : CH140



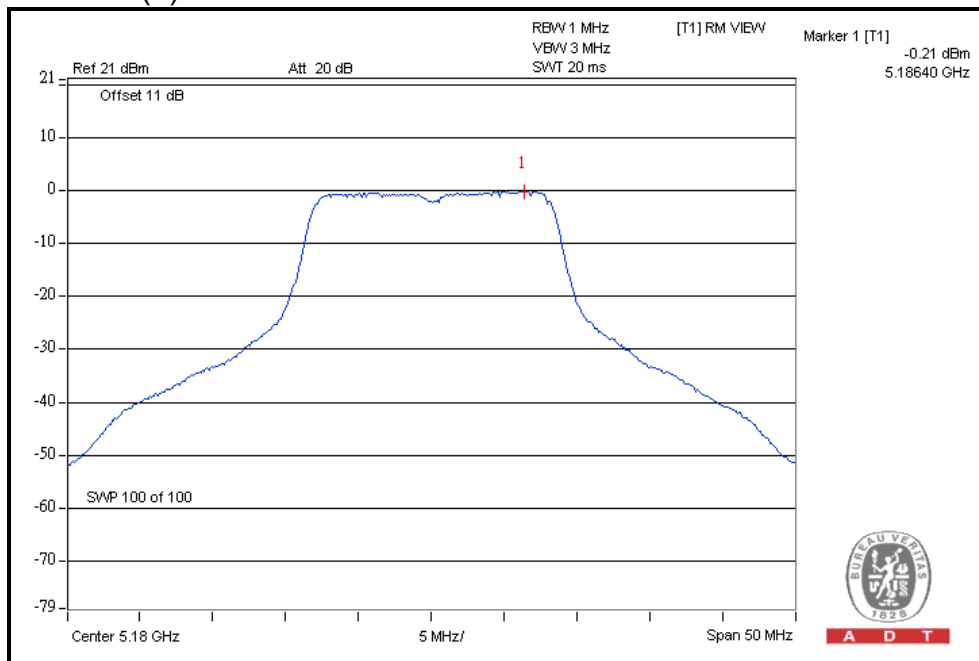
PEAK VALUE

For chain(1) : CH36



PPSD

For chain(1) : CH36

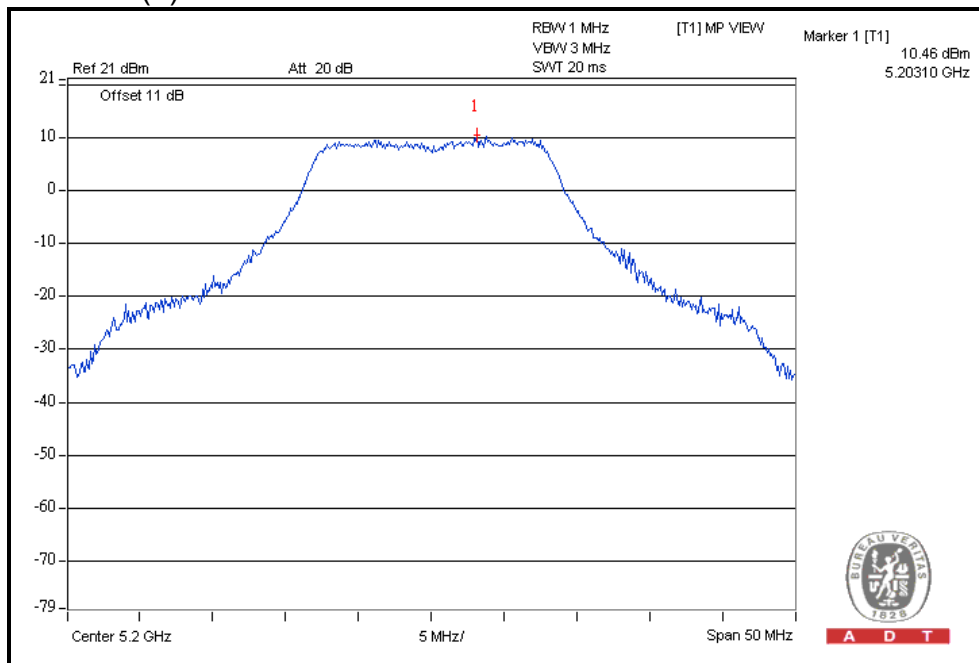




A D T

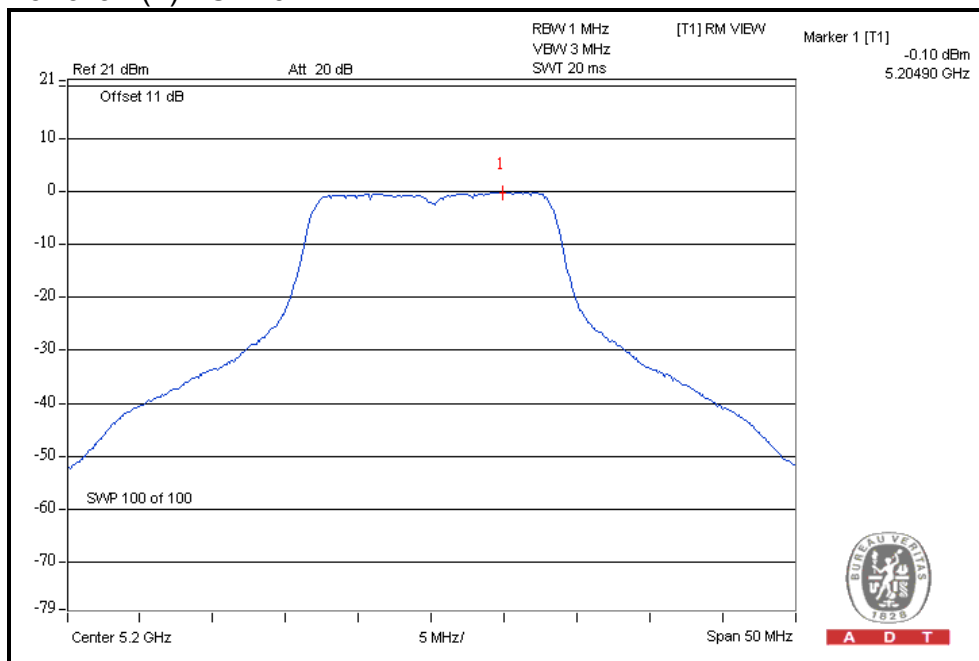
PEAK VALUE

For chain(1) : CH40



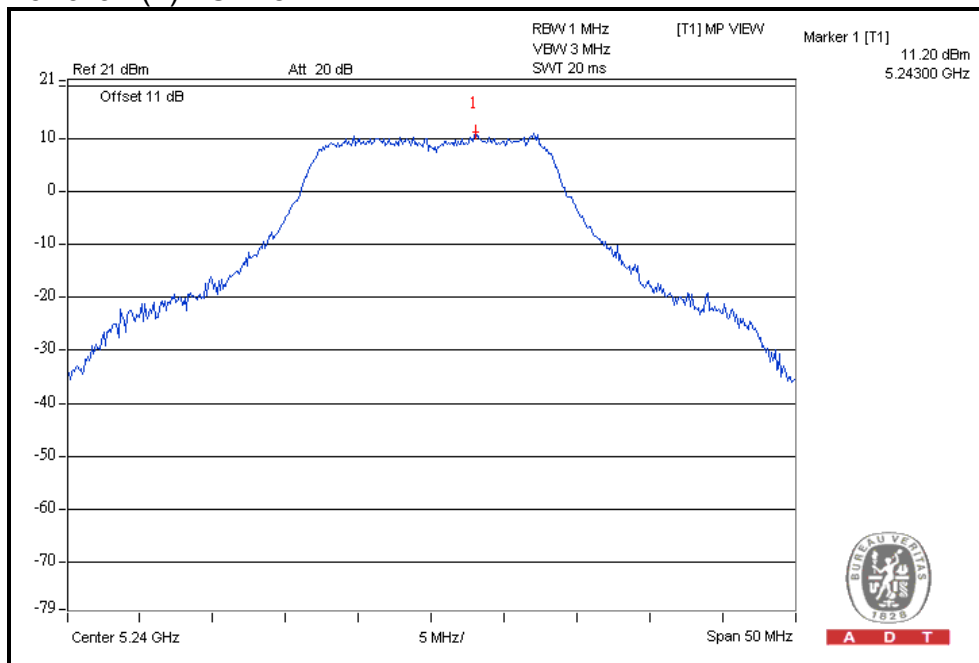
PPSD

For chain(1) : CH40



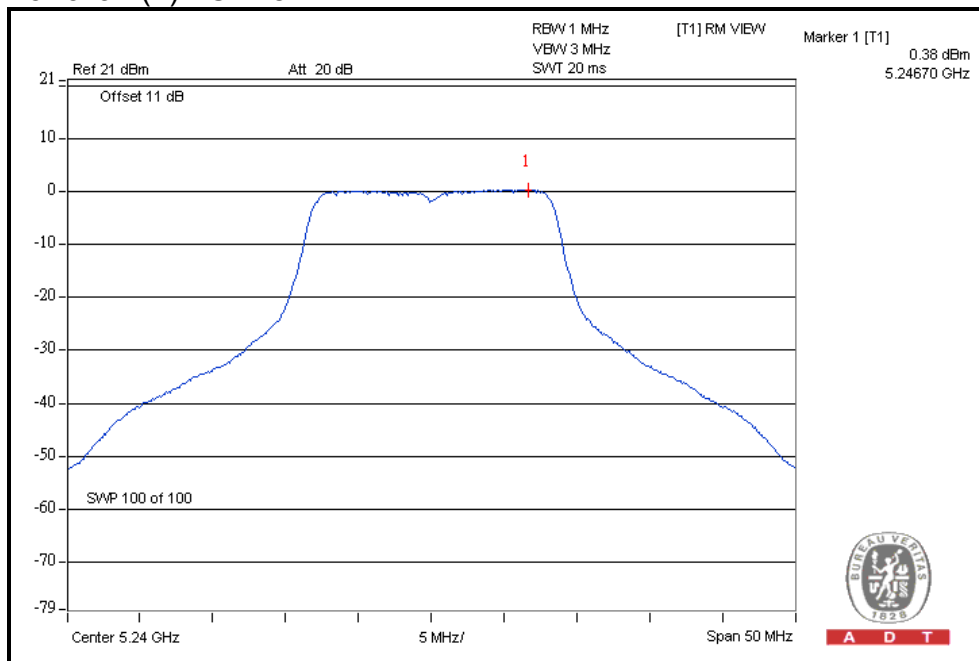
PEAK VALUE

For chain(1) : CH48



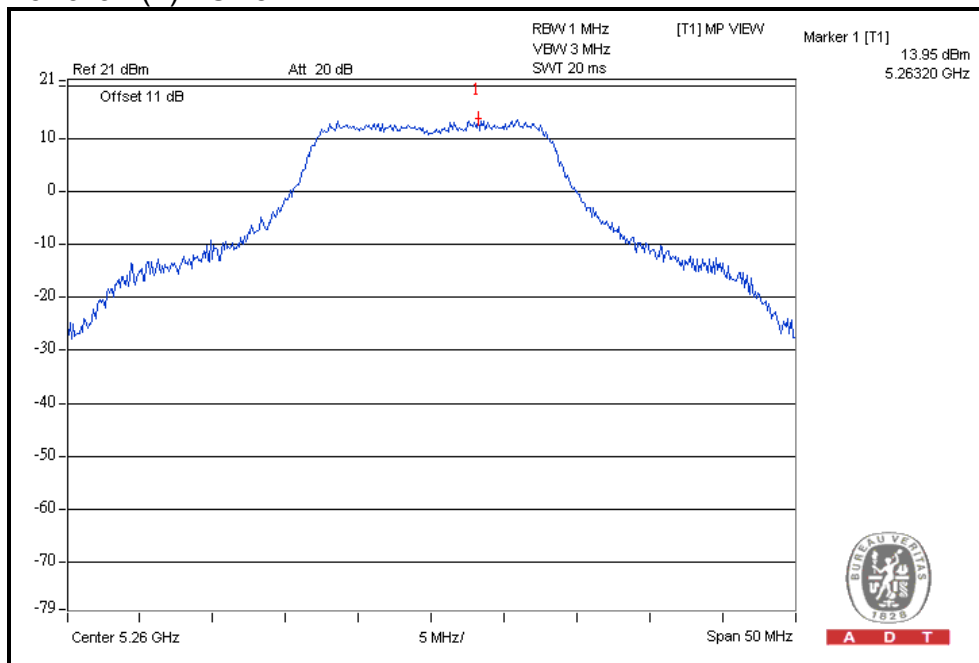
PPSD

For chain(1) : CH48



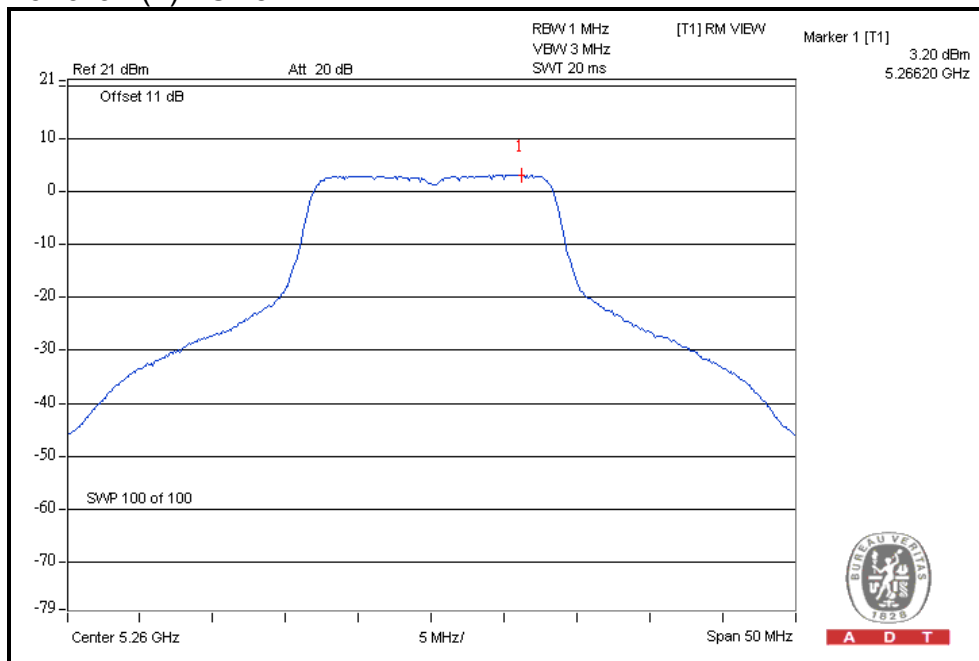
PEAK VALUE

For chain(1) : CH52



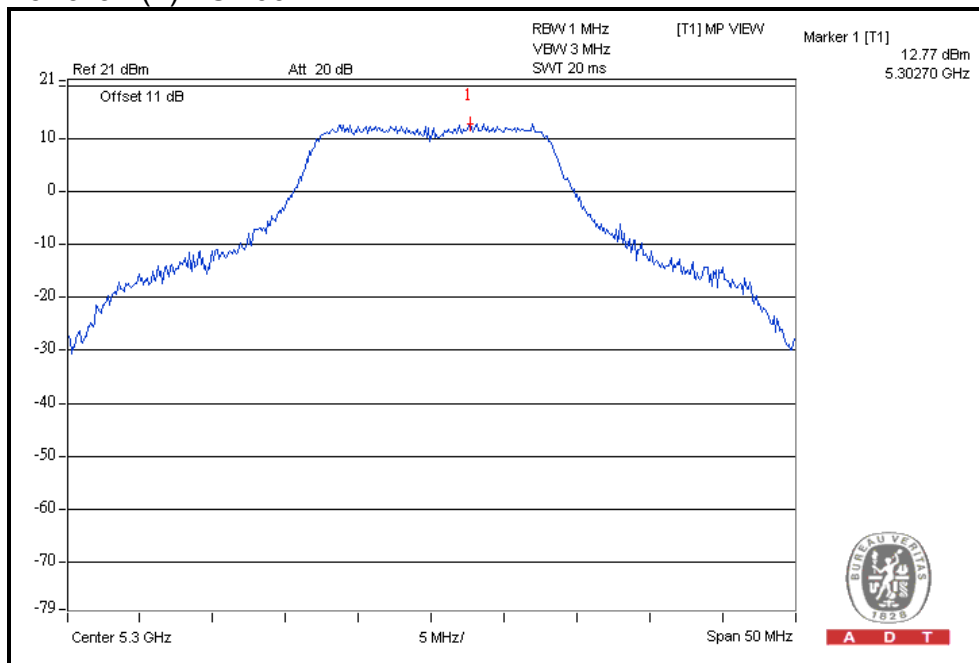
PPSD

For chain(1) : CH52



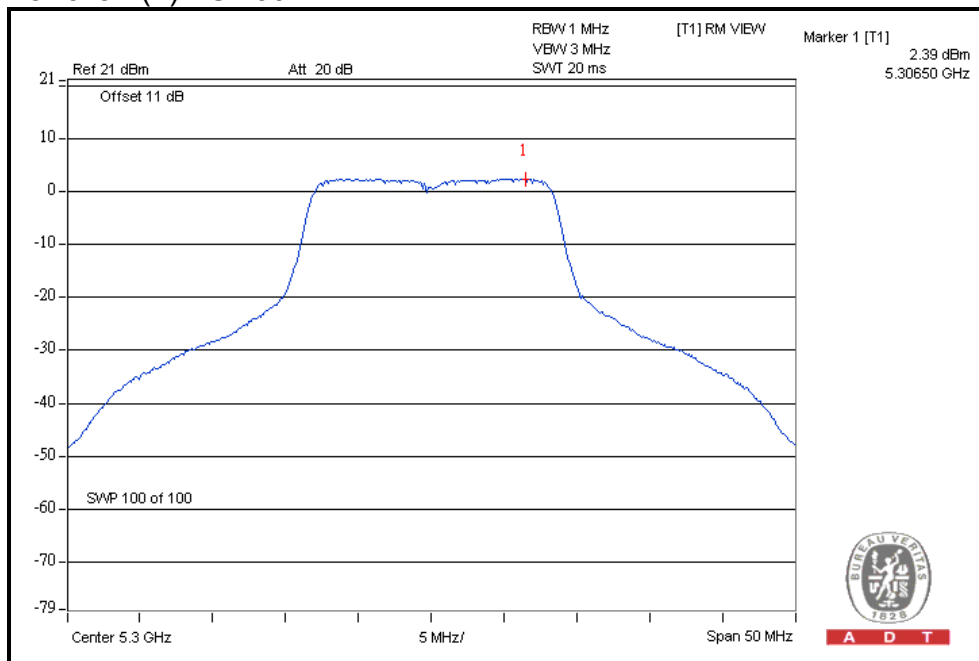
PEAK VALUE

For chain(1) : CH60



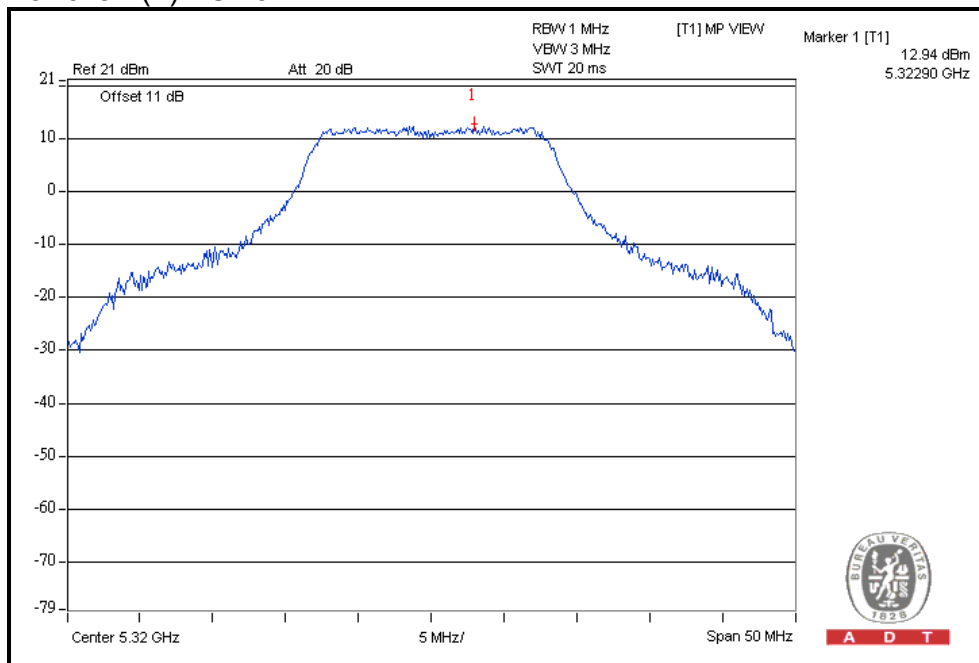
PPSD

For chain(1) : CH60



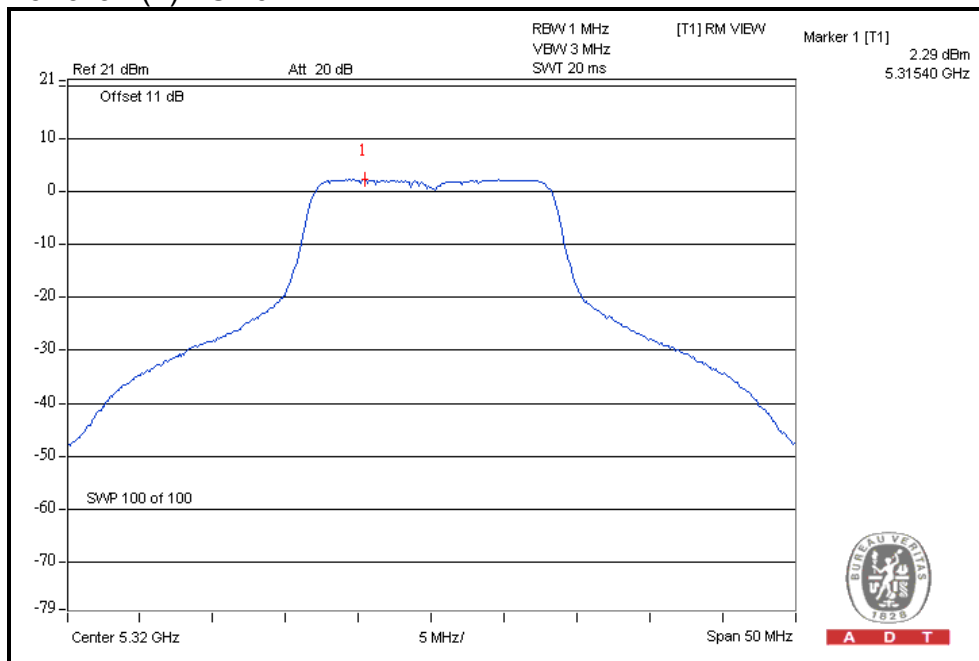
PEAK VALUE

For chain(1) : CH64



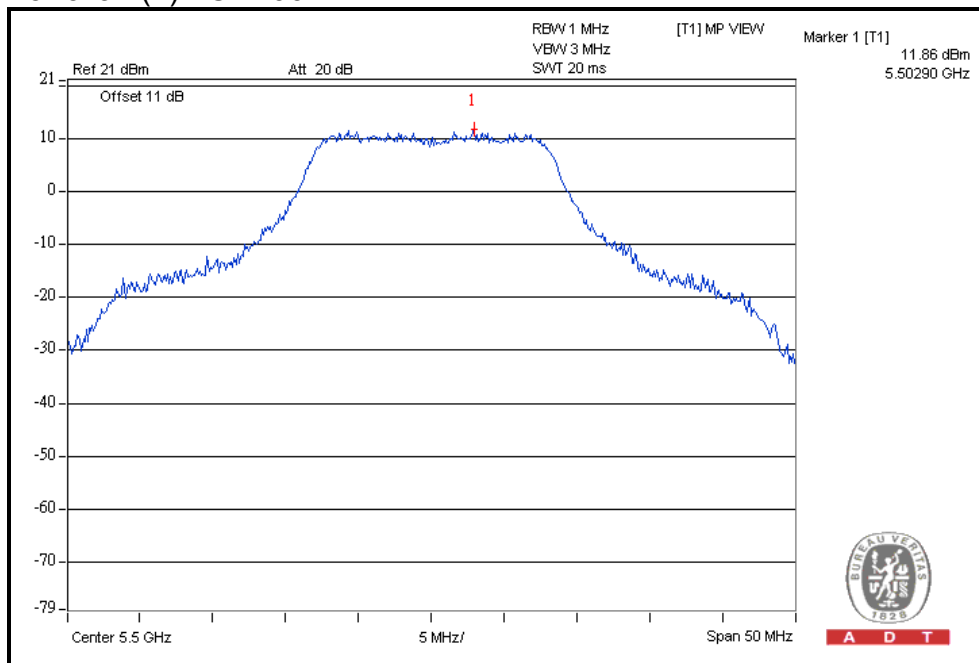
PPSD

For chain(1) : CH64



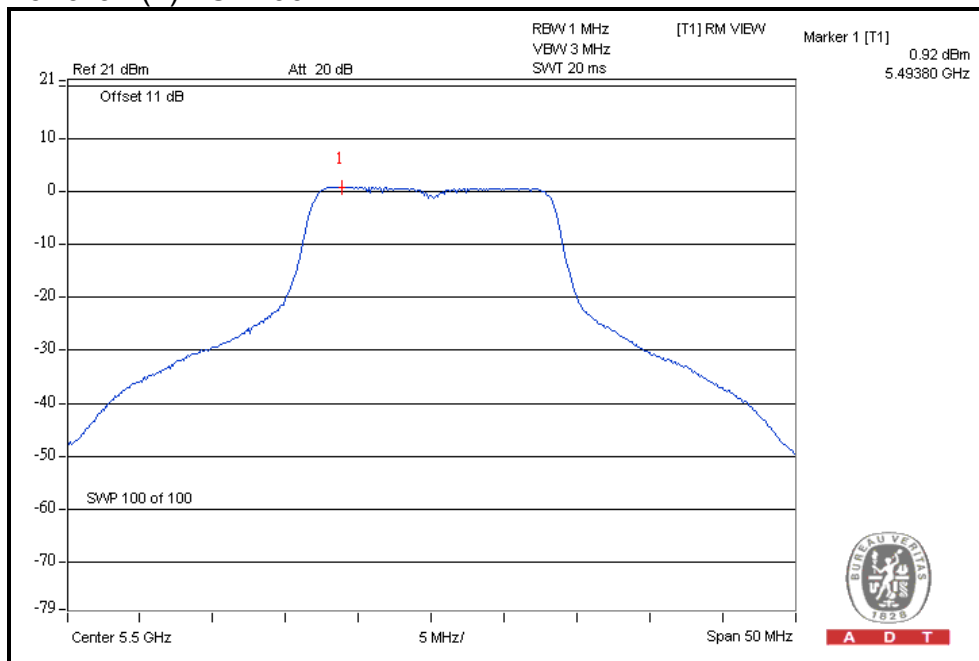
PEAK VALUE

For chain(1) : CH100



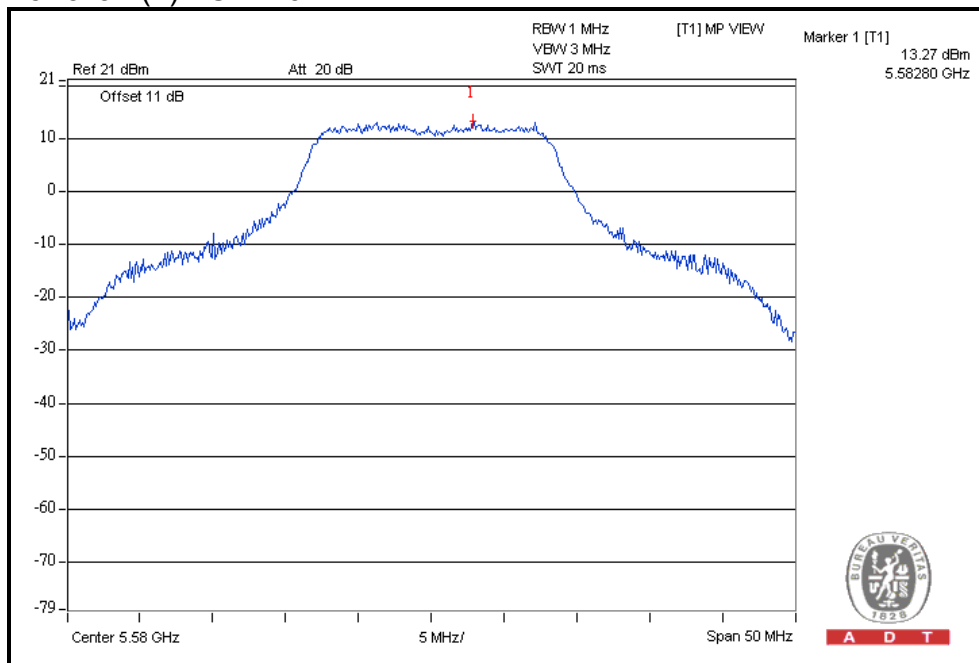
PPSD

For chain(1) : CH100



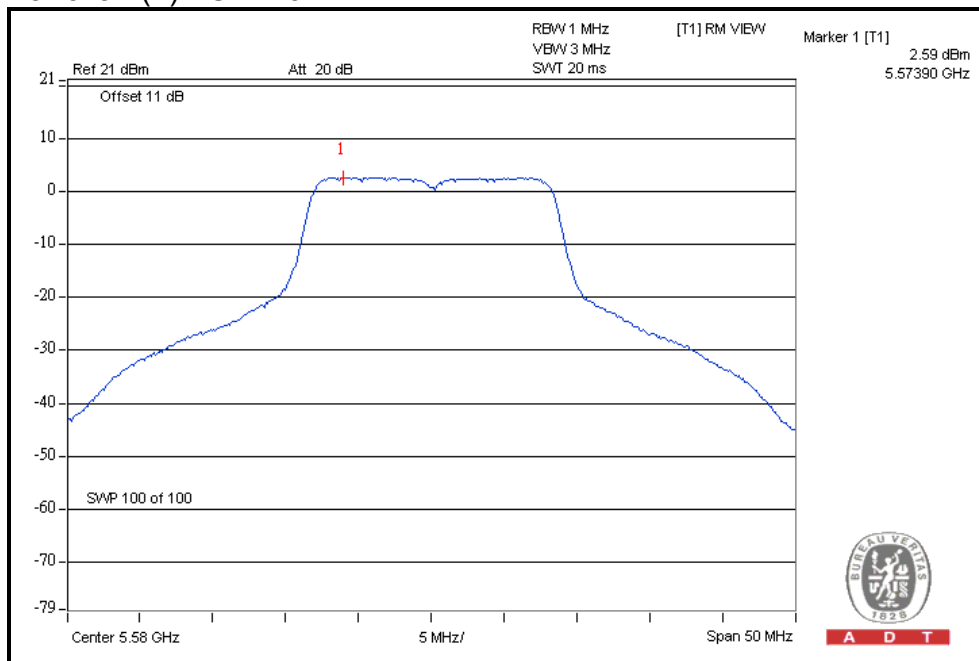
PEAK VALUE

For chain(1) : CH116



PPSD

For chain(1) : CH116

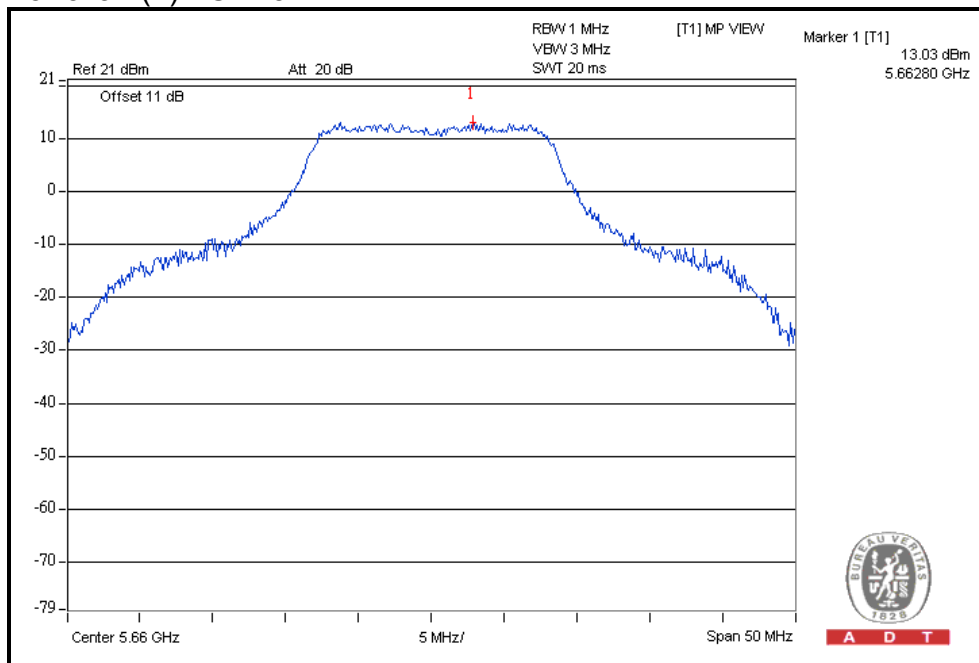




A D T

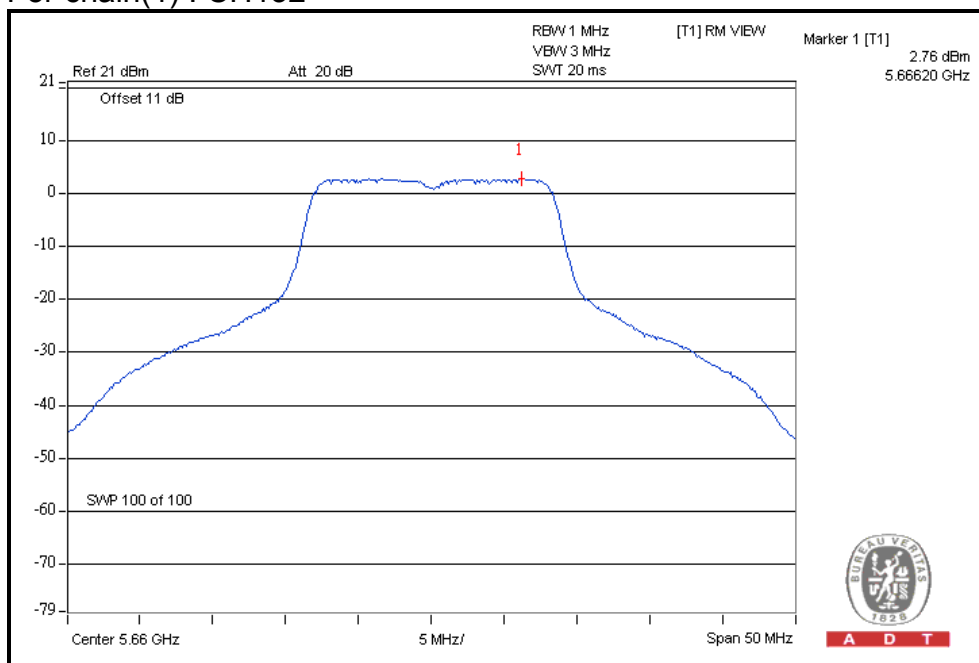
PEAK VALUE

For chain(1) : CH132



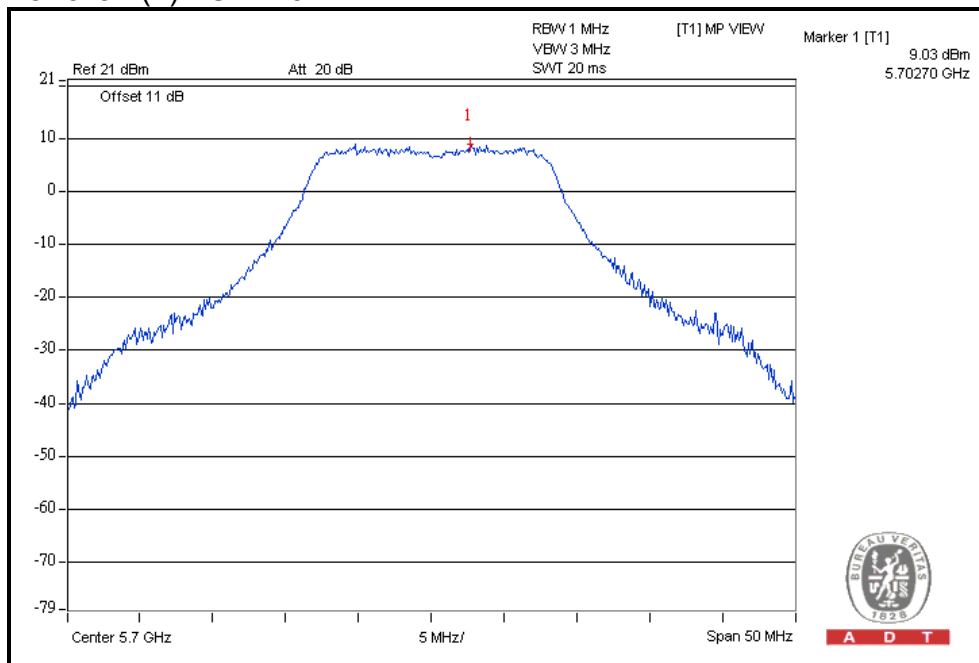
PPSD

For chain(1) : CH132



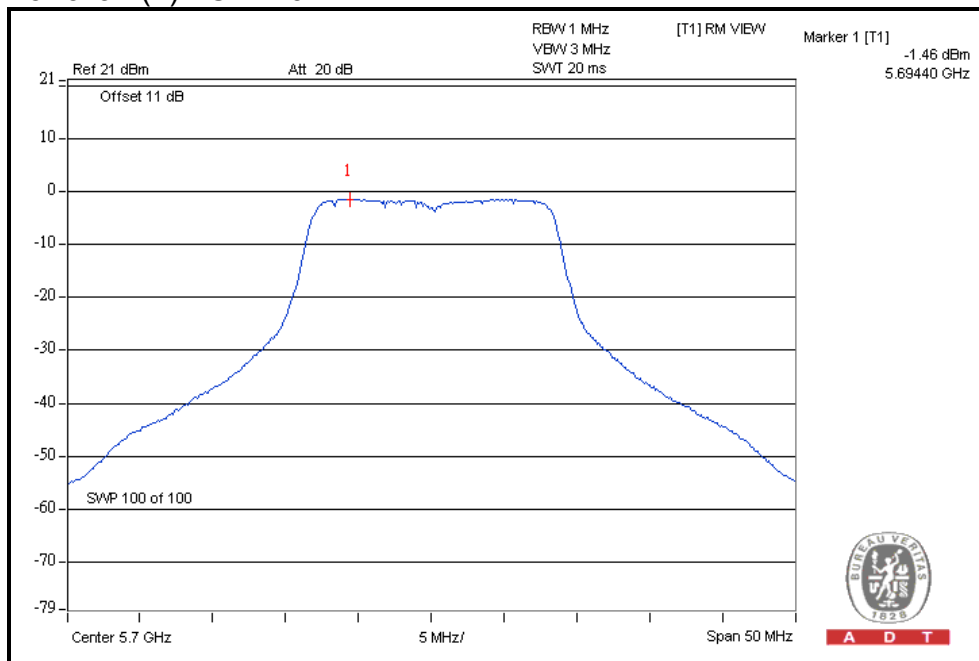
PEAK VALUE

For chain(1) : CH140



PPSD

For chain(1) : CH140

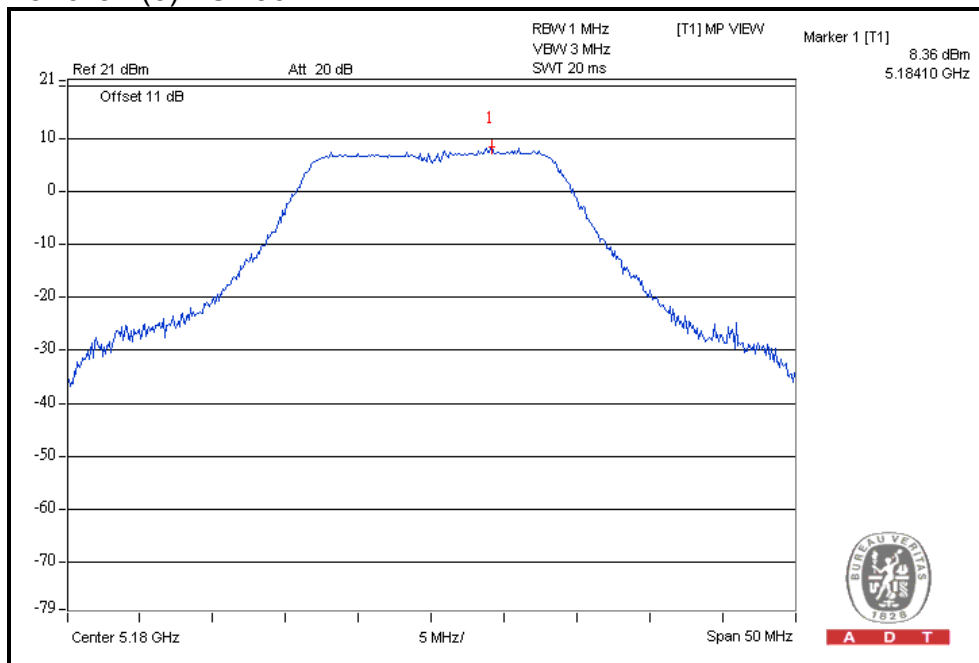


802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	PEAK VALUE (dBm)		PPSD (dBm)		PEAK EXCURSION (dB)		LIMIT (dB)	PASS/ FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1		
36	5180	8.36	8.83	-1.28	-0.60	9.64	9.43	13	PASS
40	5200	8.03	10.81	-1.35	0.24	9.38	10.57	13	PASS
48	5240	9.74	9.76	0.21	0.31	9.53	9.45	13	PASS
52	5260	10.97	11.15	1.60	1.52	9.37	9.63	13	PASS
60	5300	11.23	11.19	1.75	1.47	9.48	9.72	13	PASS
64	5320	10.64	10.70	1.85	1.18	8.79	9.52	13	PASS
100	5500	10.31	10.78	1.40	0.97	8.91	9.81	13	PASS
116	5580	11.02	10.66	1.44	1.14	9.58	9.52	13	PASS
132	5660	11.01	10.95	1.94	1.49	9.07	9.46	13	PASS
140	5700	9.38	8.87	0.18	-0.86	9.20	9.73	13	PASS

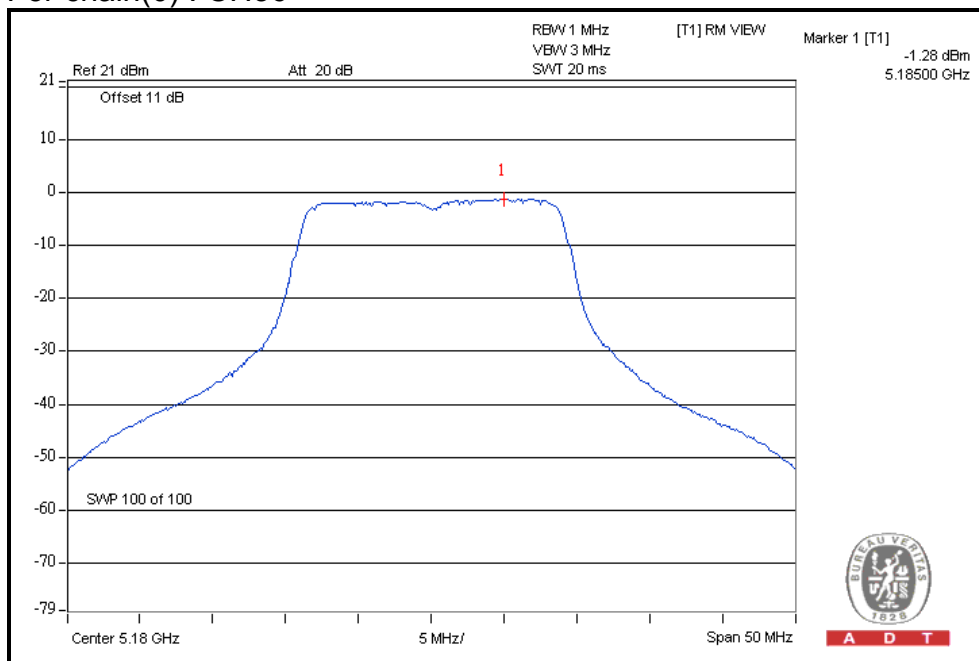
PEAK VALUE

For chain(0) : CH36



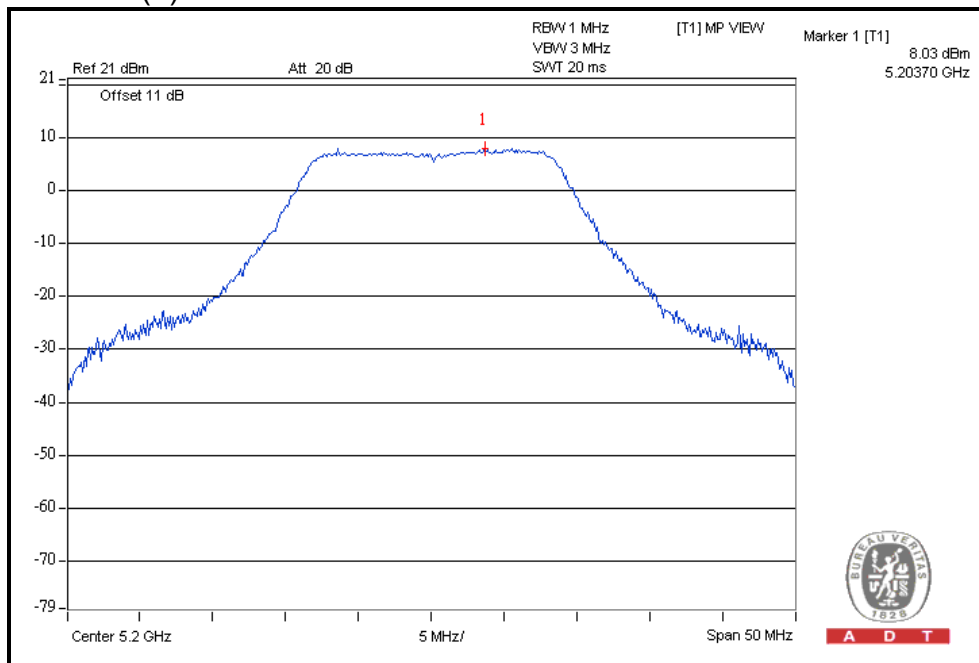
PPSD

For chain(0) : CH36



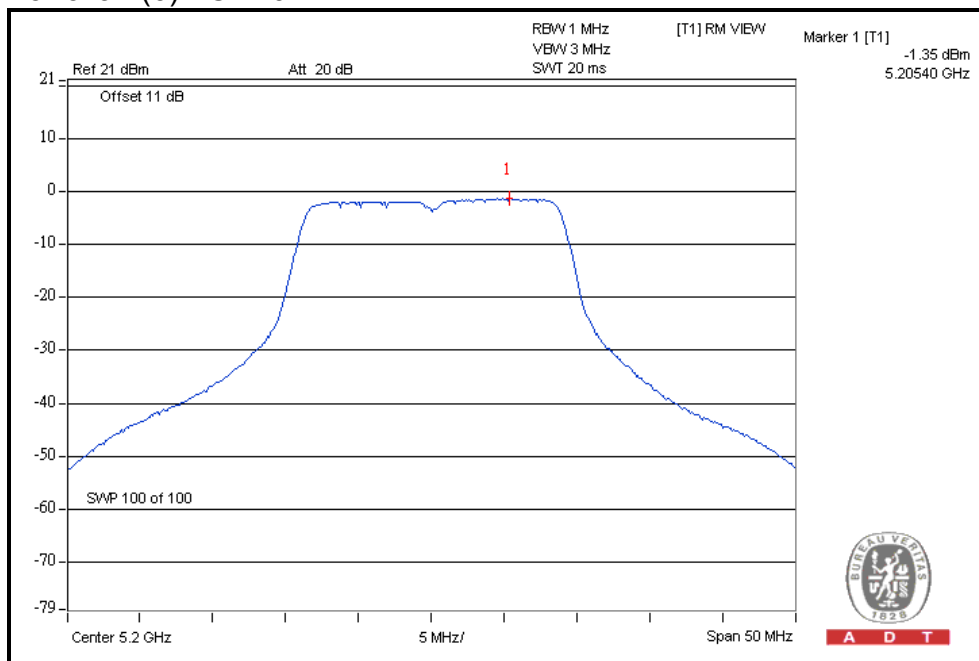
PEAK VALUE

For chain(0) : CH40



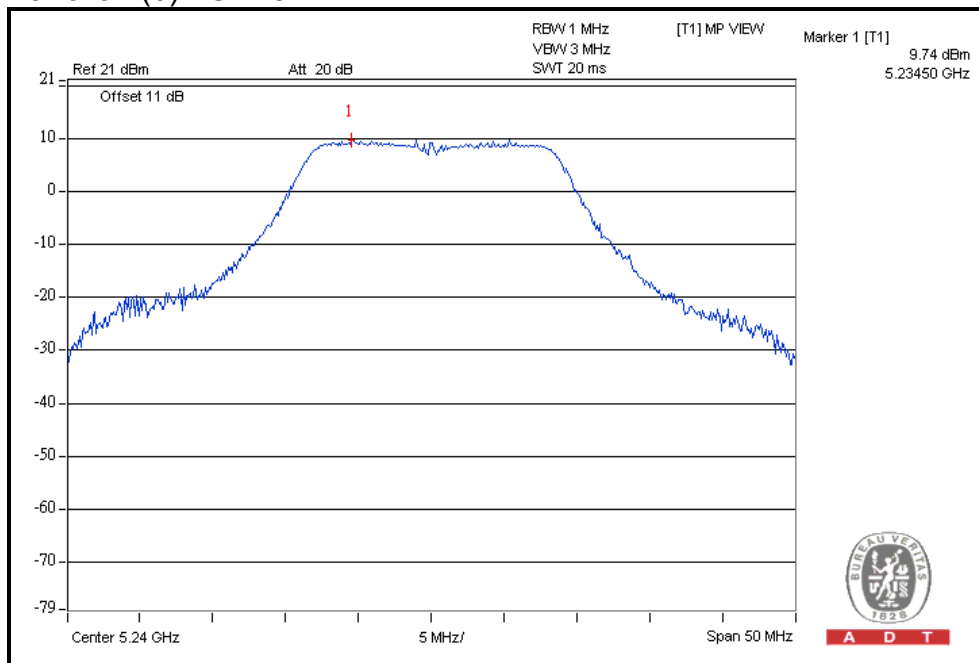
PPSD

For chain(0) : CH40



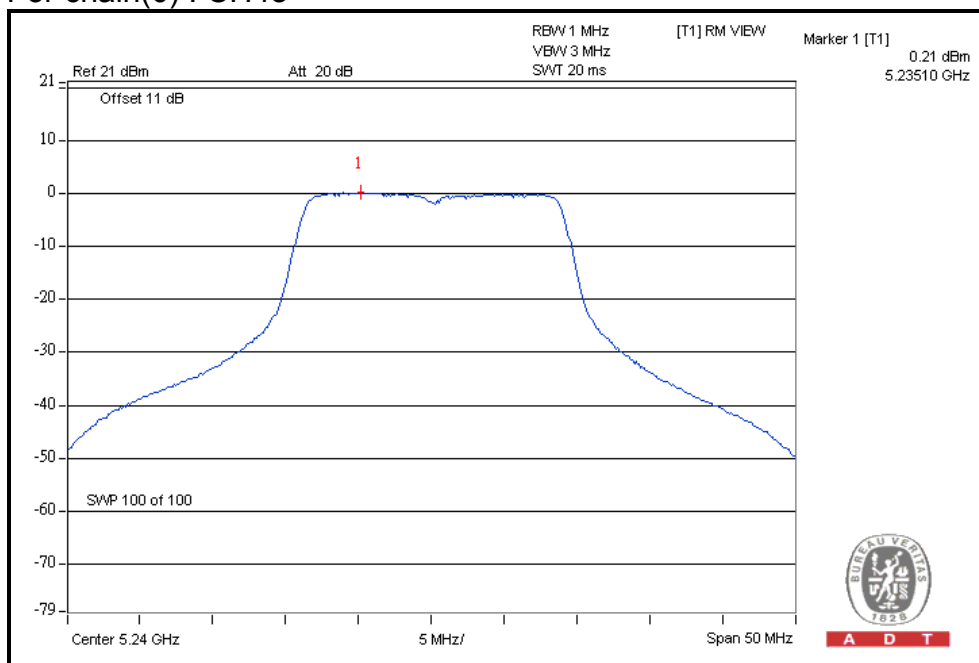
PEAK VALUE

For chain(0) : CH48



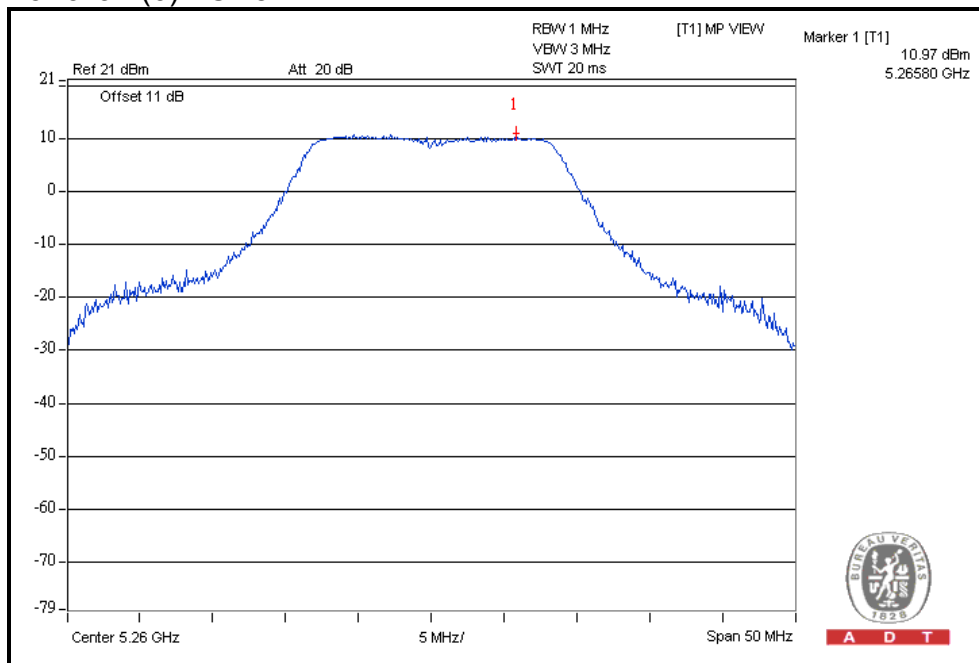
PPSD

For chain(0) : CH48



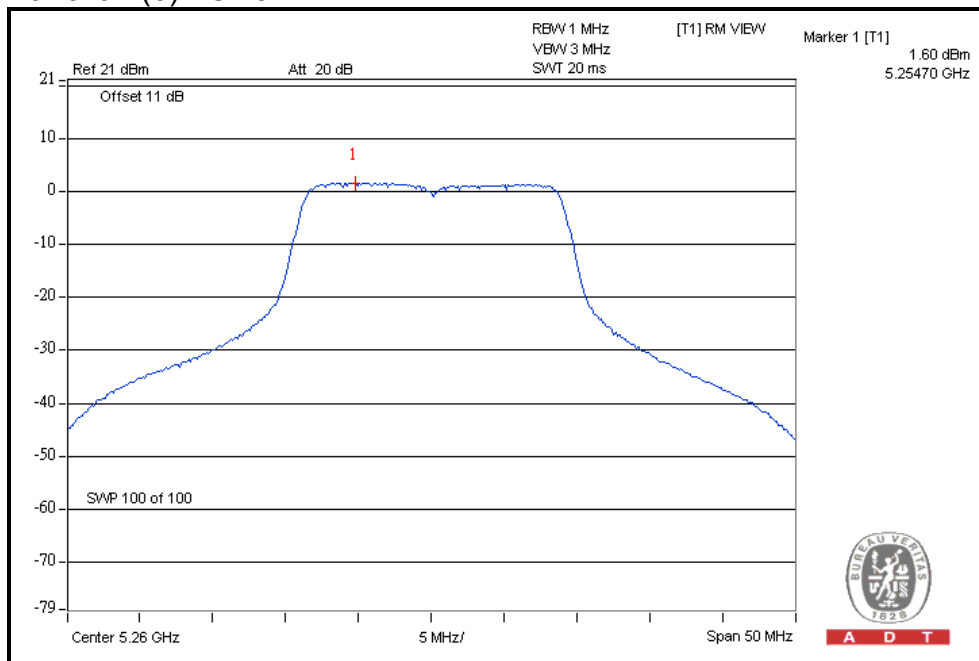
PEAK VALUE

For chain(0) : CH52



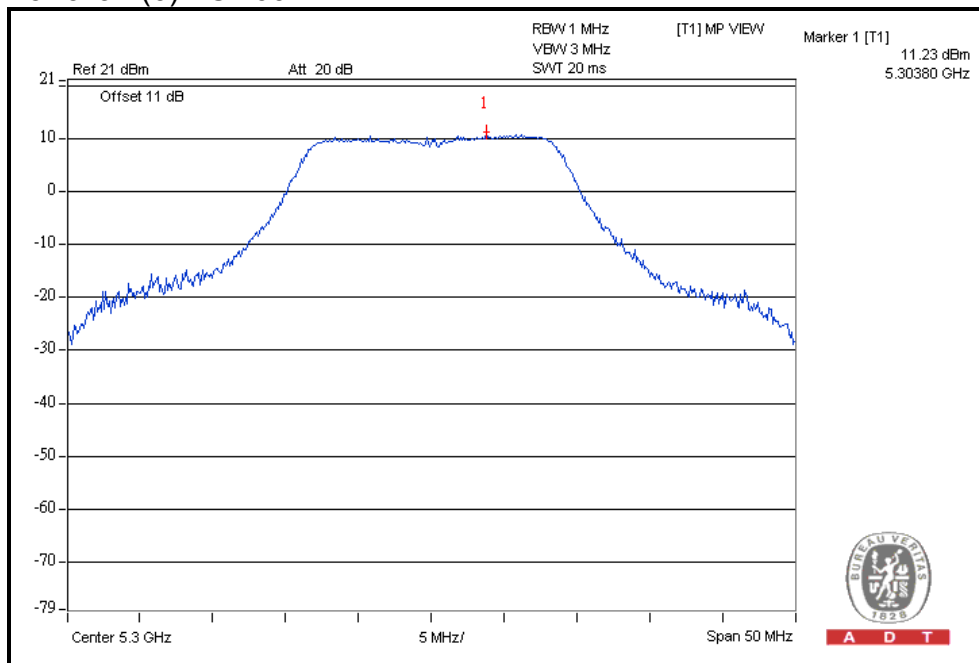
PPSD

For chain(0) : CH52



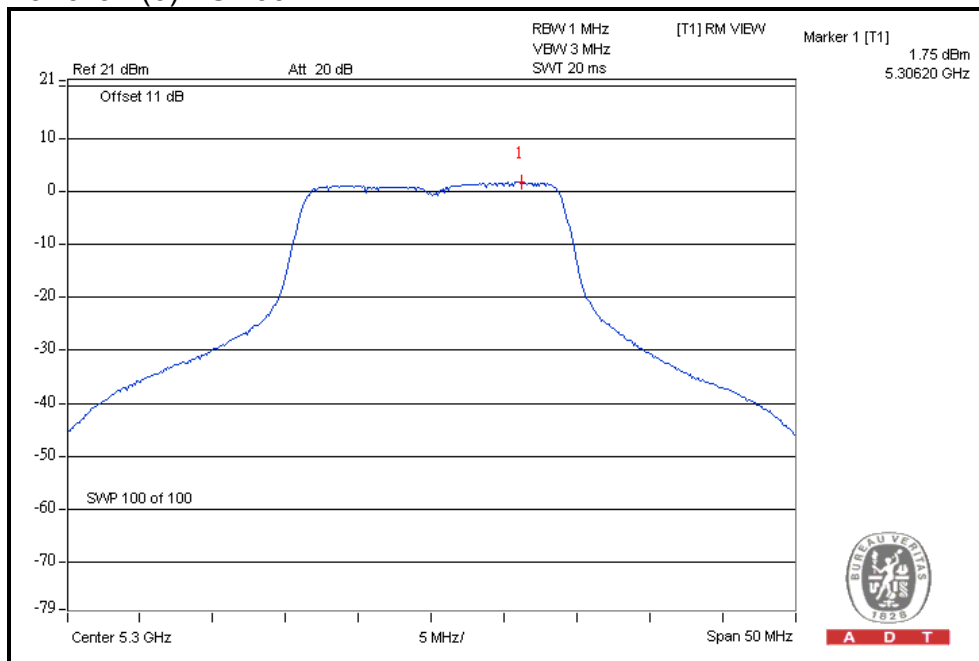
PEAK VALUE

For chain(0) : CH60



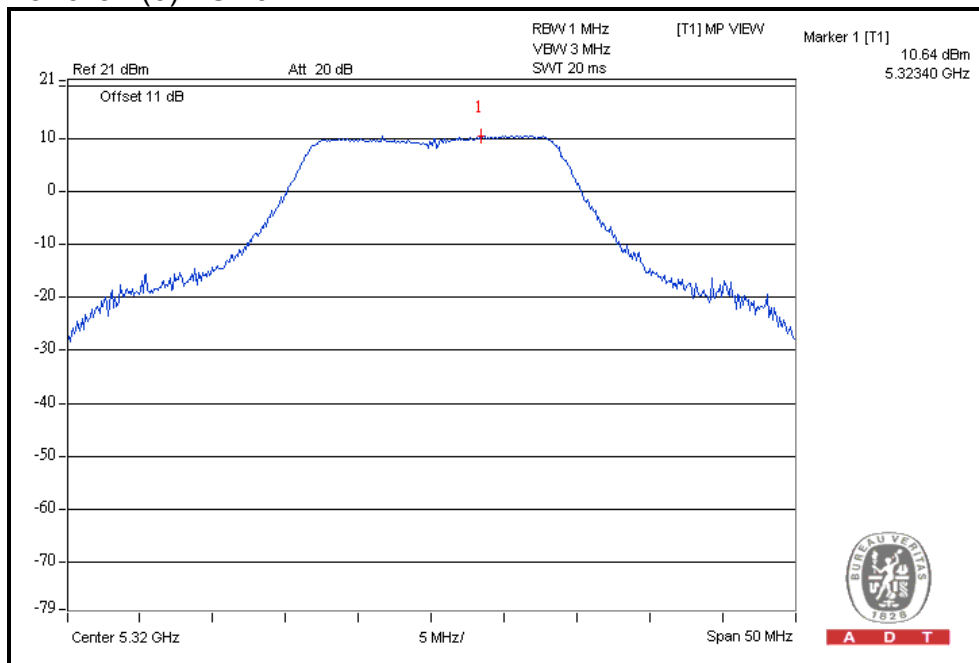
PPSD

For chain(0) : CH60



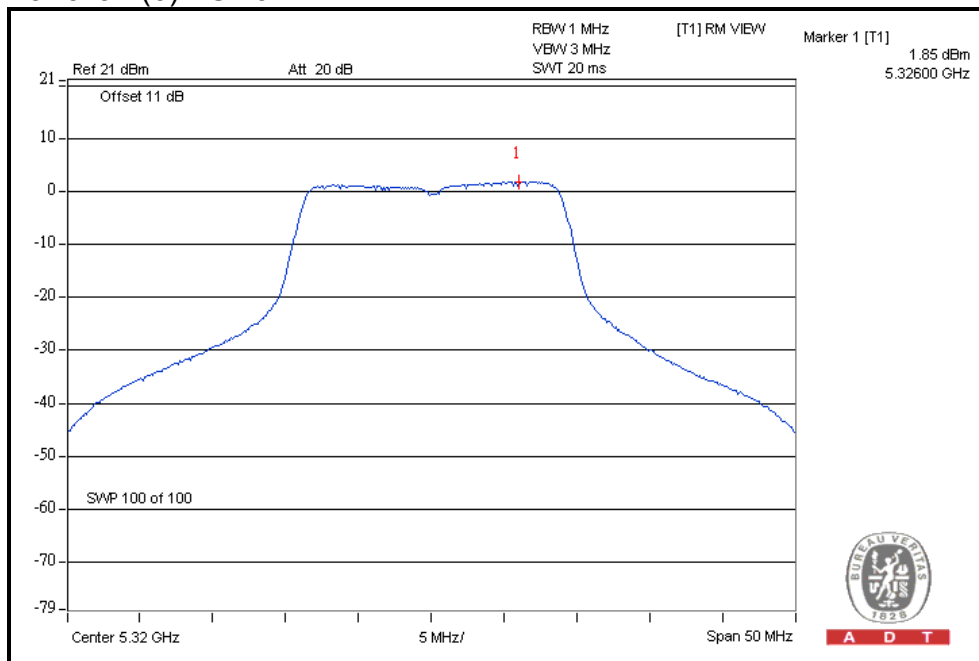
PEAK VALUE

For chain(0) : CH64



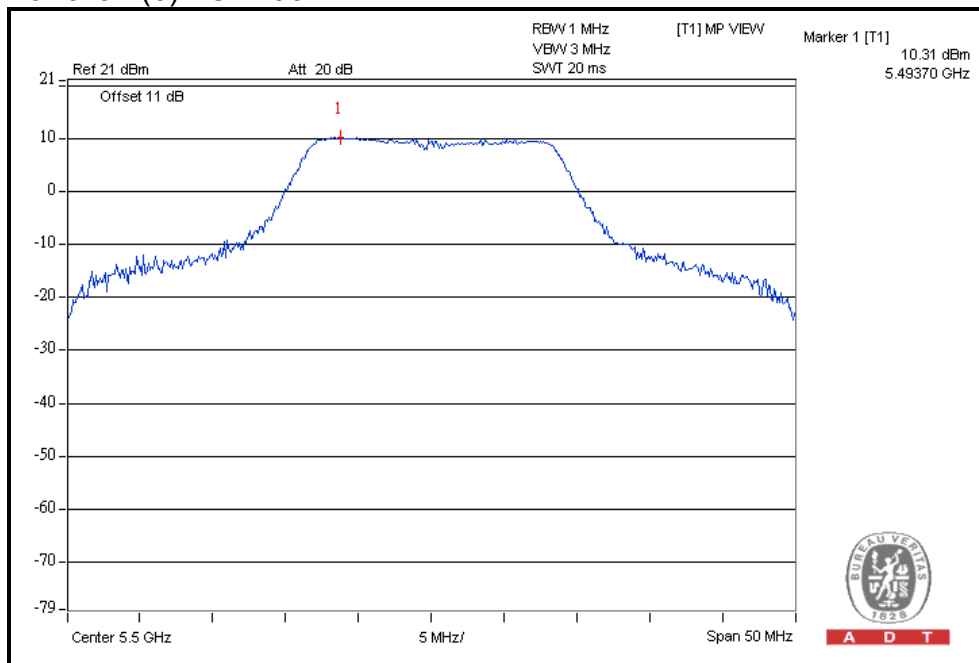
PPSD

For chain(0) : CH64



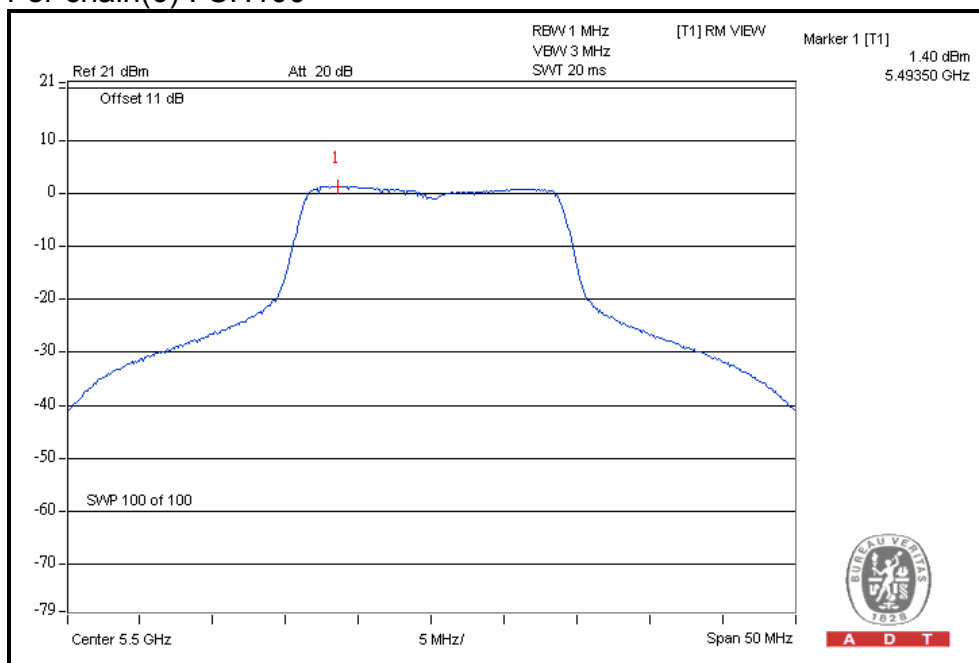
PEAK VALUE

For chain(0) : CH100



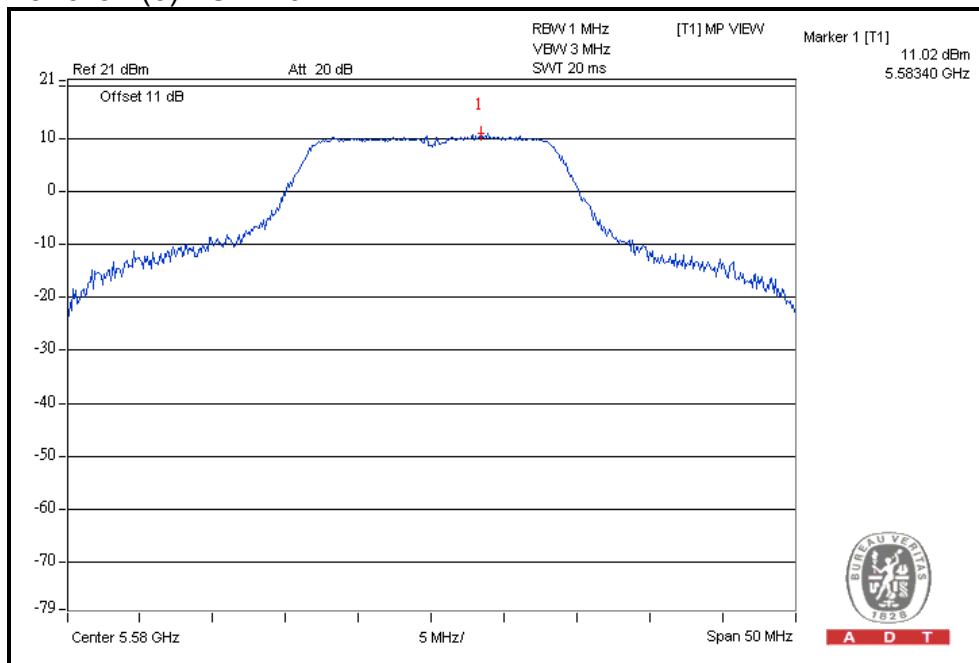
PPSD

For chain(0) : CH100



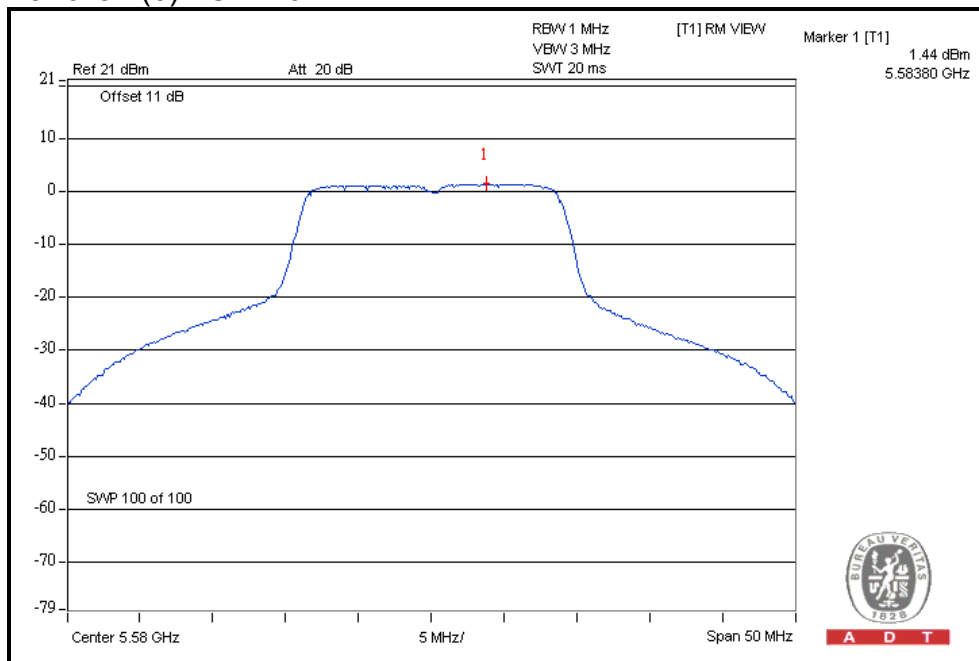
PEAK VALUE

For chain(0) : CH116



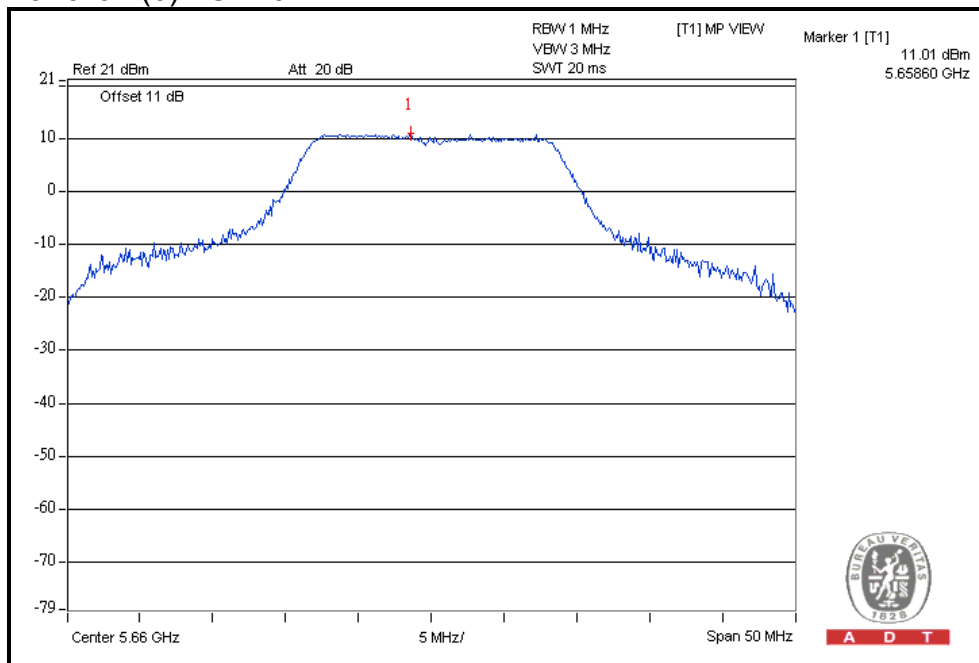
PPSD

For chain(0) : CH116



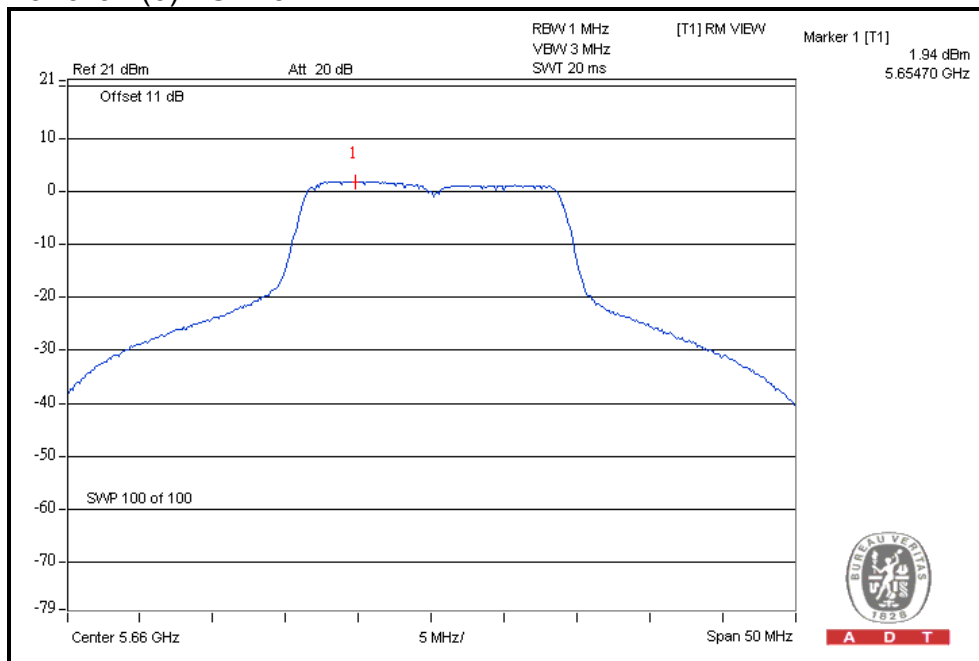
PEAK VALUE

For chain(0) : CH132



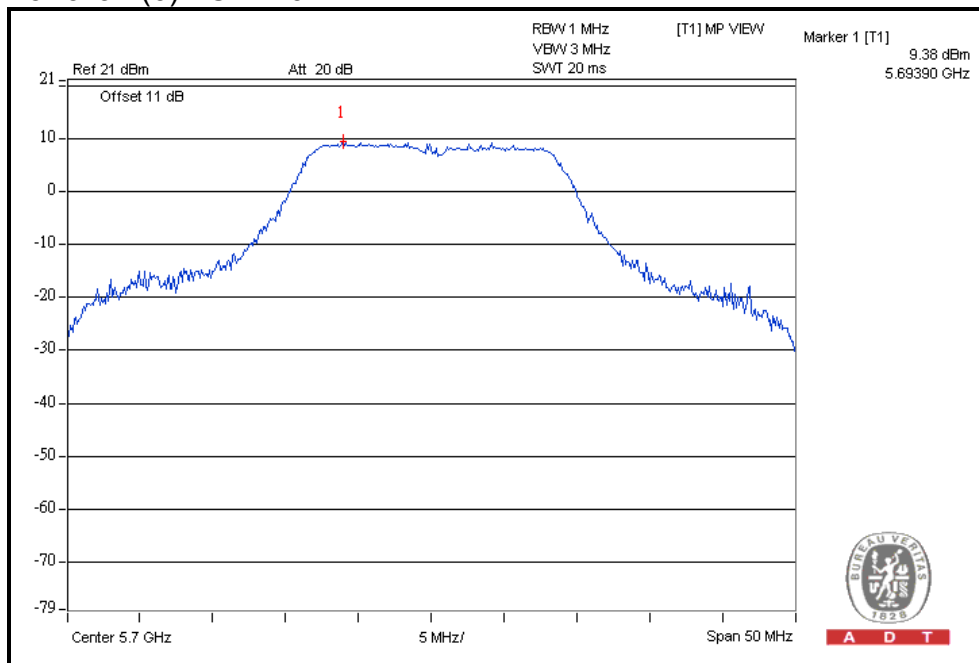
PPSD

For chain(0) : CH132



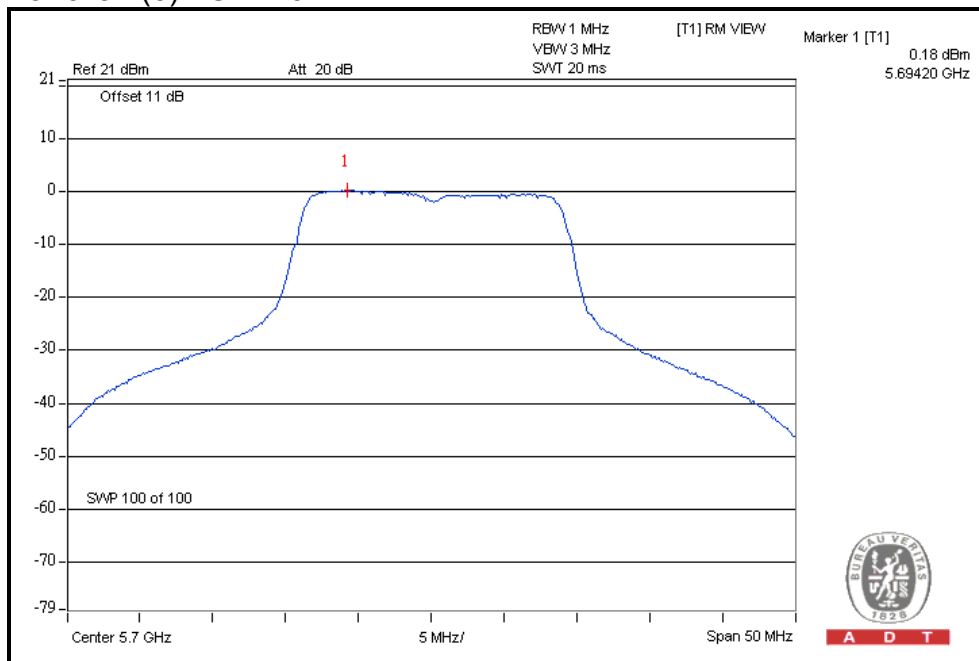
PEAK VALUE

For chain(0) : CH140



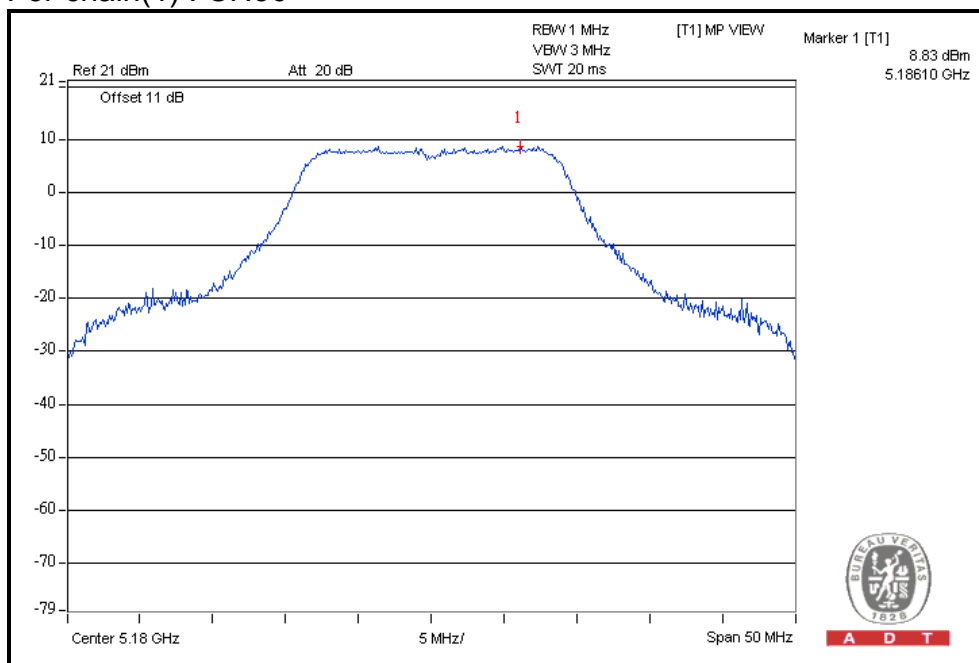
PPSD

For chain(0) : CH140



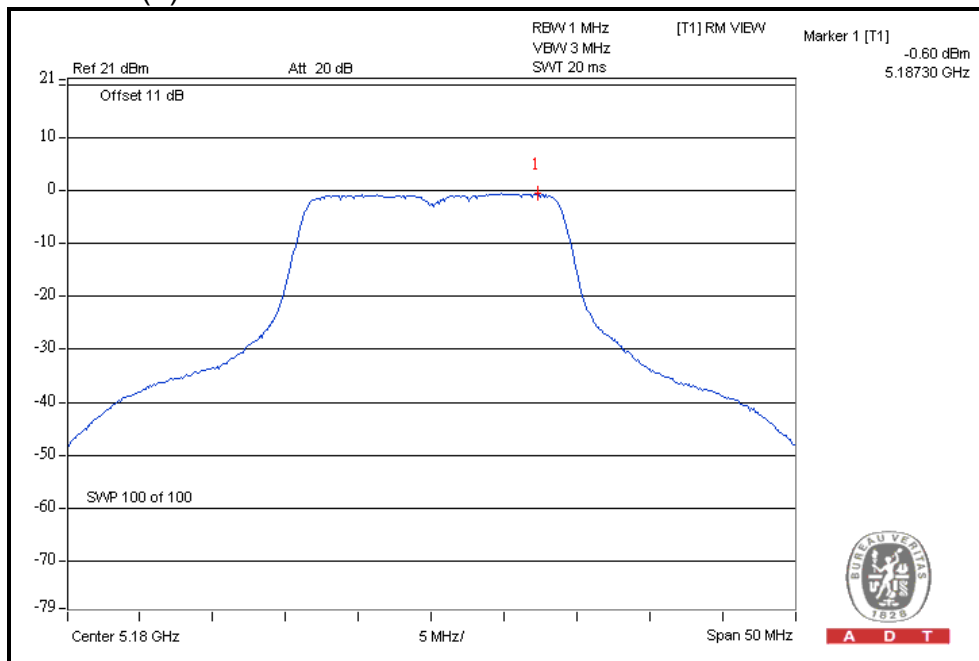
PEAK VALUE

For chain(1) : CH36



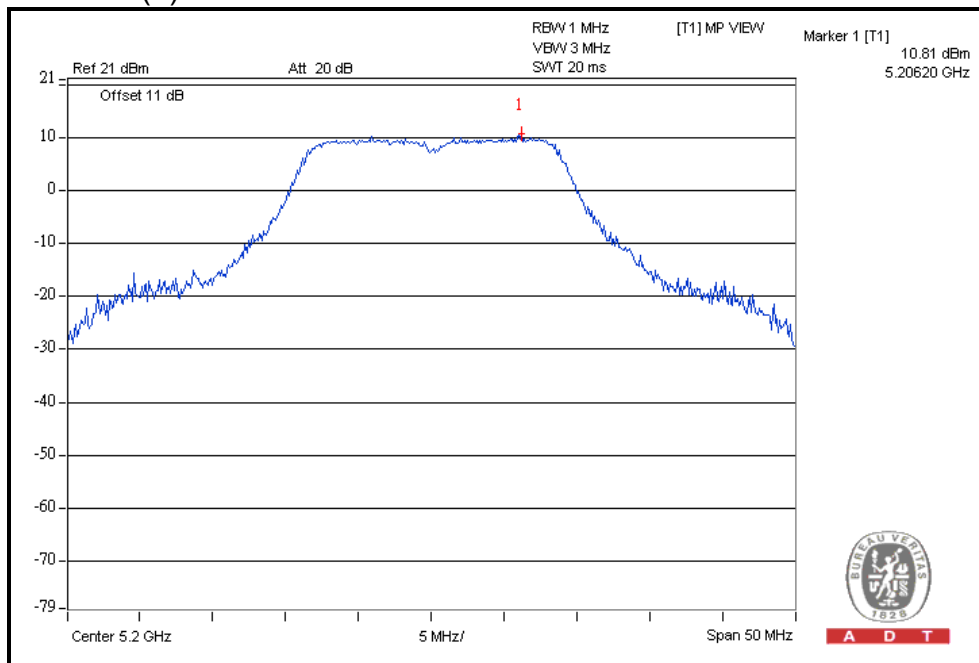
PPSD

For chain(1) : CH36



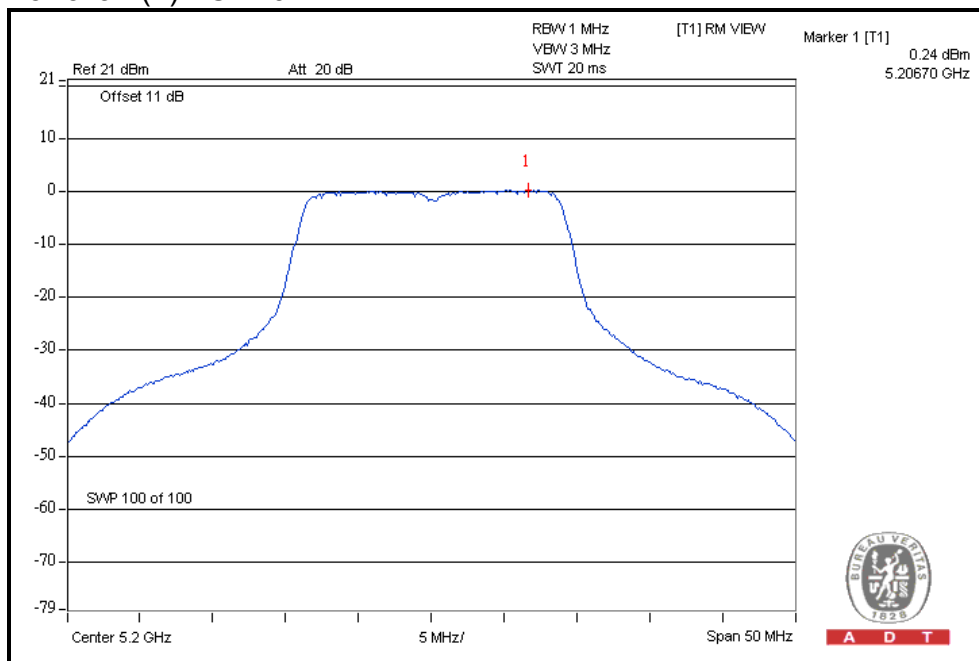
PEAK VALUE

For chain(1) : CH40



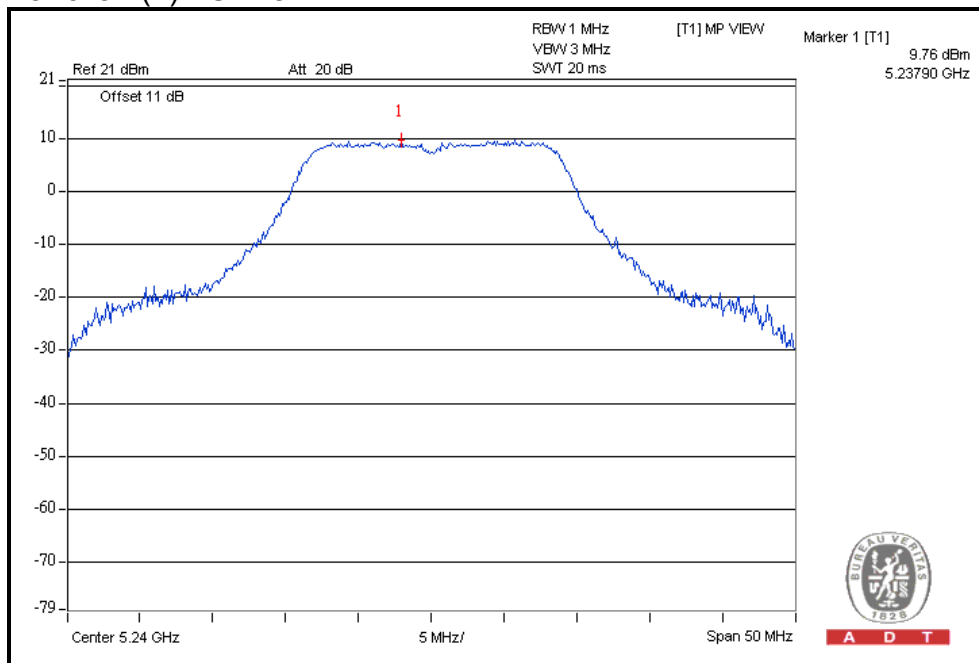
PPSD

For chain(1) : CH40



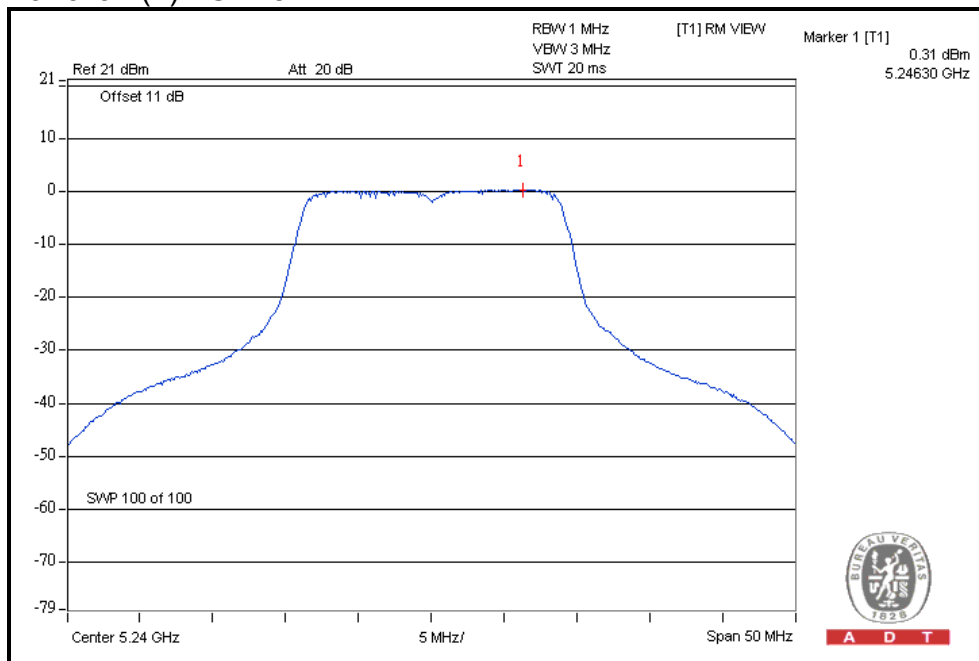
PEAK VALUE

For chain(1) : CH48



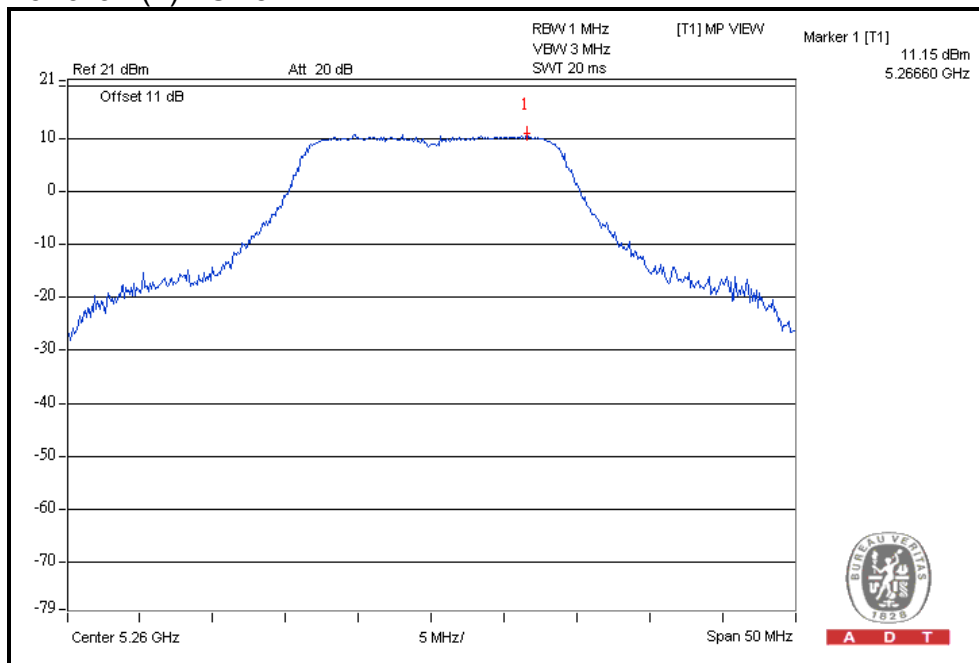
PPSD

For chain(1) : CH48



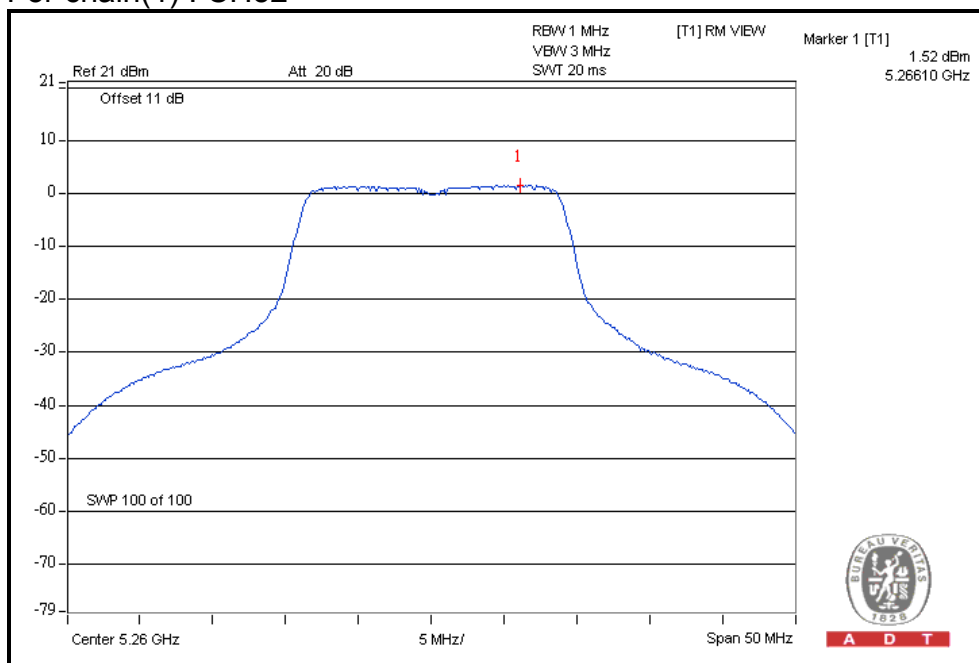
PEAK VALUE

For chain(1) : CH52



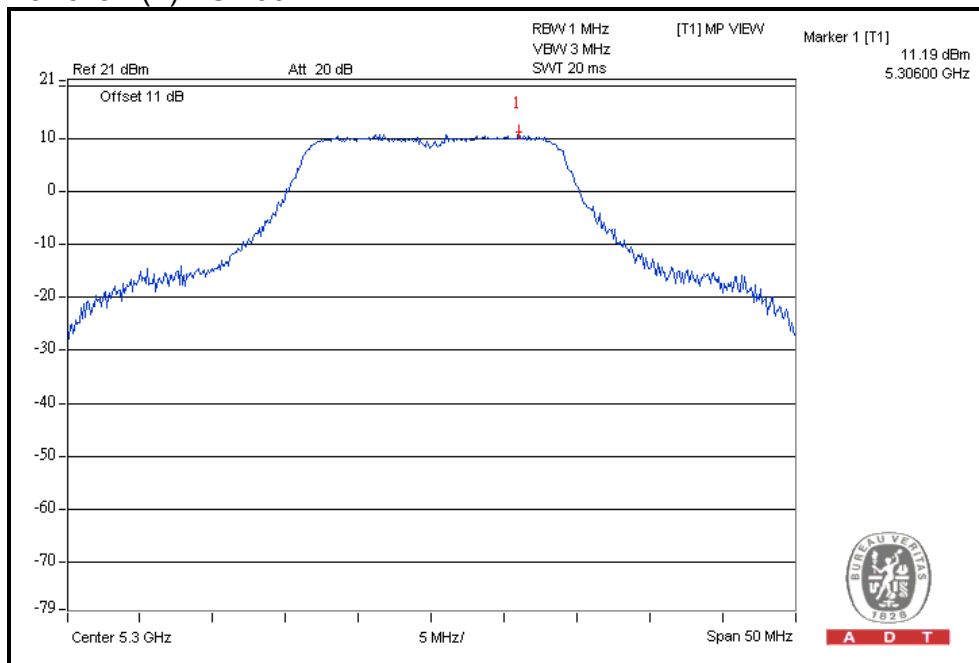
PPSD

For chain(1) : CH52



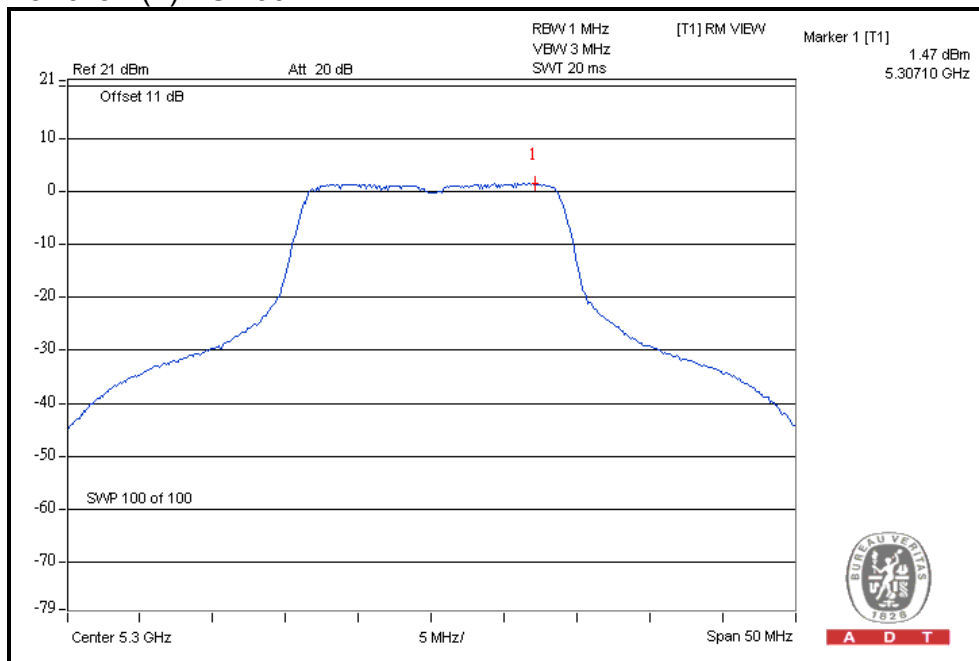
PEAK VALUE

For chain(1) : CH60



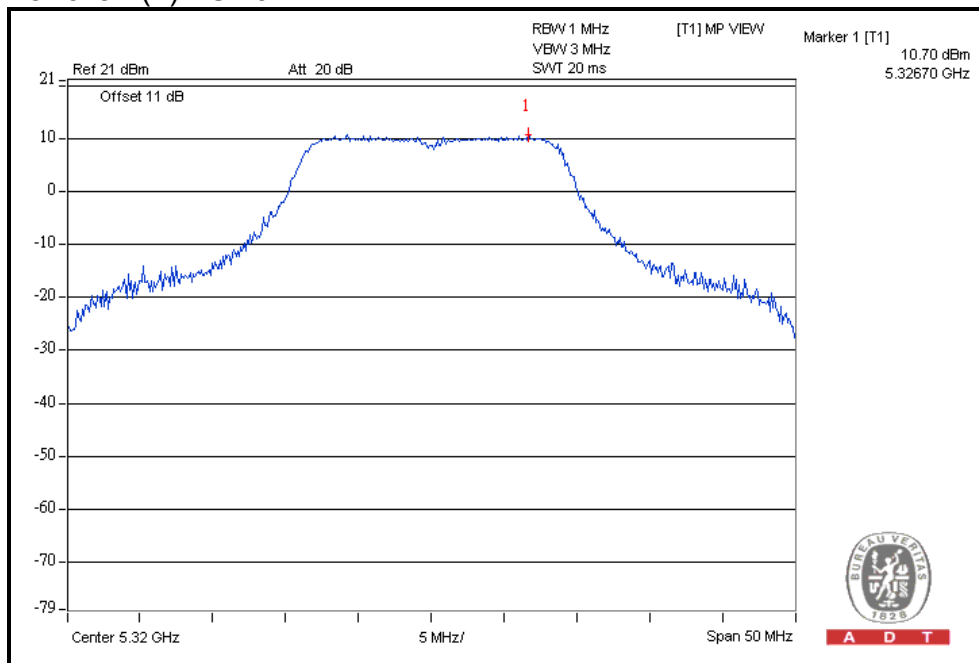
PPSD

For chain(1) : CH60



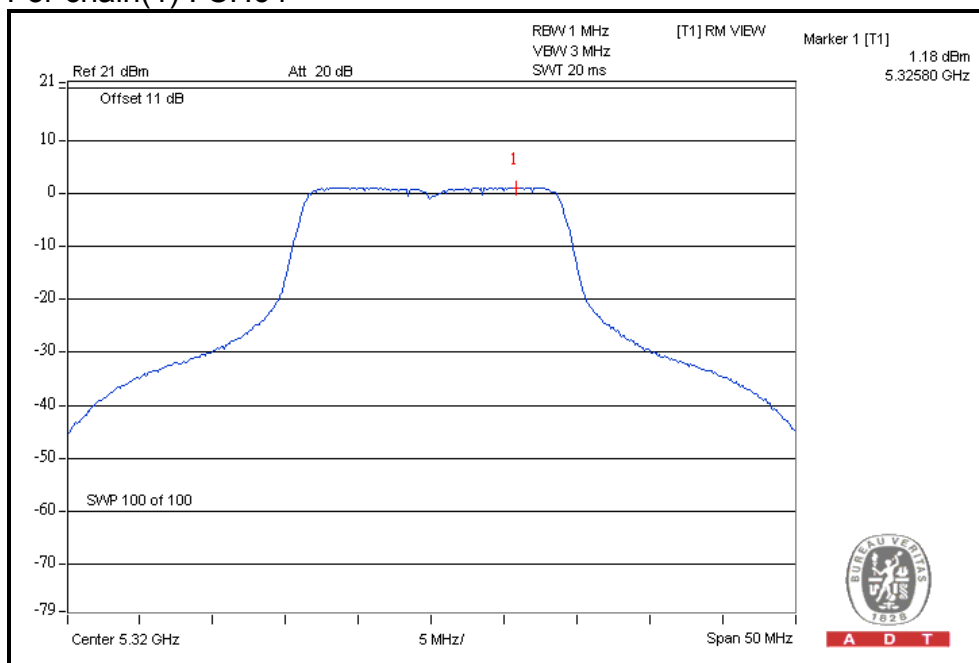
PEAK VALUE

For chain(1) : CH64



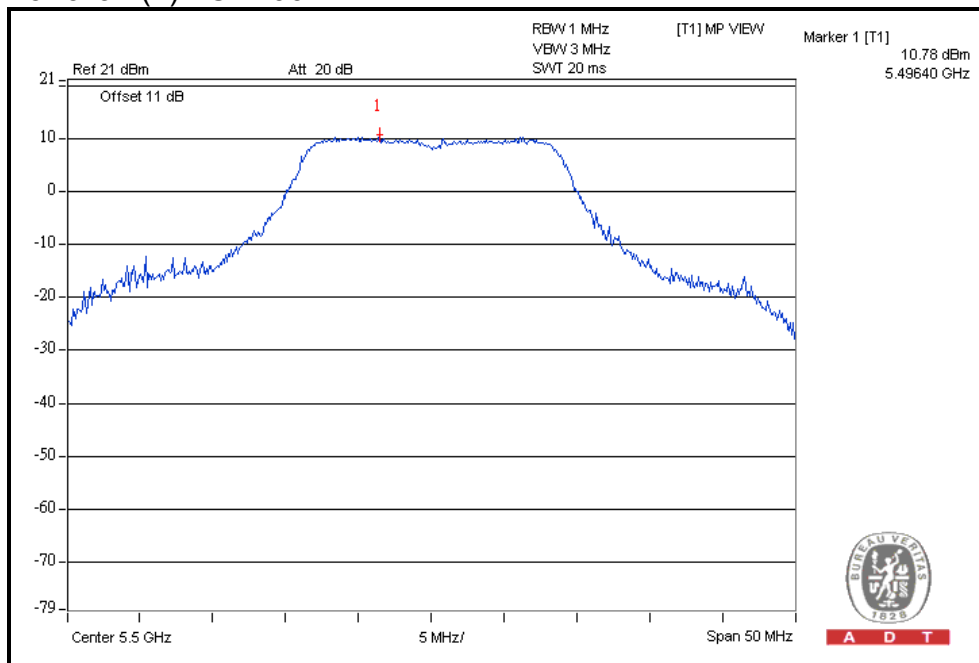
PPSD

For chain(1) : CH64



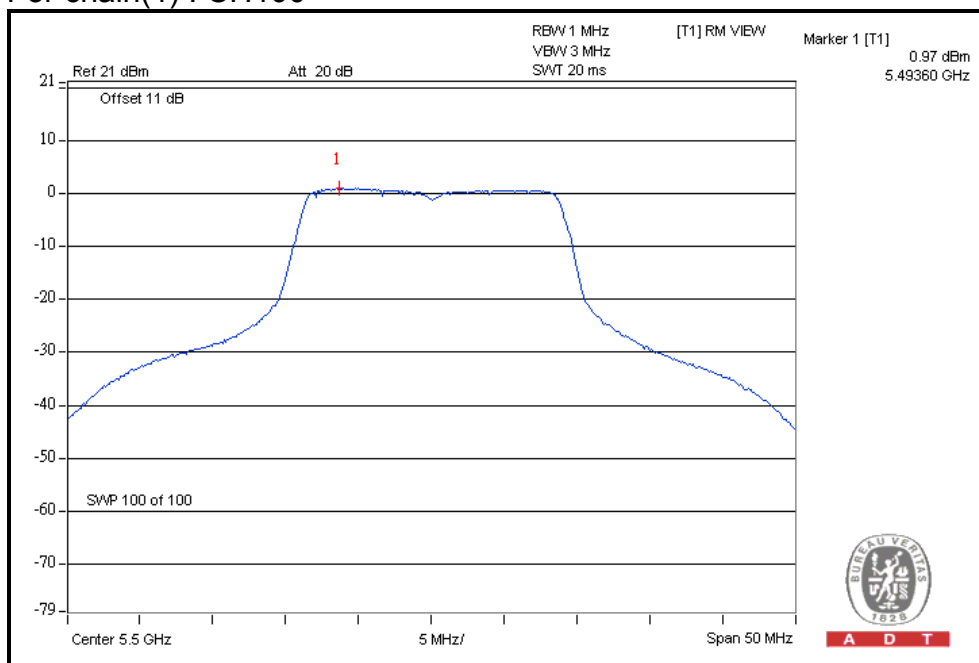
PEAK VALUE

For chain(1) : CH100



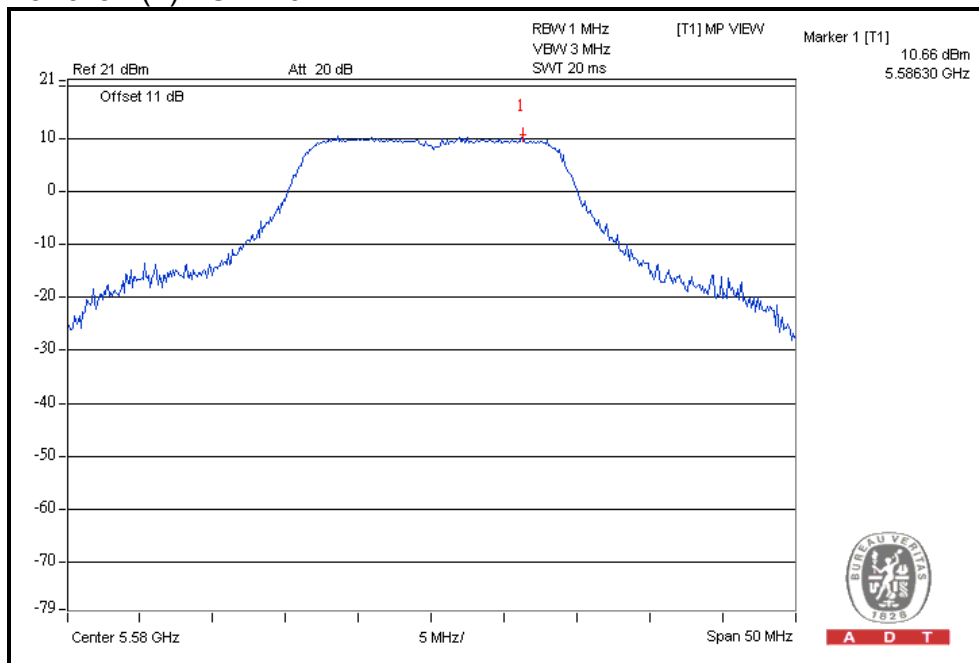
PPSD

For chain(1) : CH100



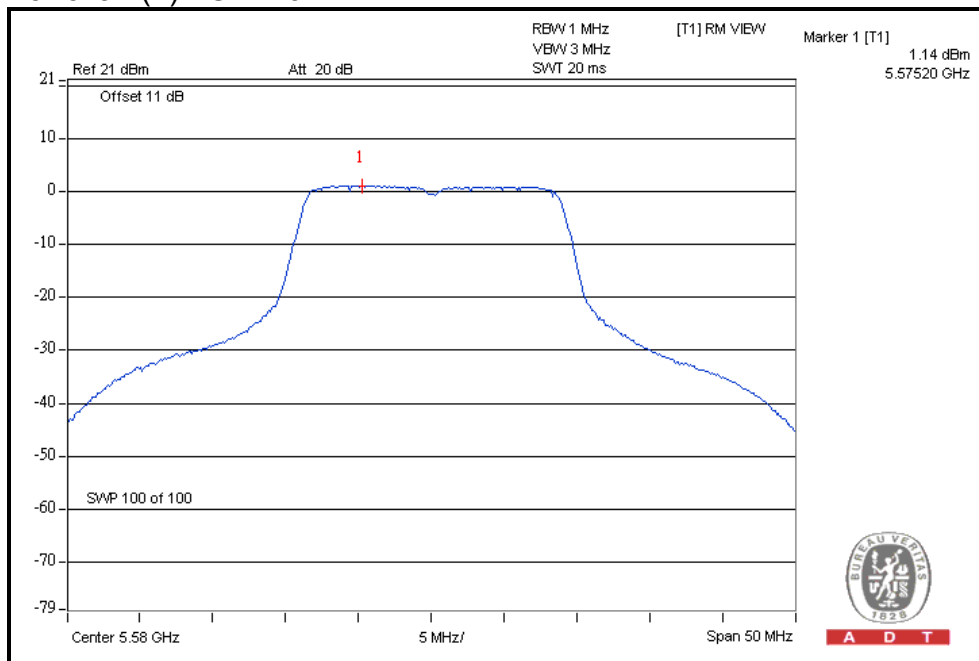
PEAK VALUE

For chain(1) : CH116



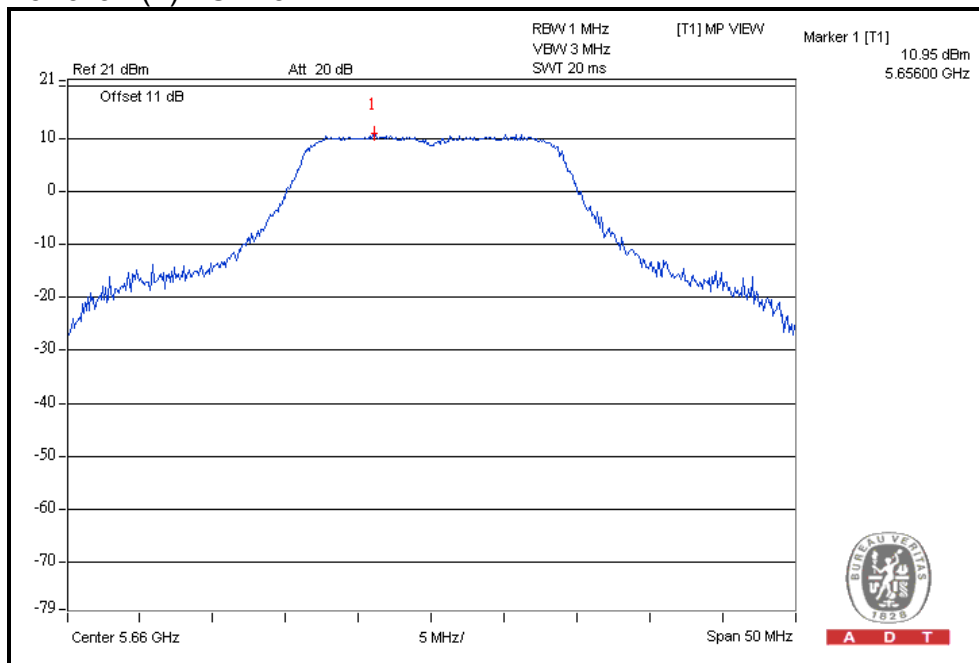
PPSD

For chain(1) : CH116



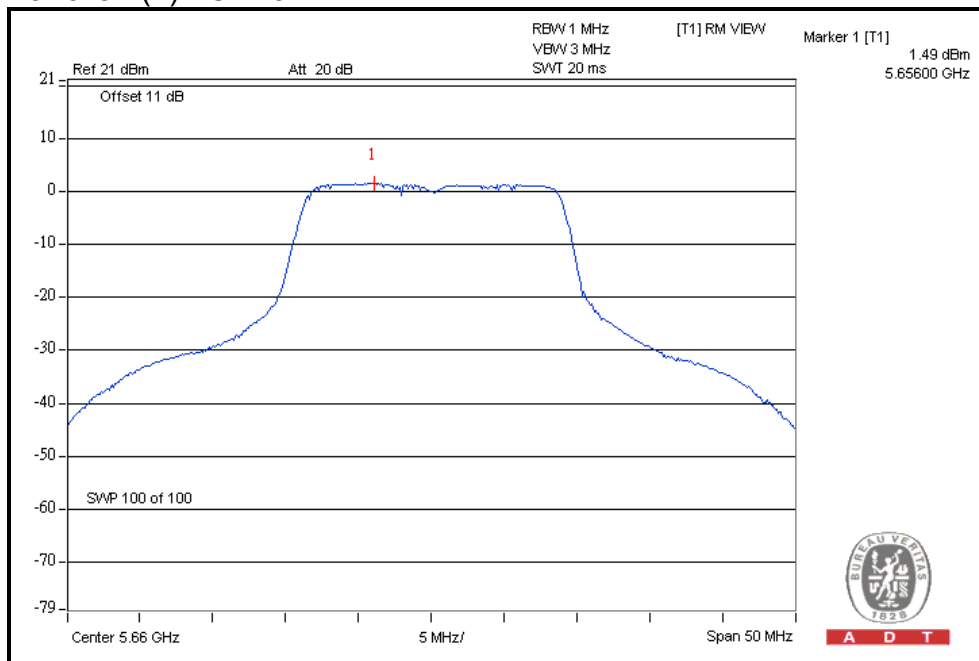
PEAK VALUE

For chain(1) : CH132



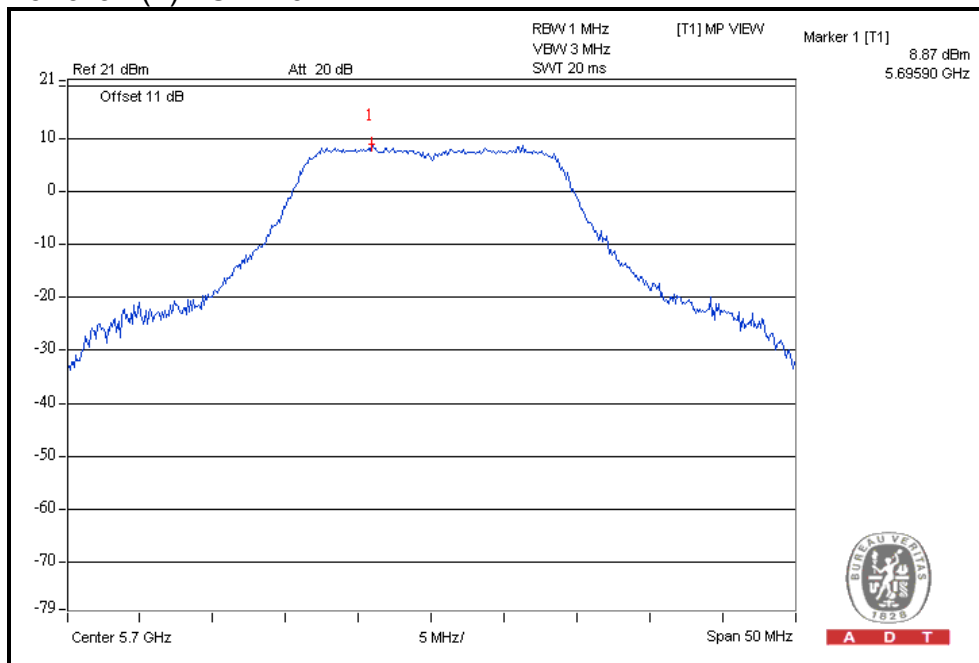
PPSD

For chain(1) : CH132



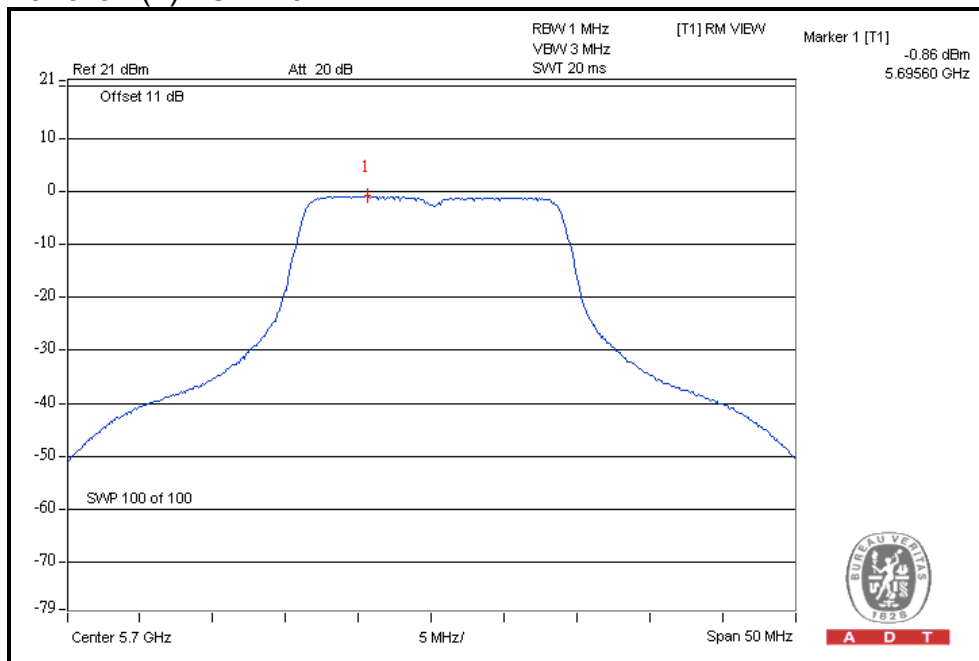
PEAK VALUE

For chain(1) : CH140



PPSD

For chain(1) : CH140





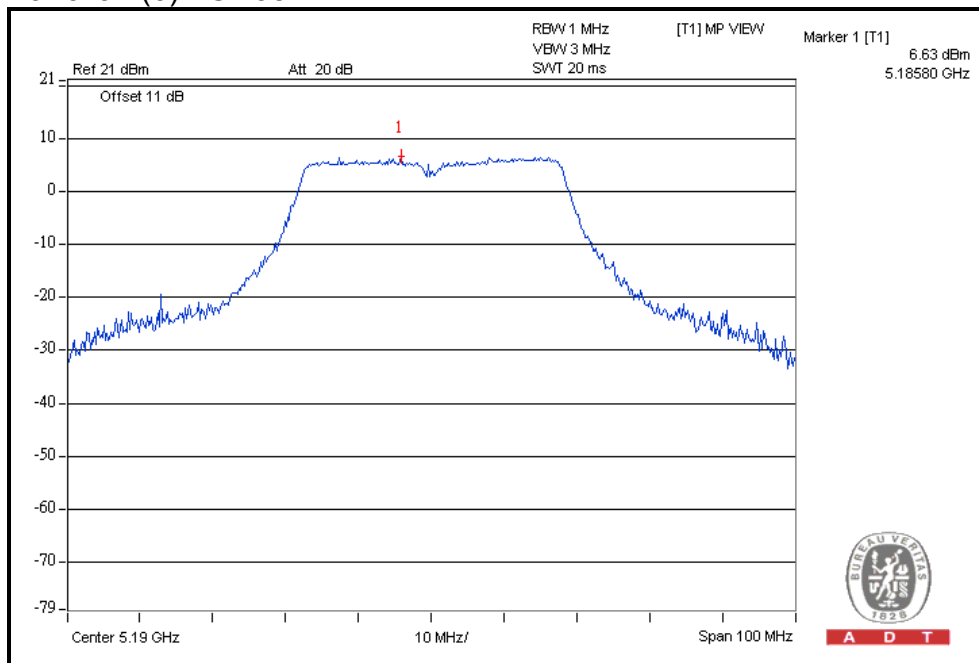
A D T

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	PEAK VALUE (dBm)		PPSD (dBm)		PEAK EXCURSION (dB)		LIMIT (dB)	PASS/ FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1		
38	5190	6.63	6.36	-2.59	-3.60	9.22	9.96	13	PASS
46	5230	7.70	8.83	-1.87	-1.37	9.57	10.20	13	PASS
54	5270	7.75	8.93	-1.65	-1.33	9.40	10.26	13	PASS
62	5310	5.44	5.23	-3.85	-4.52	9.29	9.75	13	PASS
102	5510	2.65	1.89	-7.05	-7.57	9.70	9.46	13	PASS
110	5550	7.80	8.07	-1.65	-1.46	9.45	9.53	13	PASS
134	5670	7.90	8.30	-1.61	-1.50	9.51	9.80	13	PASS

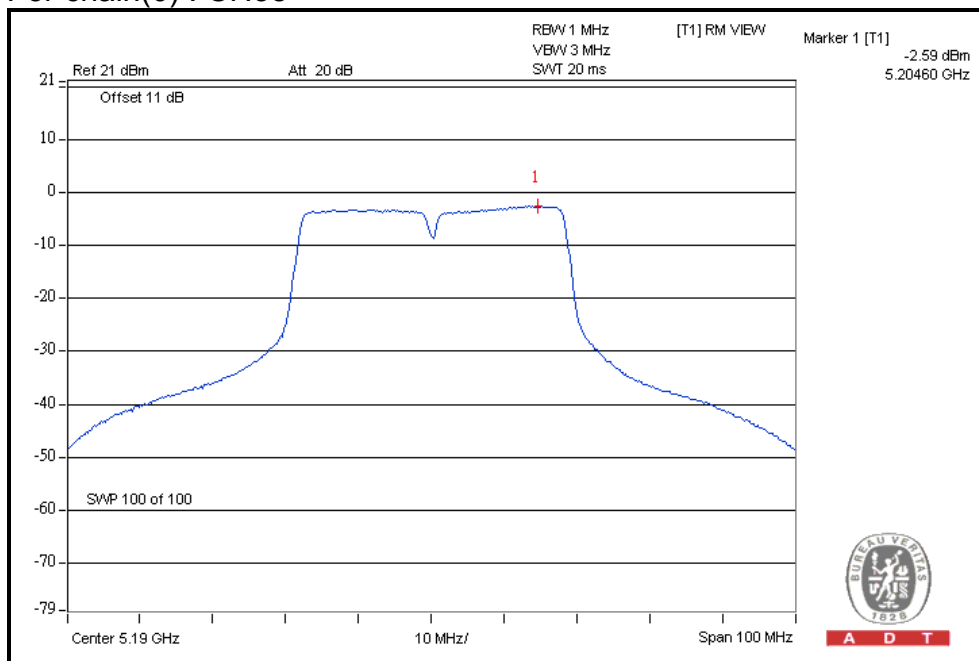
PEAK VALUE

For chain(0) : CH38



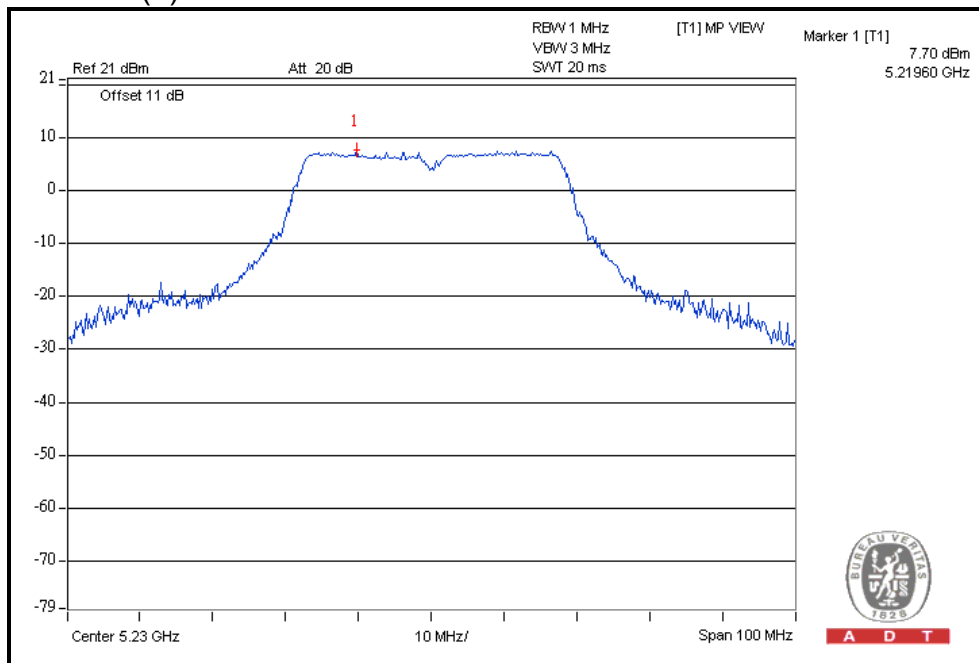
PPSD

For chain(0) : CH38



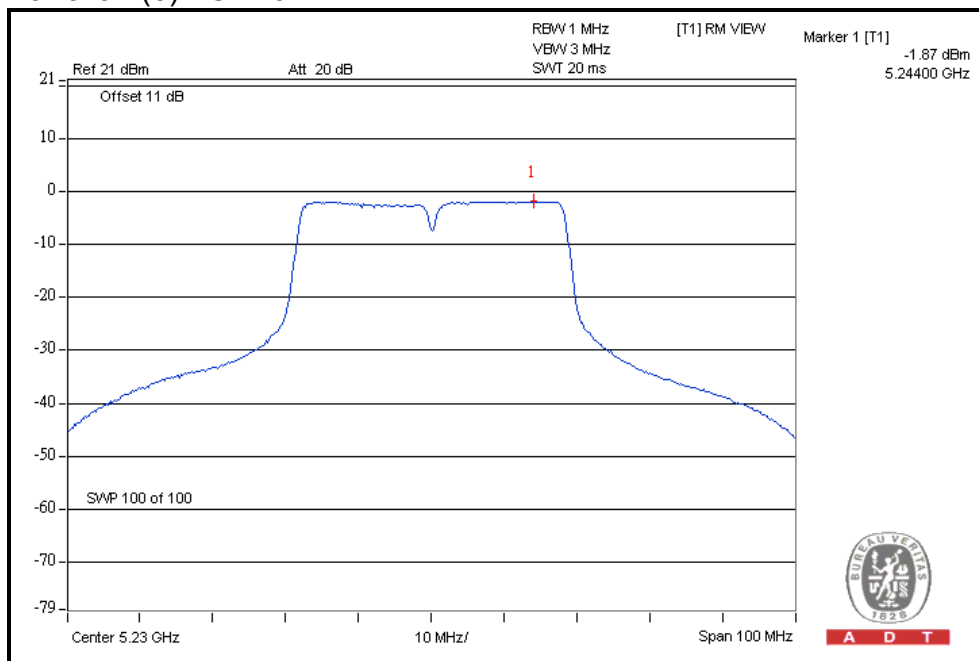
PEAK VALUE

For chain(0) : CH46



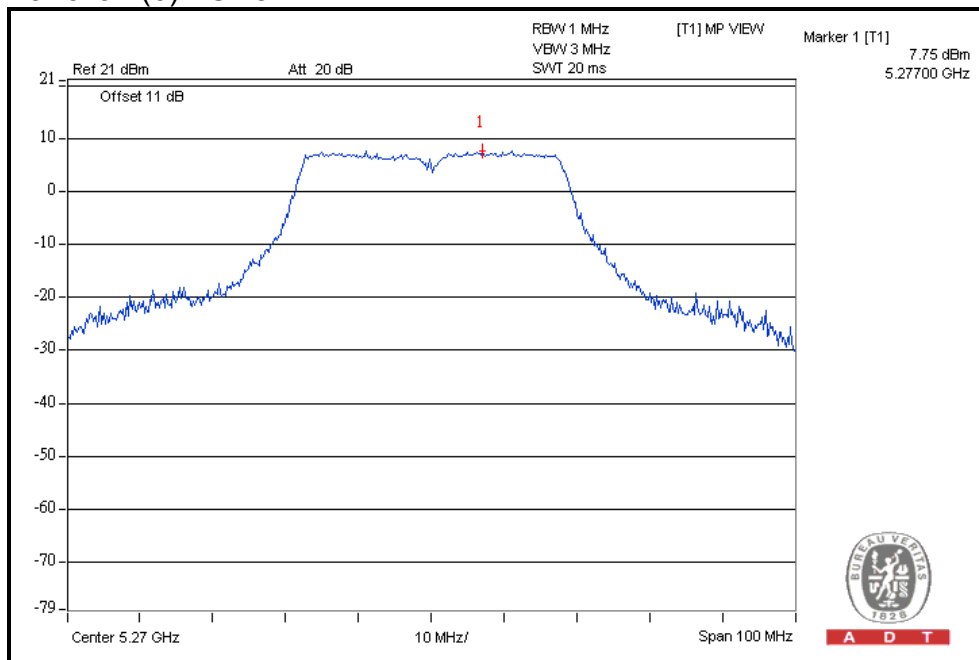
PPSD

For chain(0) : CH46



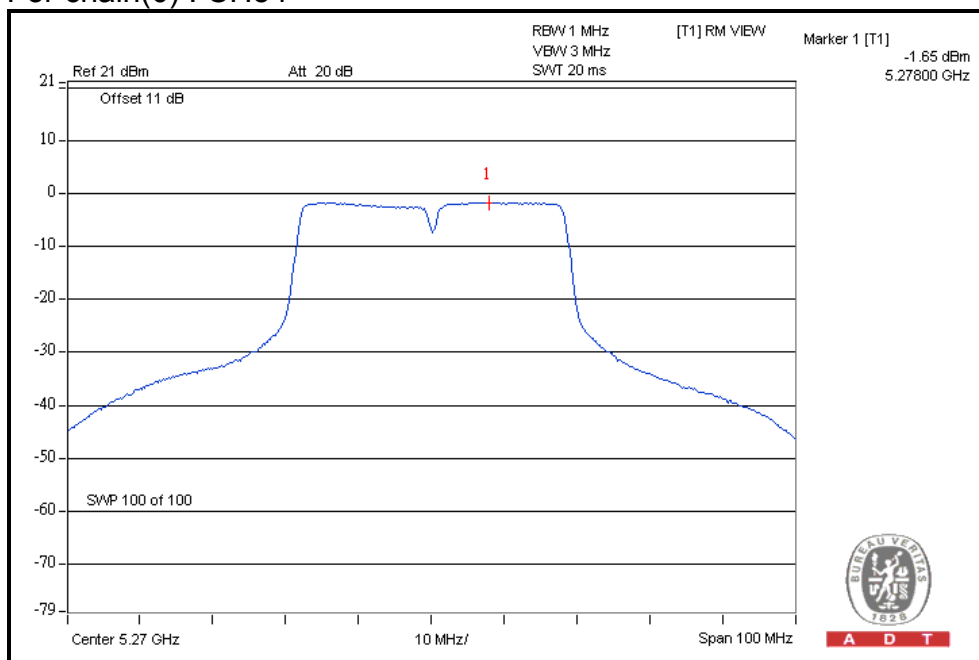
PEAK VALUE

For chain(0) : CH54



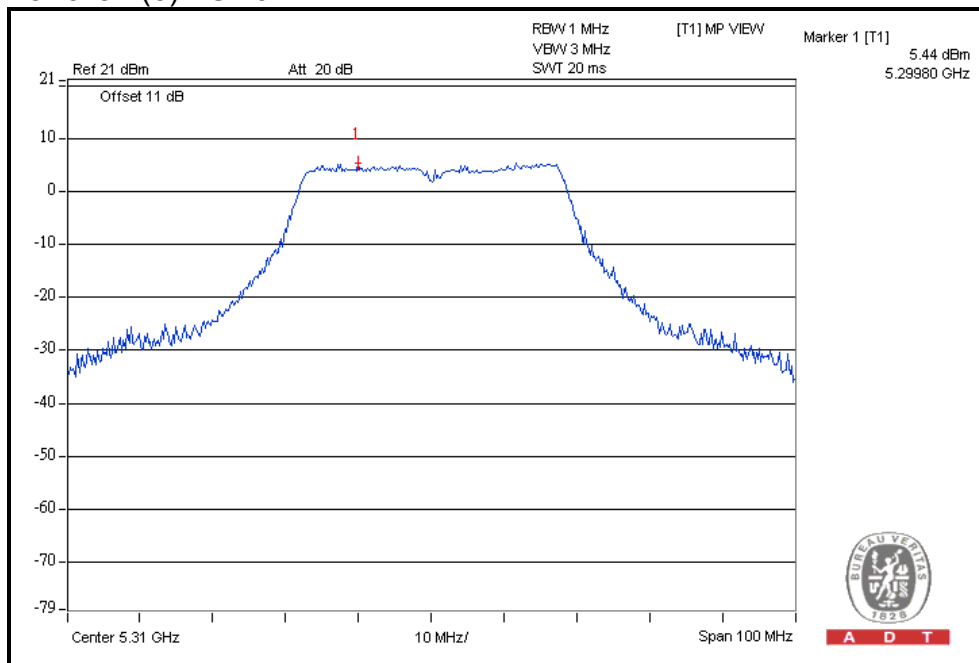
PPSD

For chain(0) : CH54



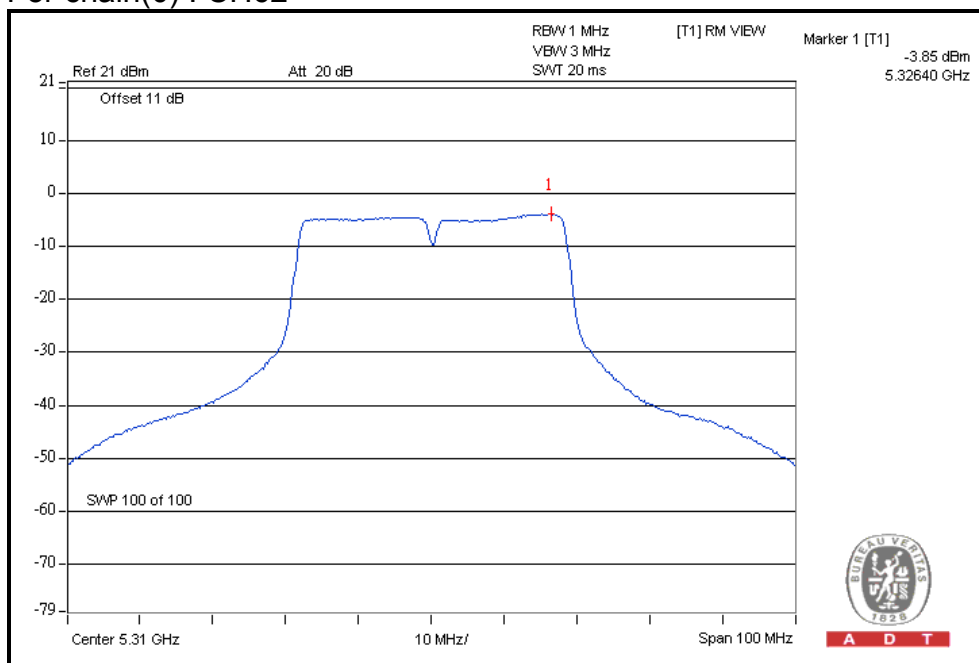
PEAK VALUE

For chain(0) : CH62



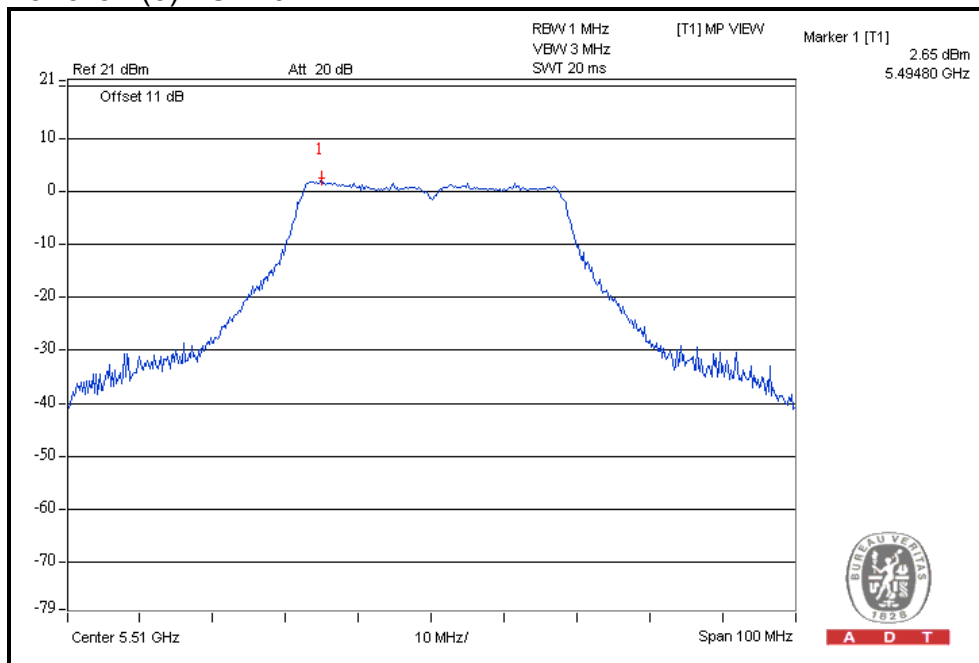
PPSD

For chain(0) : CH62



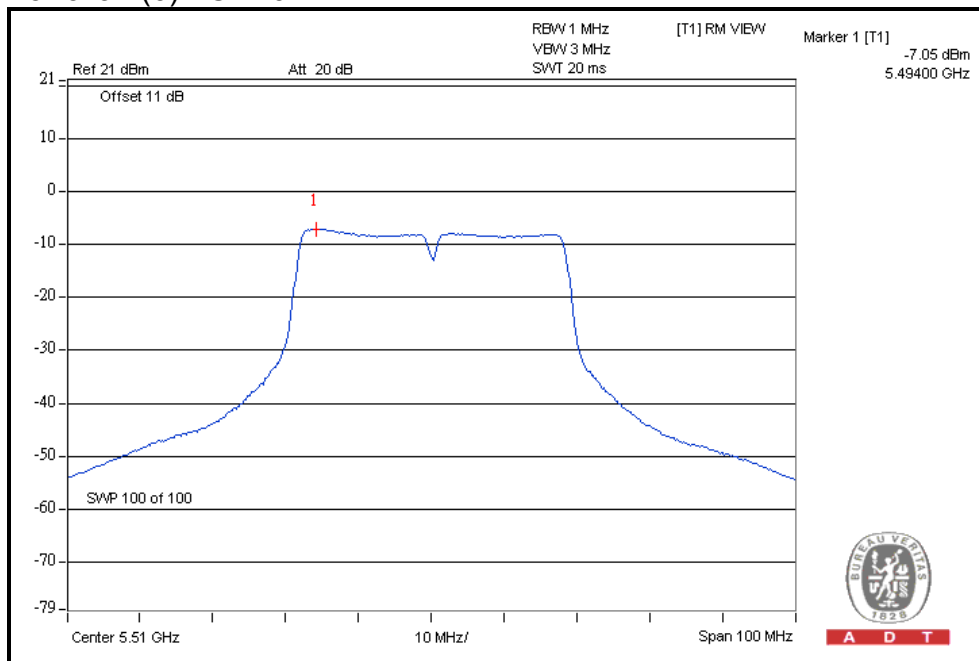
PEAK VALUE

For chain(0) : CH102



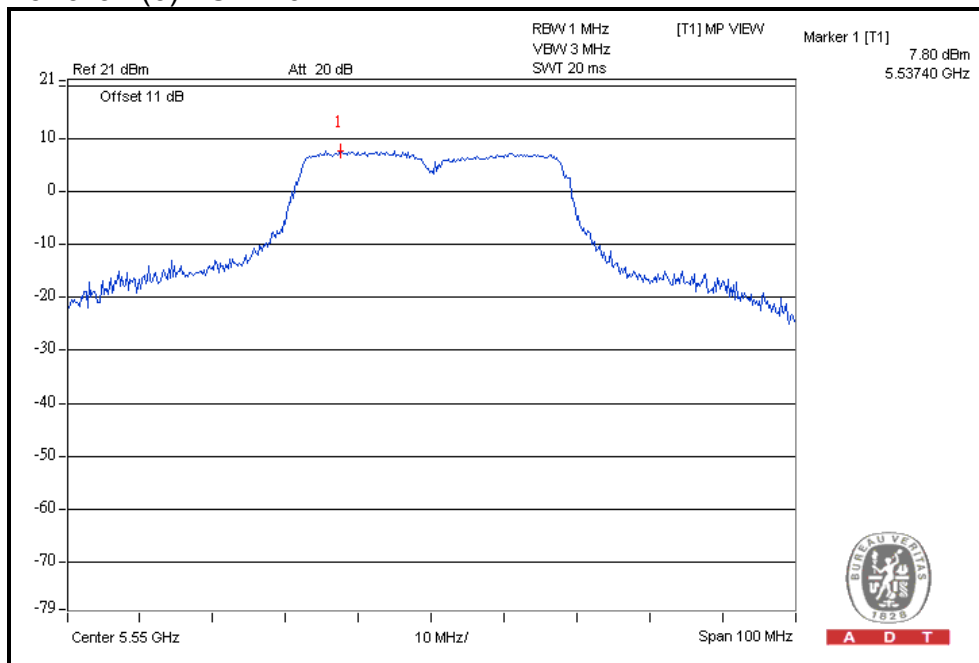
PPSD

For chain(0) : CH102



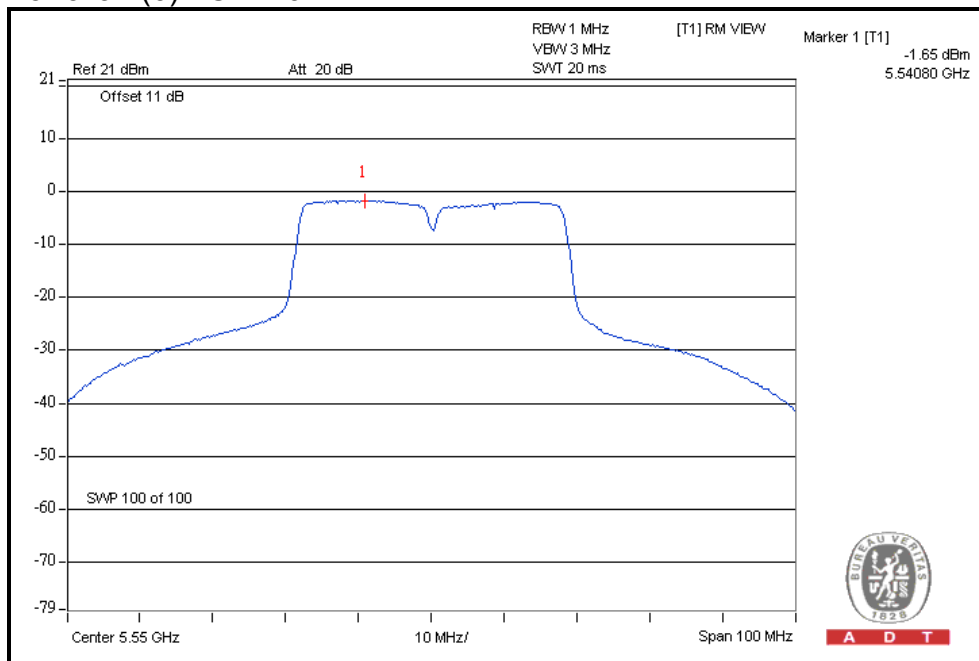
PEAK VALUE

For chain(0) : CH110



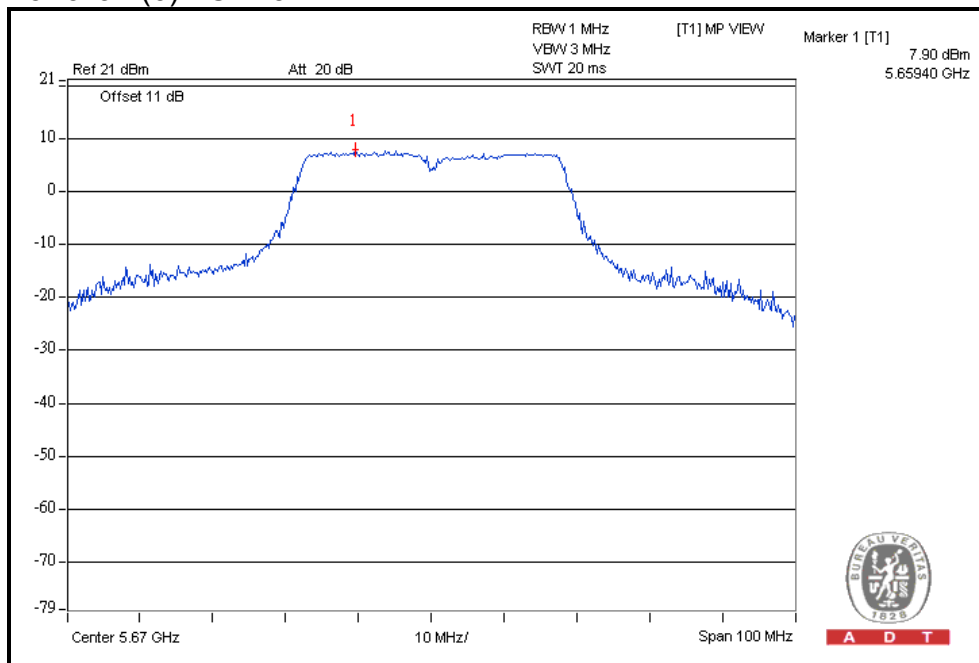
PPSD

For chain(0) : CH110



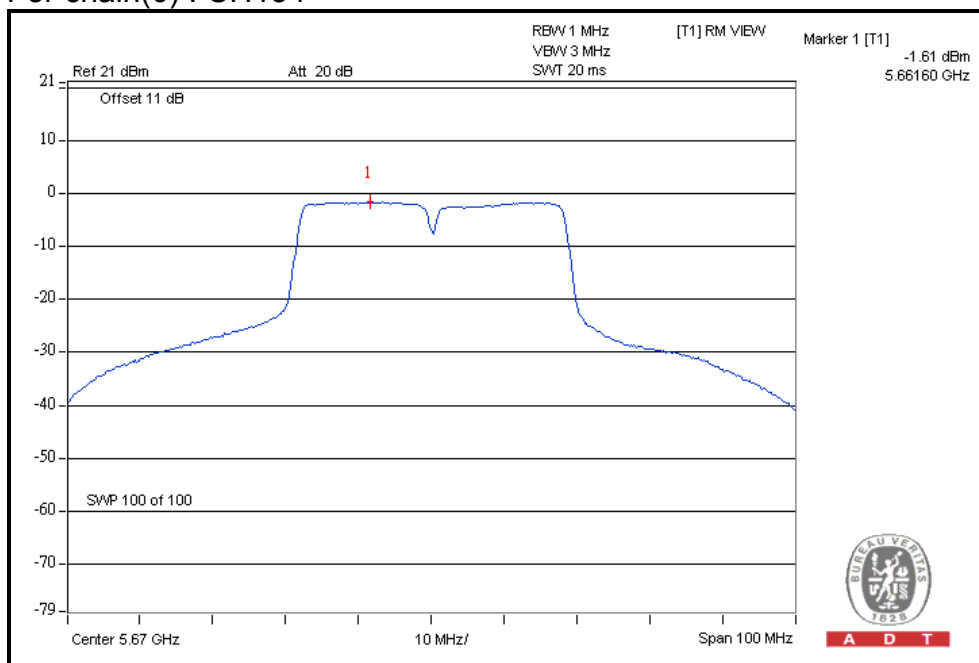
PEAK VALUE

For chain(0) : CH134



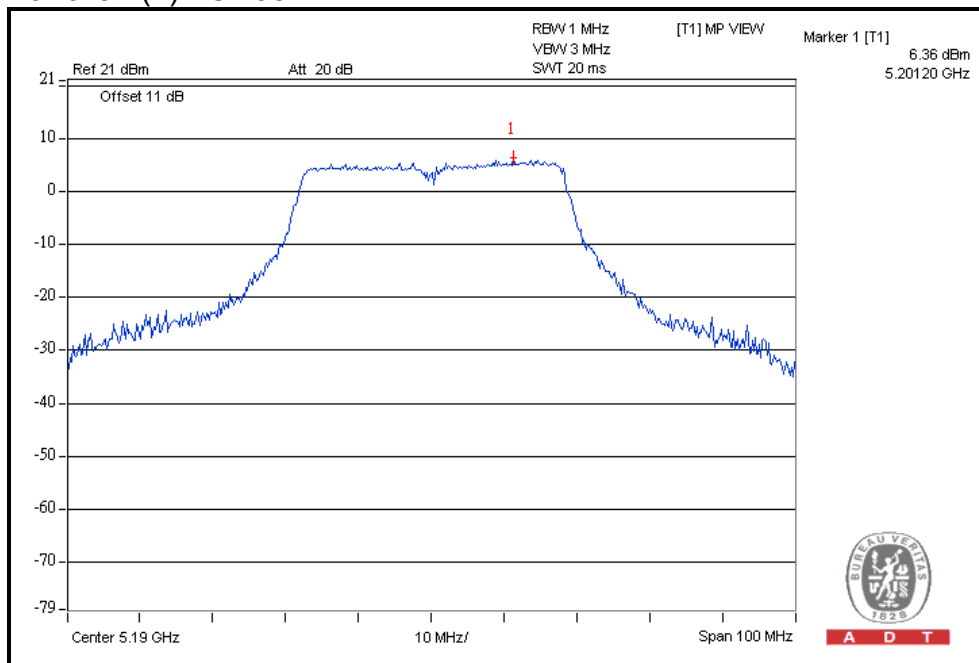
PPSD

For chain(0) : CH134



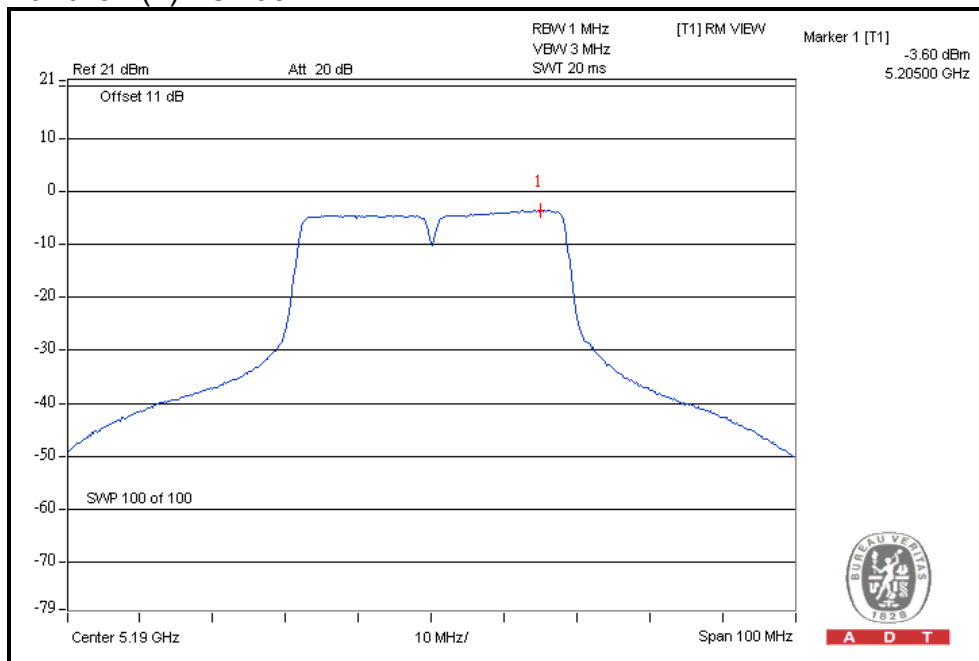
PEAK VALUE

For chain(1) : CH38



PPSD

For chain(1) : CH38

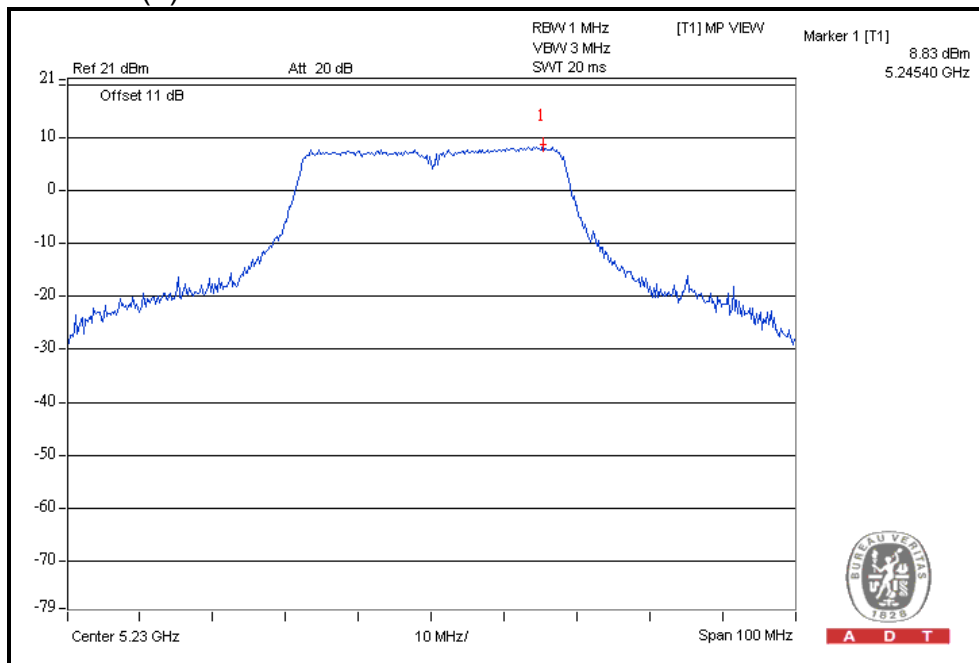




A D T

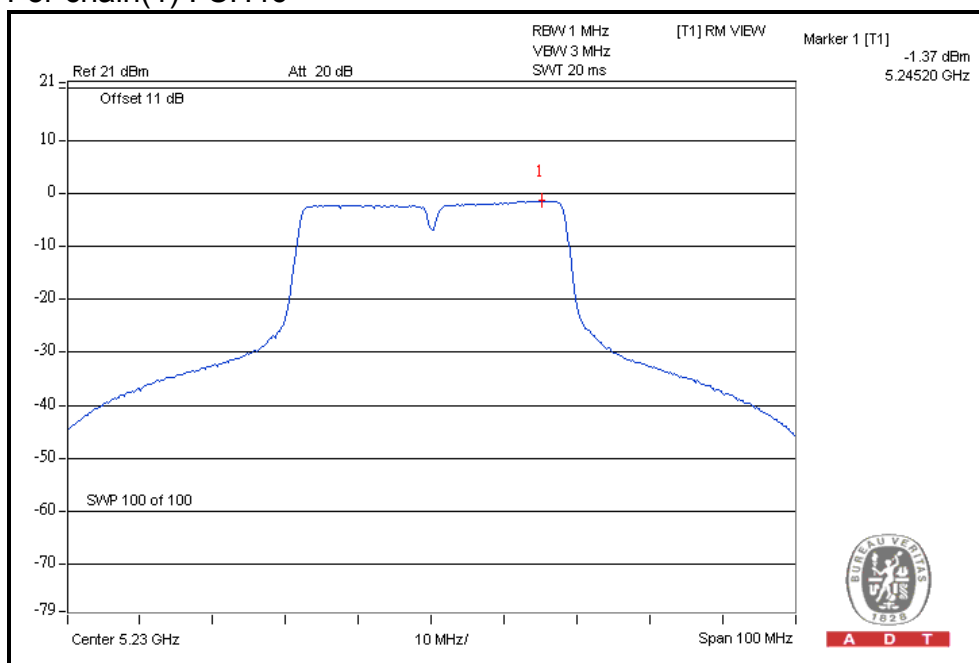
PEAK VALUE

For chain(1) : CH46



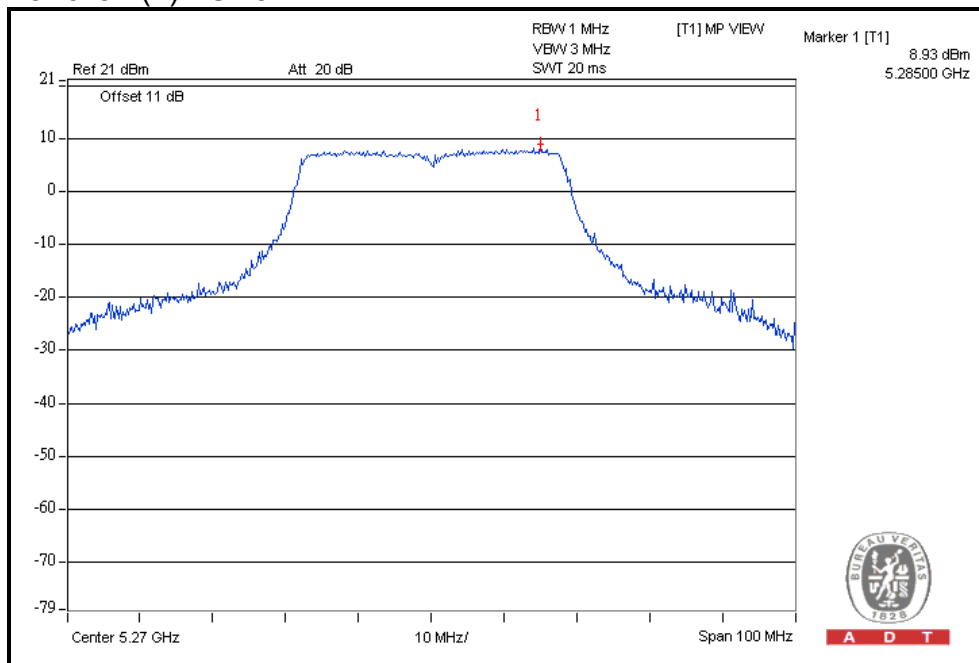
PPSD

For chain(1) : CH46



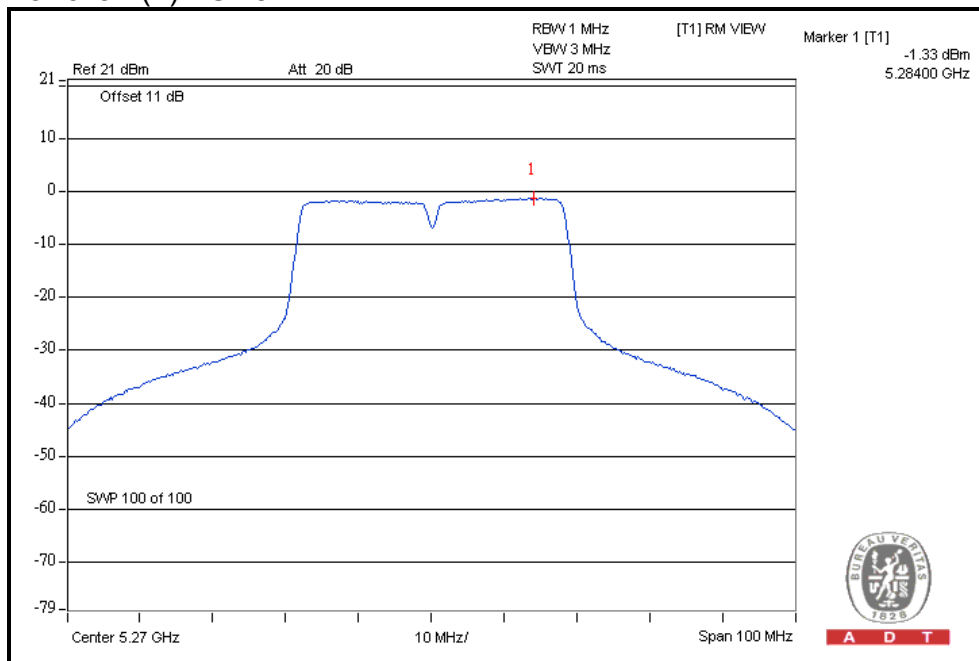
PEAK VALUE

For chain(1) : CH54



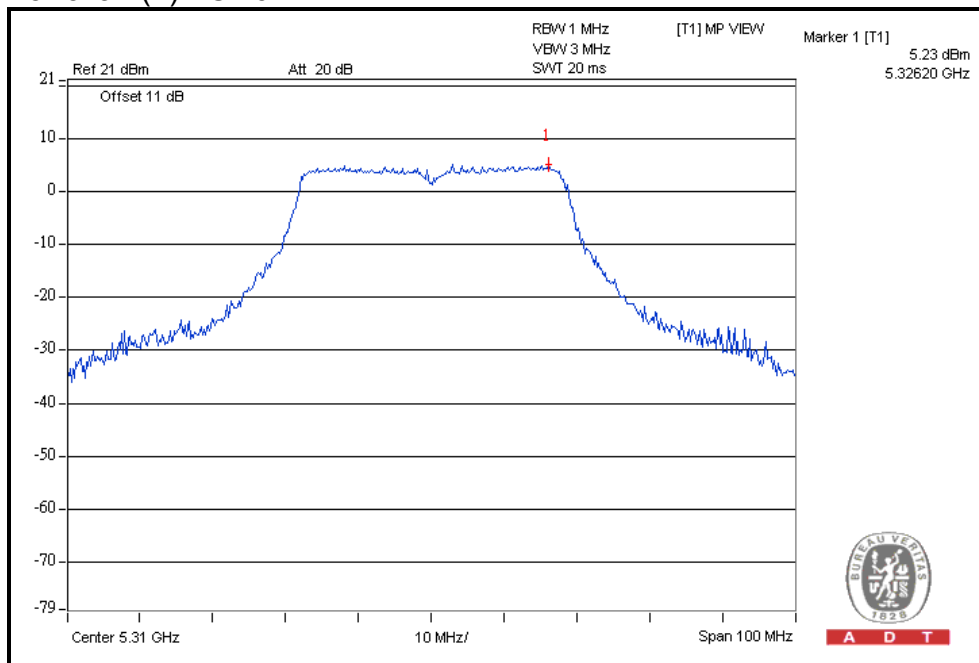
PPSD

For chain(1) : CH54



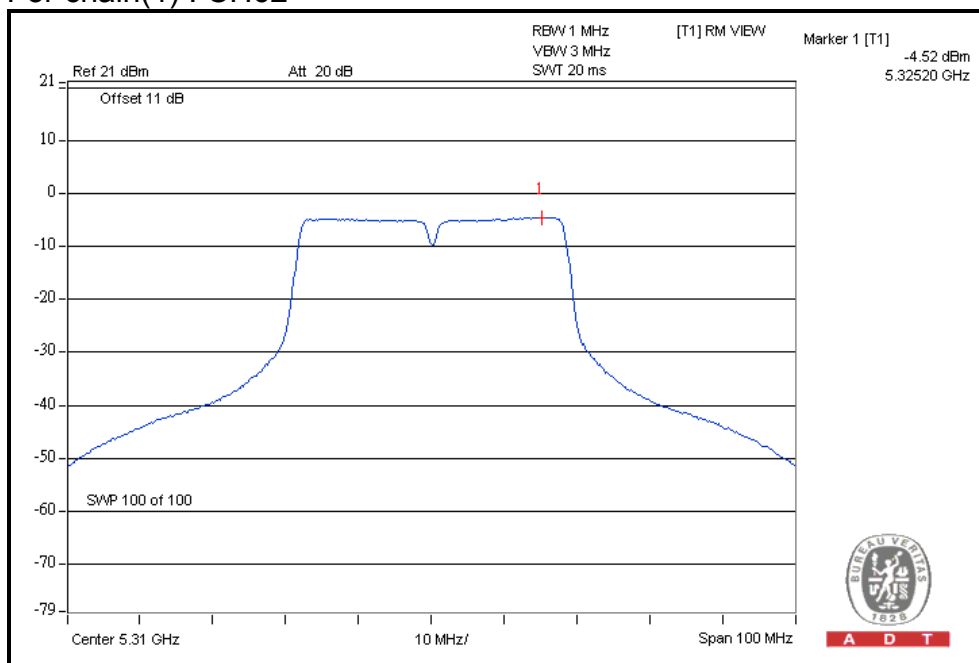
PEAK VALUE

For chain(1) : CH62



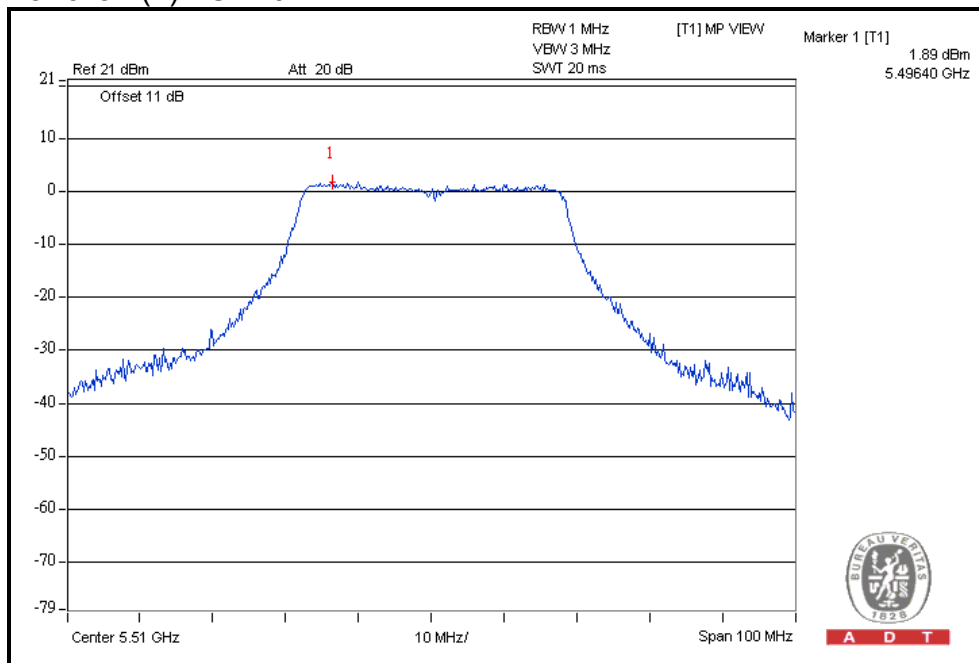
PPSD

For chain(1) : CH62



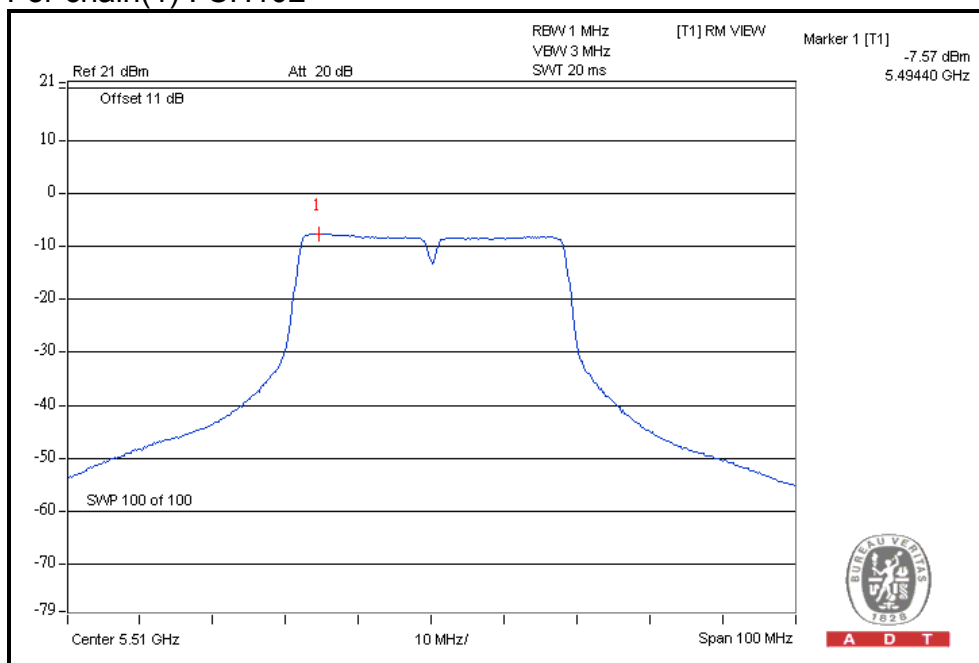
PEAK VALUE

For chain(1) : CH102



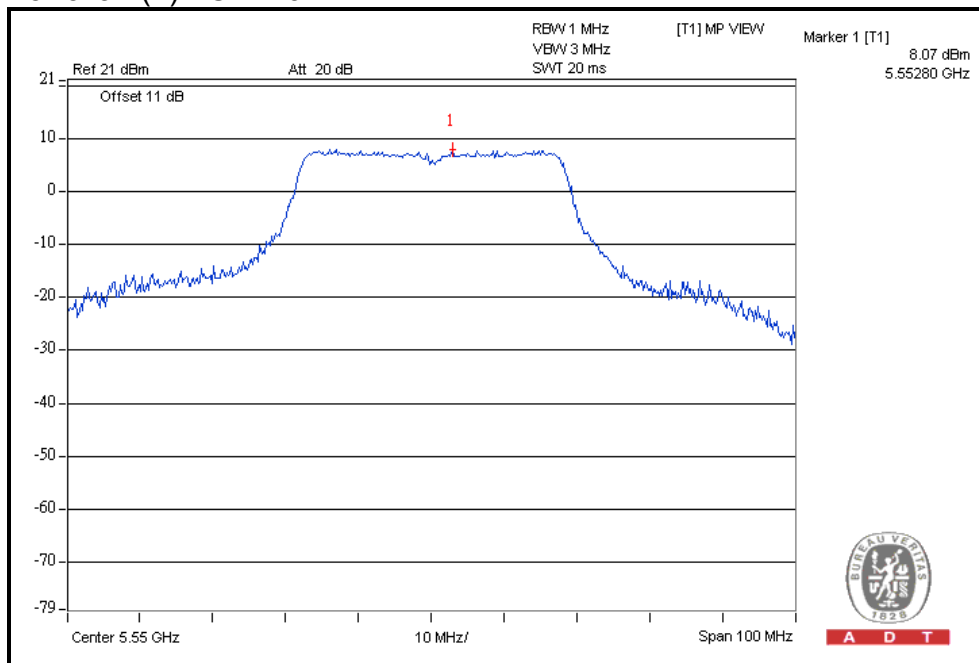
PPSD

For chain(1) : CH102



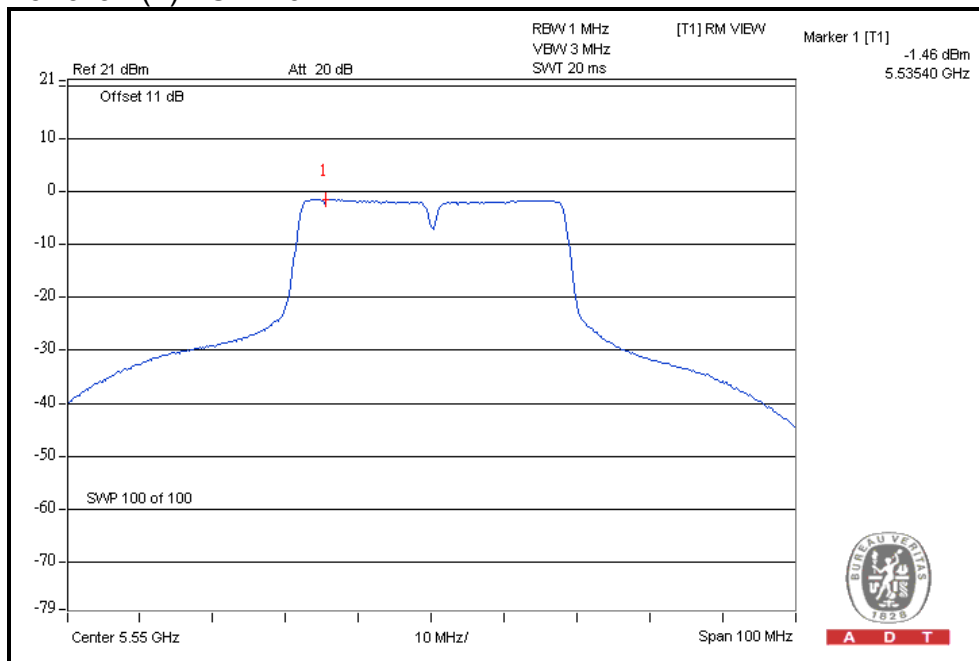
PEAK VALUE

For chain(1) : CH110



PPSD

For chain(1) : CH110

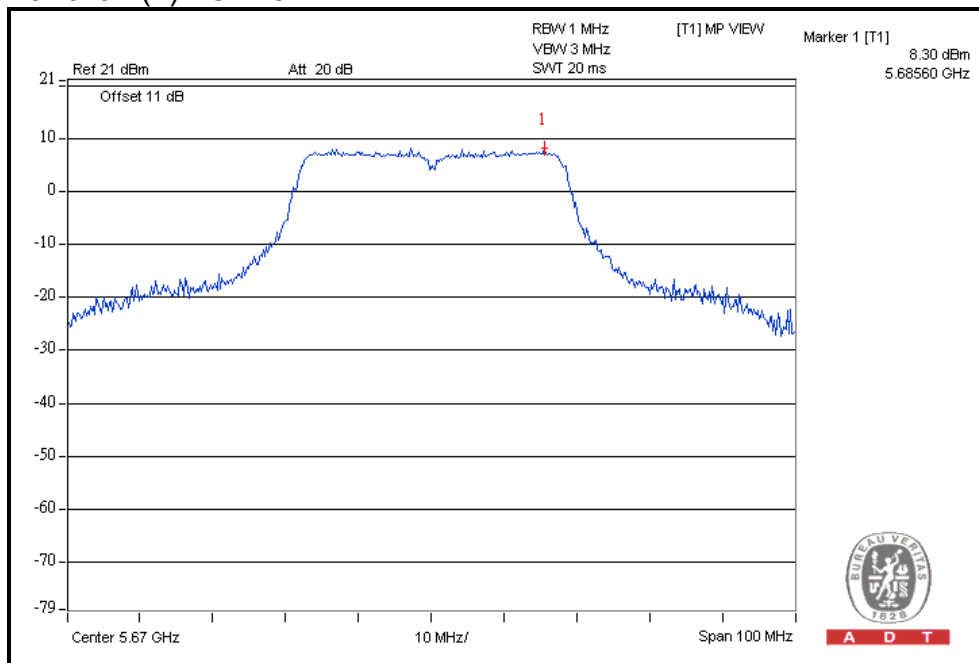




A D T

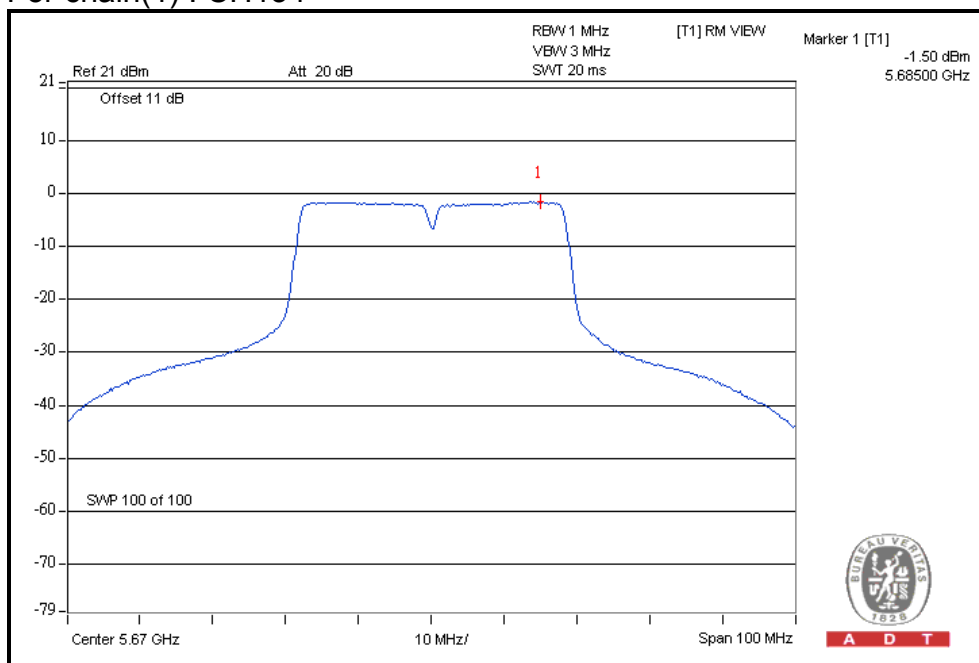
PEAK VALUE

For chain(1) : CH134



PPSD

For chain(1) : CH134



4.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Frequency Band	Limit
5.15 ~ 5.25GHz	4dBm
5.25 ~ 5.35GHz	11dBm
5.47 ~ 5.725GHz	11dBm
5.725 ~ 5.825GHz	17dBm

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Apr. 12, 2012

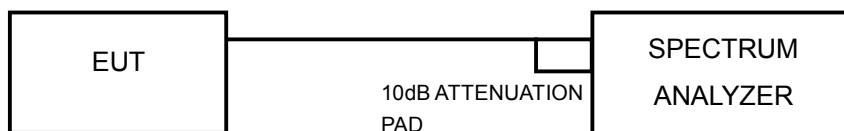
4.5.3 TEST PROCEDURES

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 1 MHz, Set VBW $\geq$ 3 MHz, Detector = RMS
- 3) Sweep time = auto, trigger set to "free run".
- 4) Trace average at least 100 traces in power averaging mode.
- 5) Record the max value

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

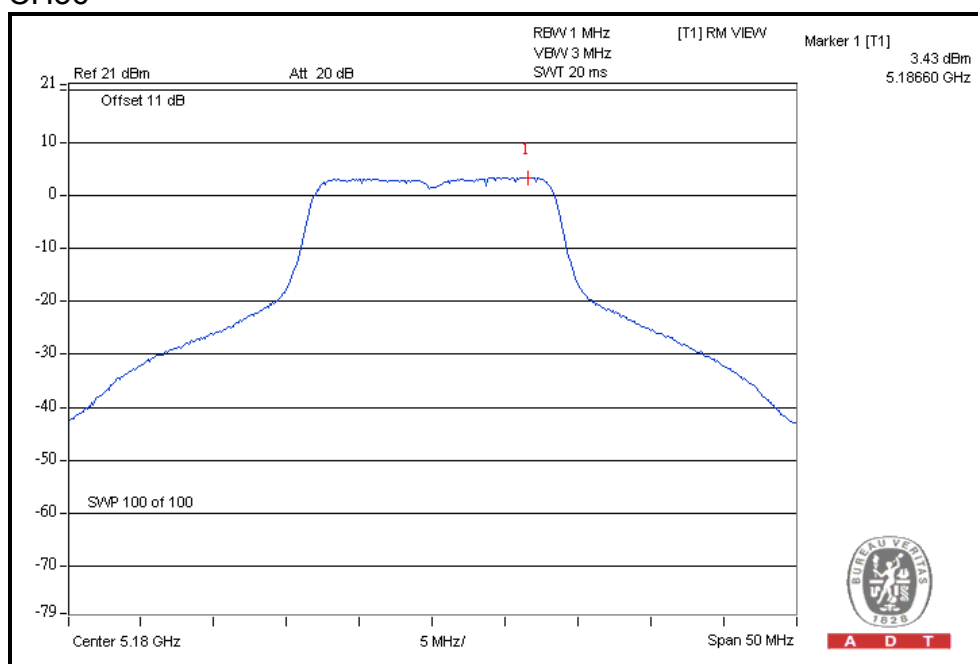
Same as 4.3.6

4.5.7 TEST RESULTS

Single chain - 802.11a

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	3.43	4	PASS
40	5200	3.05	4	PASS
48	5240	3.22	4	PASS
52	5260	5.31	11	PASS
60	5300	5.50	11	PASS
64	5320	5.41	11	PASS
100	5500	3.57	11	PASS
116	5580	5.49	11	PASS
132	5660	5.58	11	PASS
140	5700	2.24	11	PASS

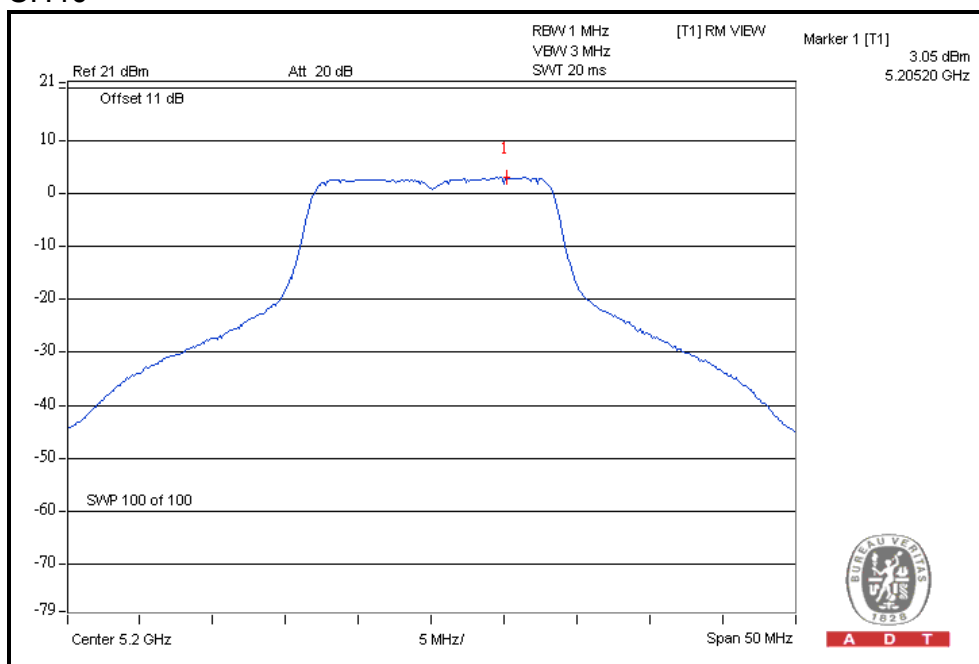
CH36





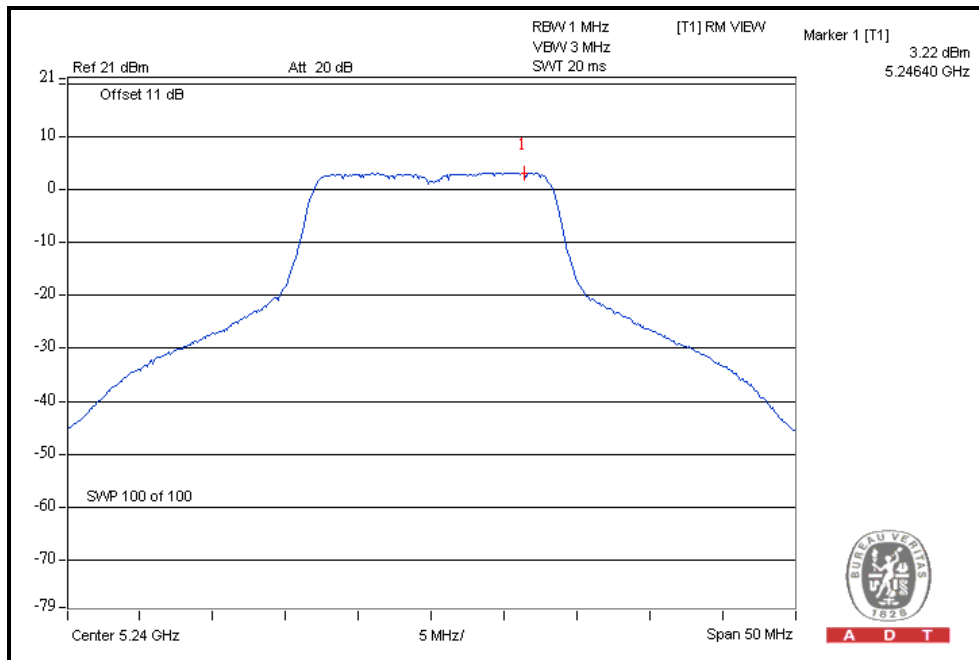
A D T

CH40



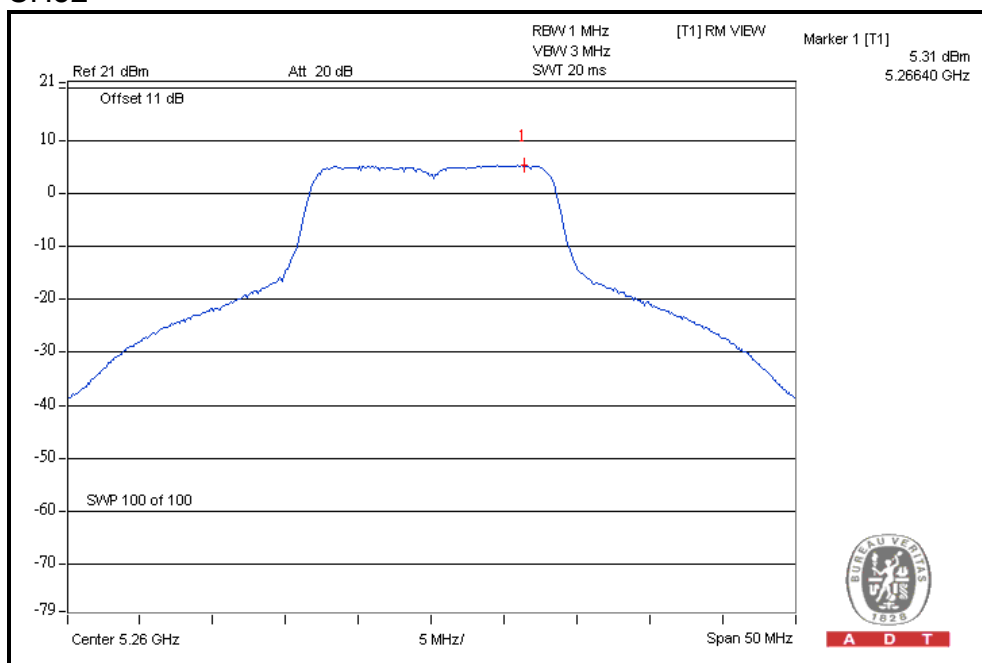
A D T

CH48

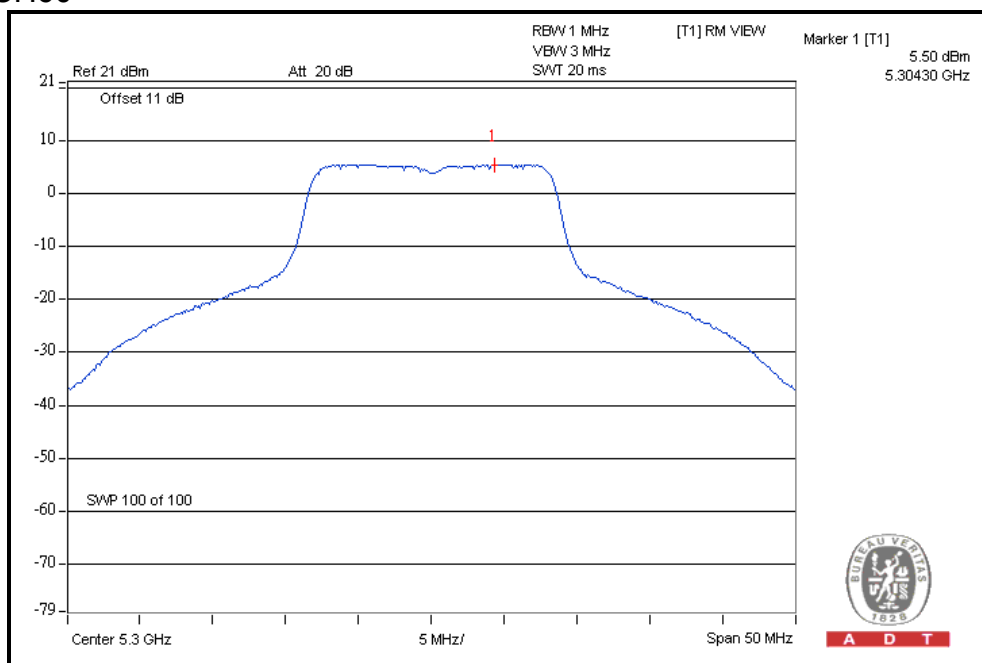


A D T

CH52



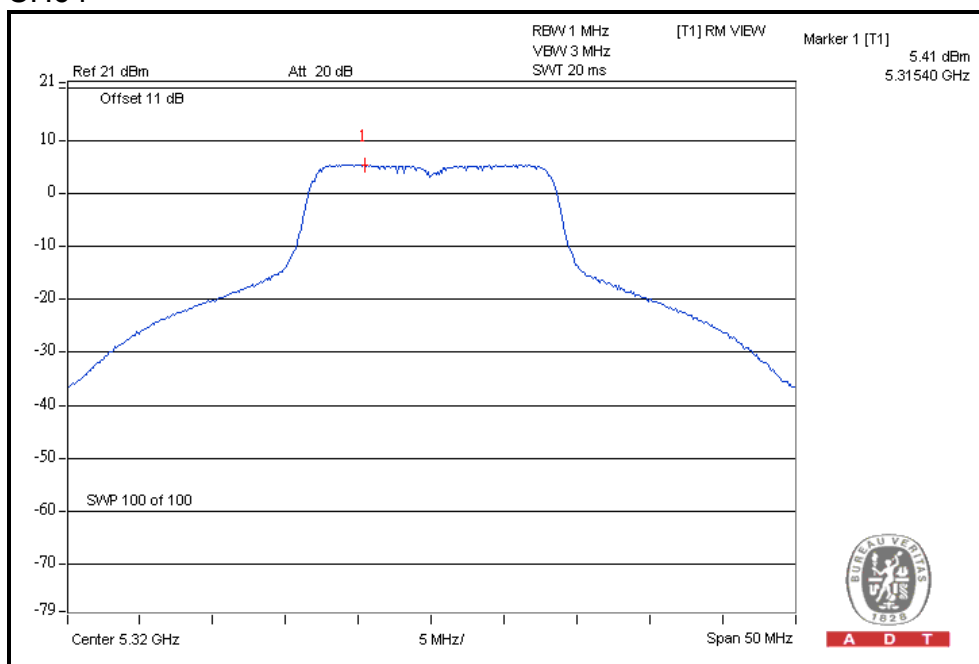
CH60



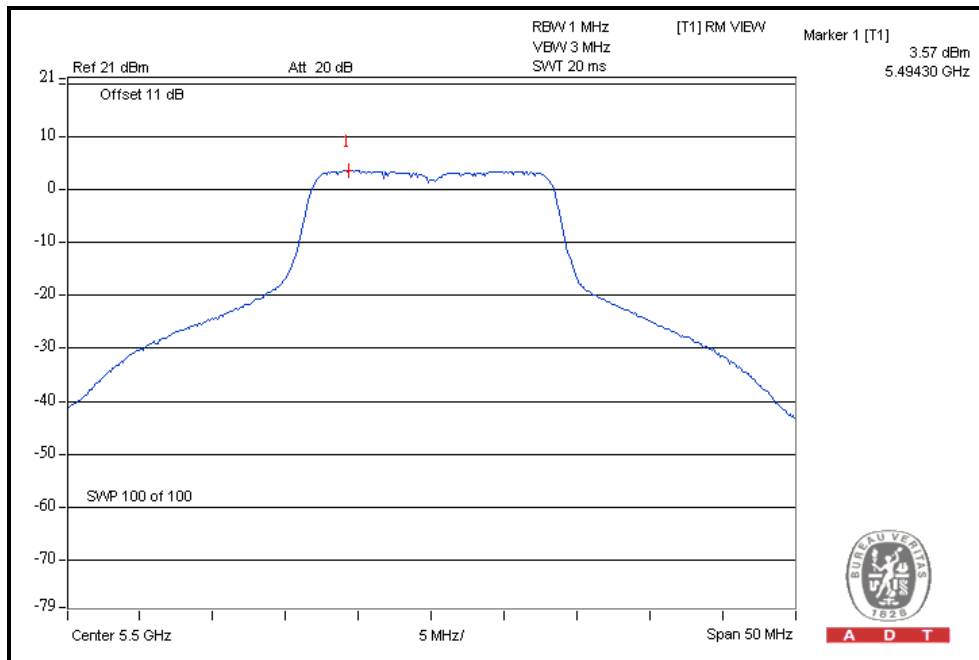


A D T

CH64



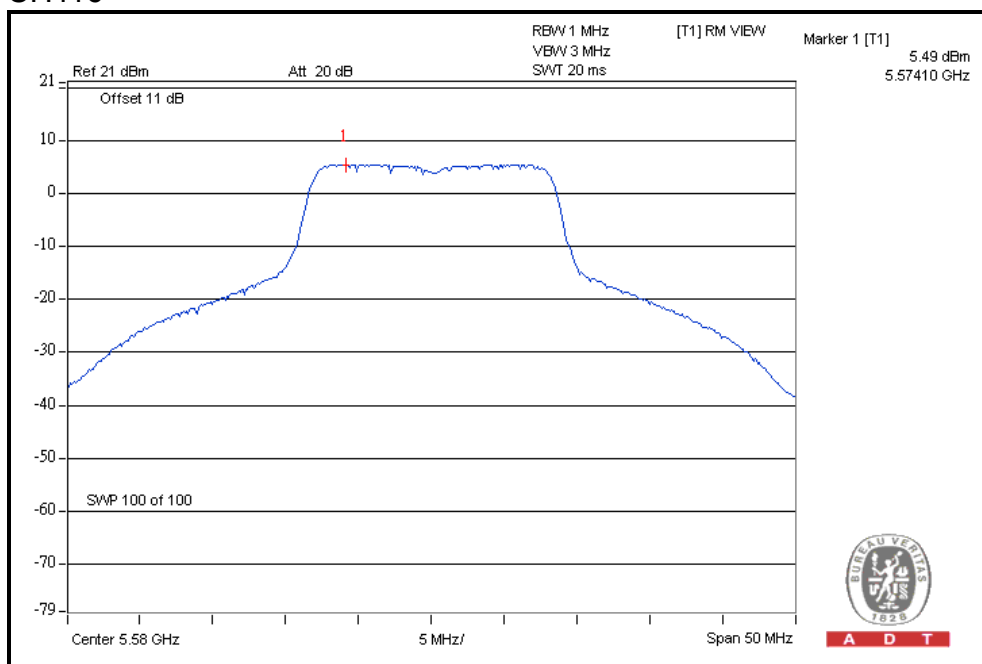
CH100



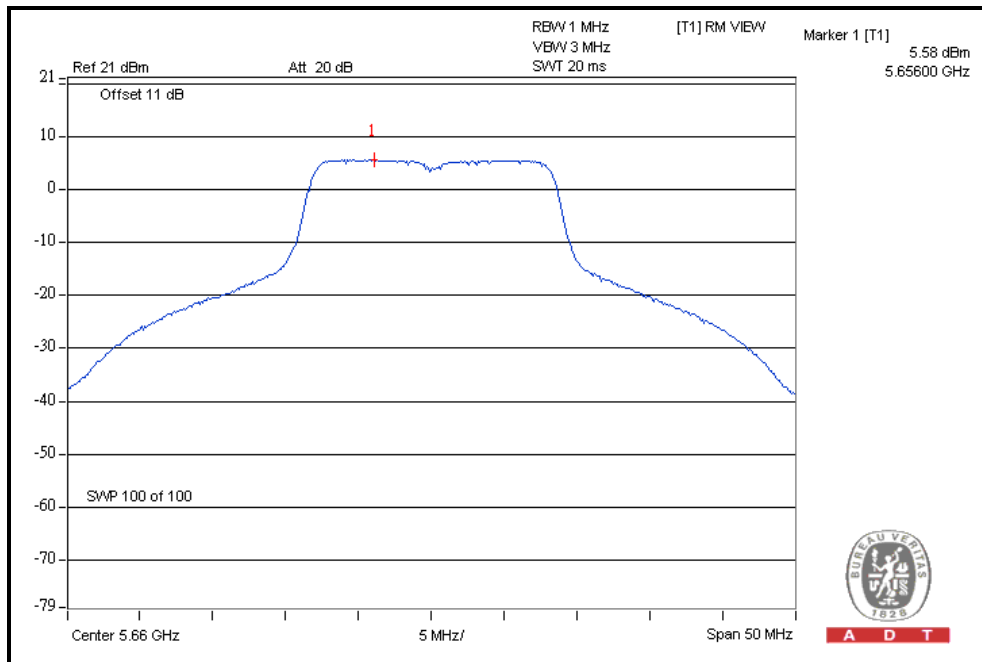


A D T

CH116



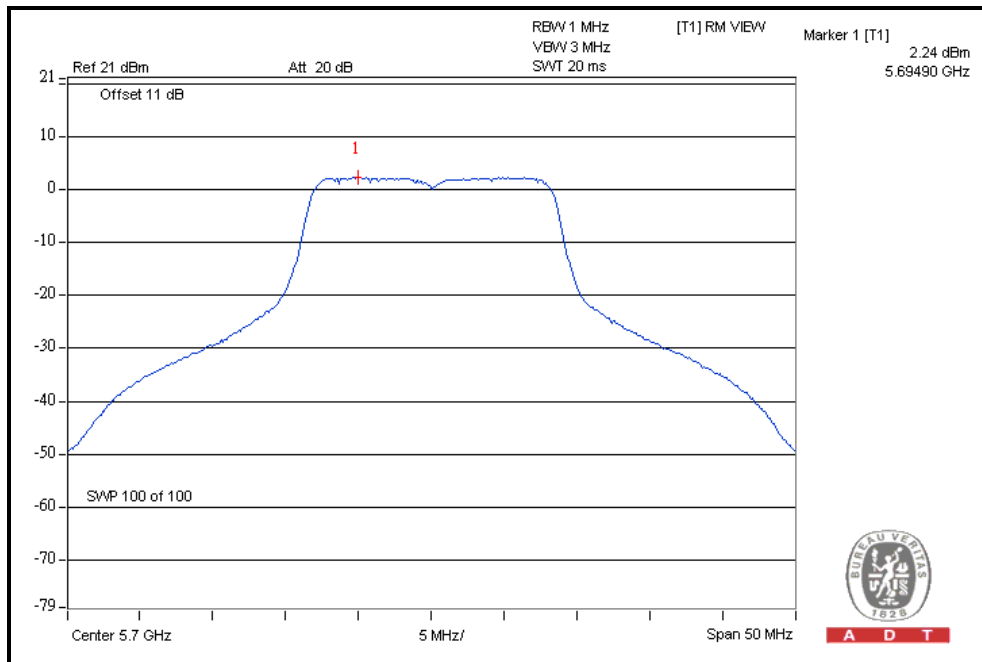
CH132





A D T

CH140



A D T

Multiple chain - 802.11a

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN (0)	CHAIN (1)			
36	5180	-1.10	-0.21	2.35	3.91	PASS
40	5200	-1.05	-0.10	2.40	3.91	PASS
48	5240	0.10	0.38	3.15	3.91	PASS
52	5260	2.49	3.20	5.82	10.91	PASS
60	5300	2.68	2.39	5.49	10.91	PASS
64	5320	2.76	2.29	5.50	10.91	PASS
100	5500	1.13	0.92	3.95	9.23	PASS
116	5580	2.21	2.59	5.39	9.23	PASS
132	5660	2.51	2.76	5.58	9.23	PASS
140	5700	-0.98	-1.46	1.76	9.23	PASS

Note: Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer

For Operated in 5150MHz ~ 5250MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 6.09

The effective legacy gain is 6.09dBi, therefore the limit needs to reduce.

For Operated in 5250MHz ~ 5350MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 6.09

The effective legacy gain is 6.09dBi, therefore the limit needs to reduce.

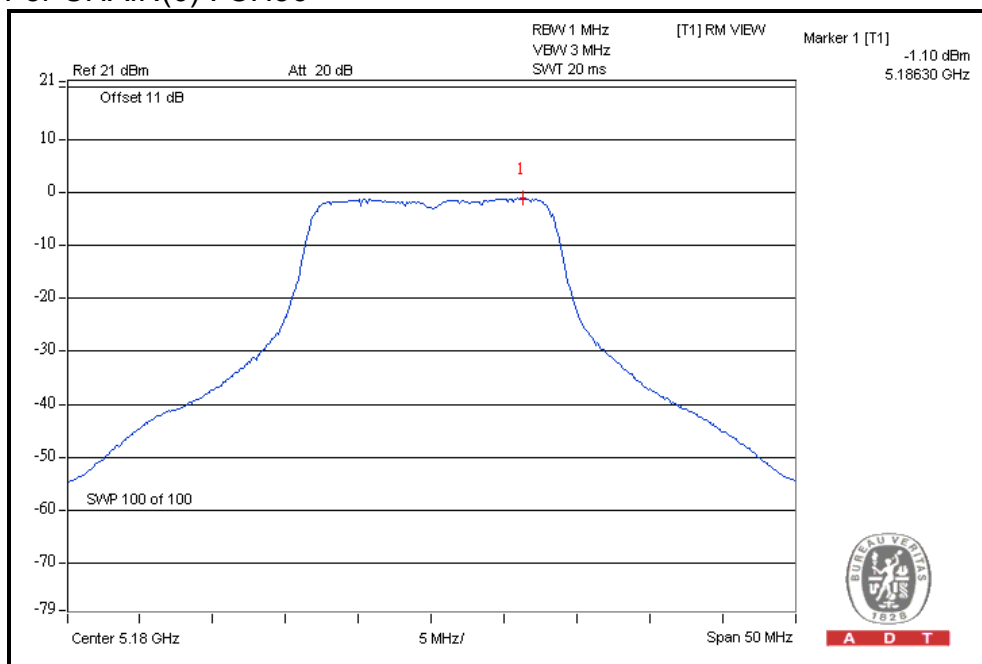
For Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

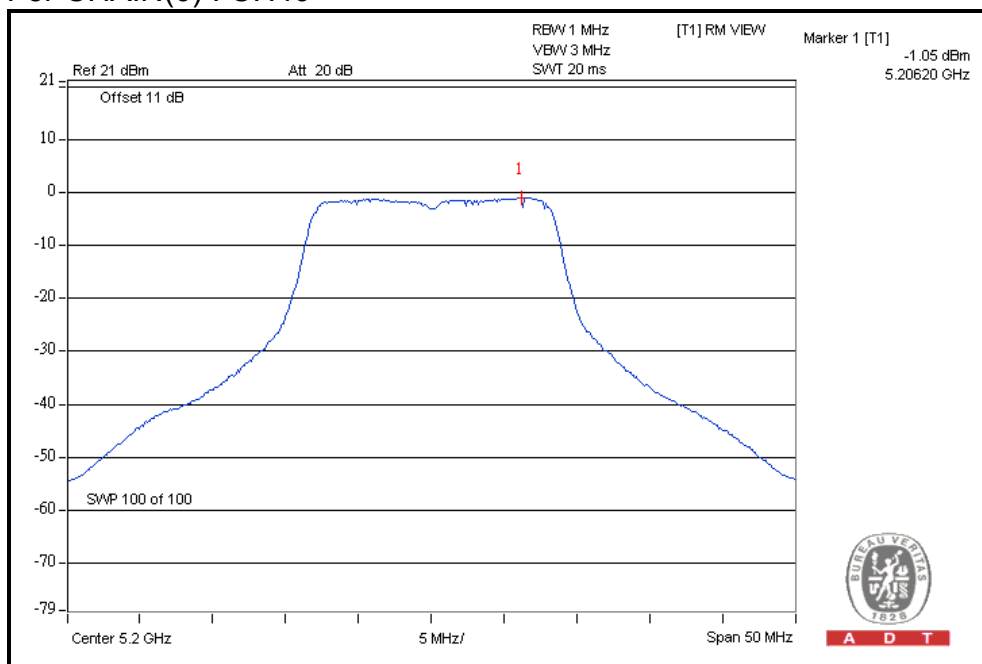
Effective Legacy Gain (dBi) = 7.77

The effective legacy gain is 7.77dBi, therefore the limit needs to reduce.

For CHAIN(0) : CH36



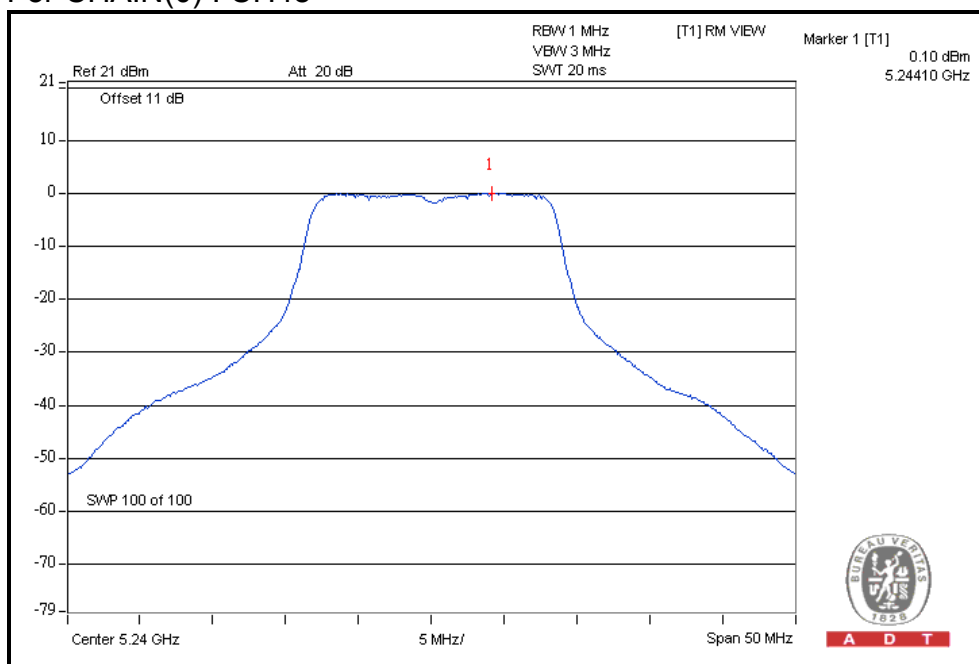
For CHAIN(0) : CH40



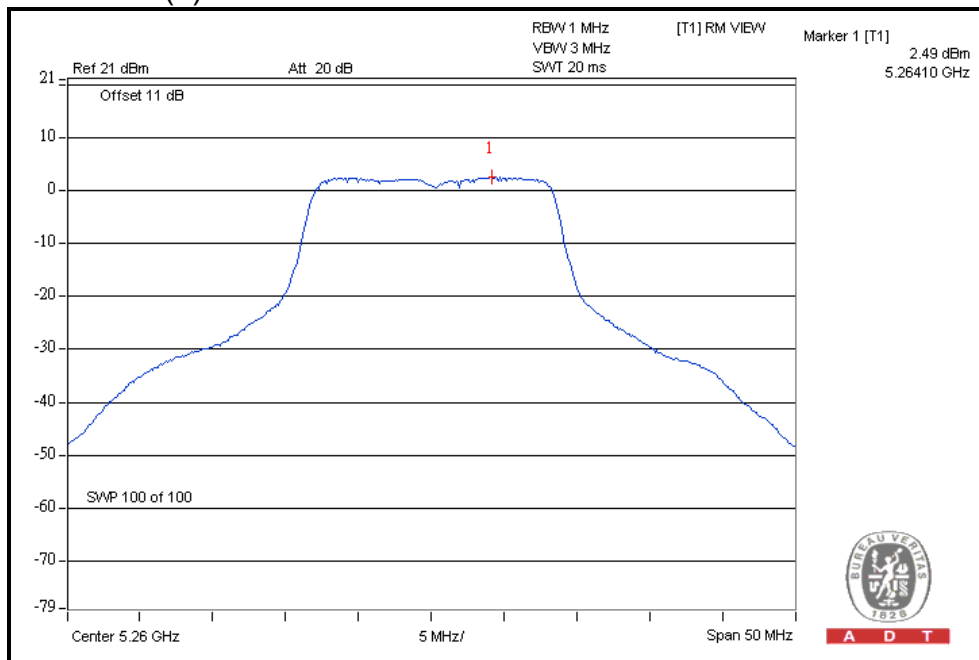


A D T

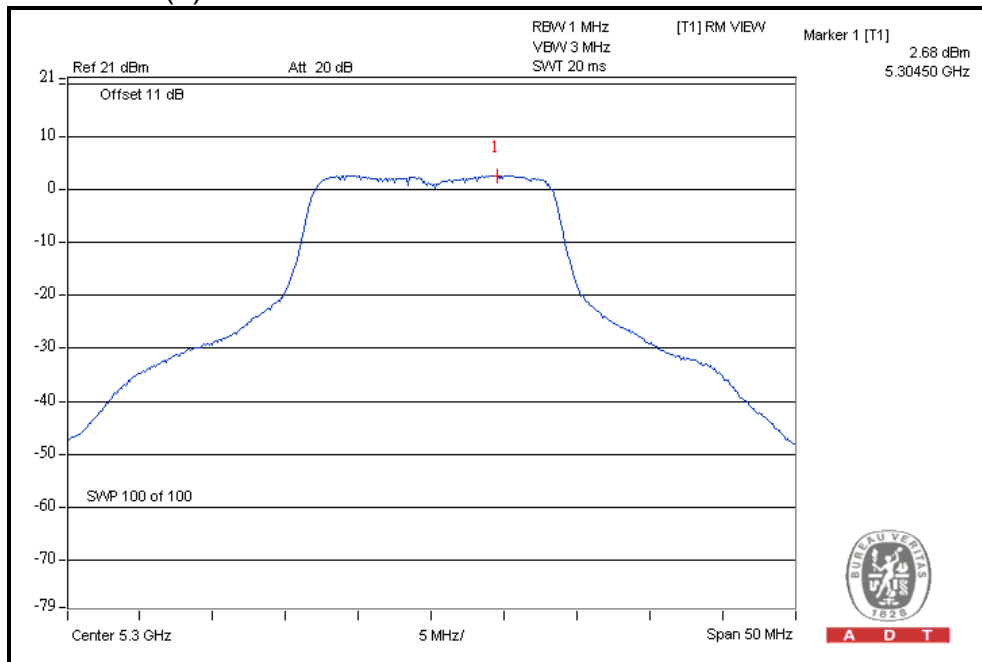
For CHAIN(0) : CH48



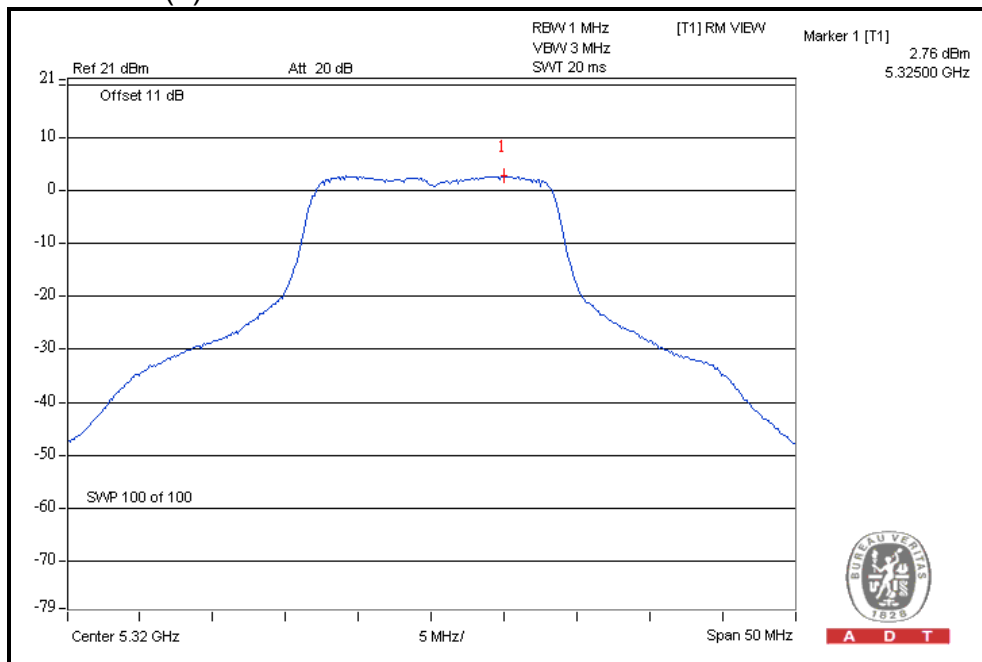
For CHAIN(0) : CH52



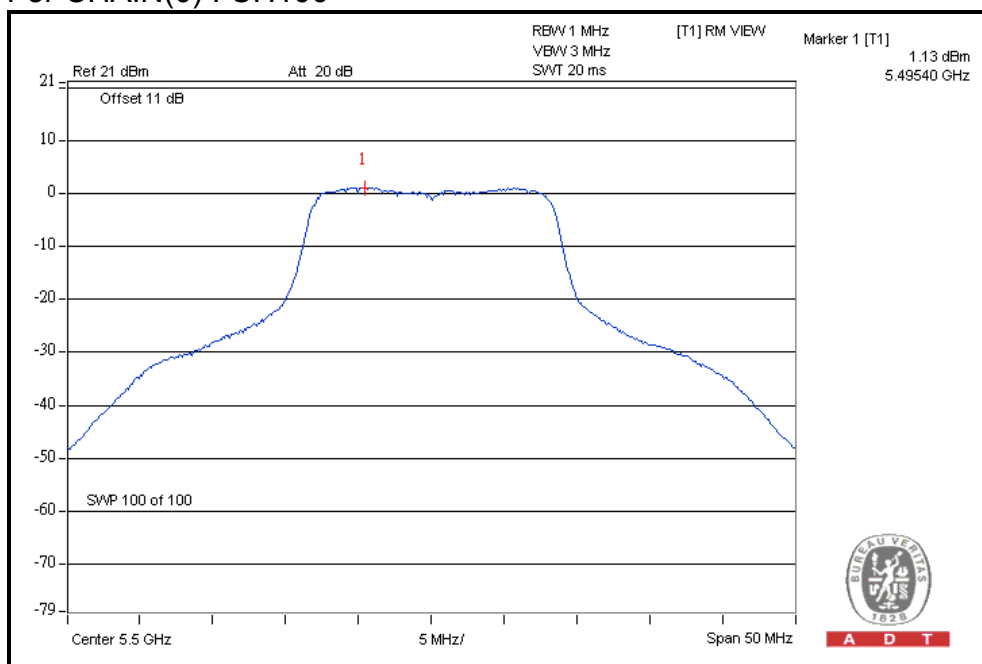
For CHAIN(0) : CH60



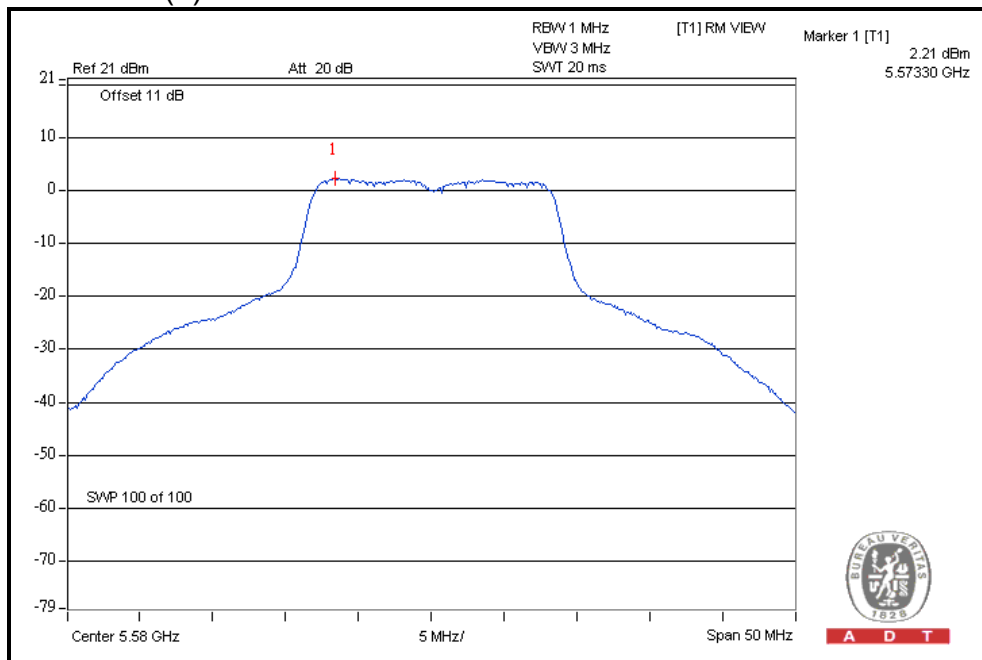
For CHAIN(0) : CH64



For CHAIN(0) : CH100



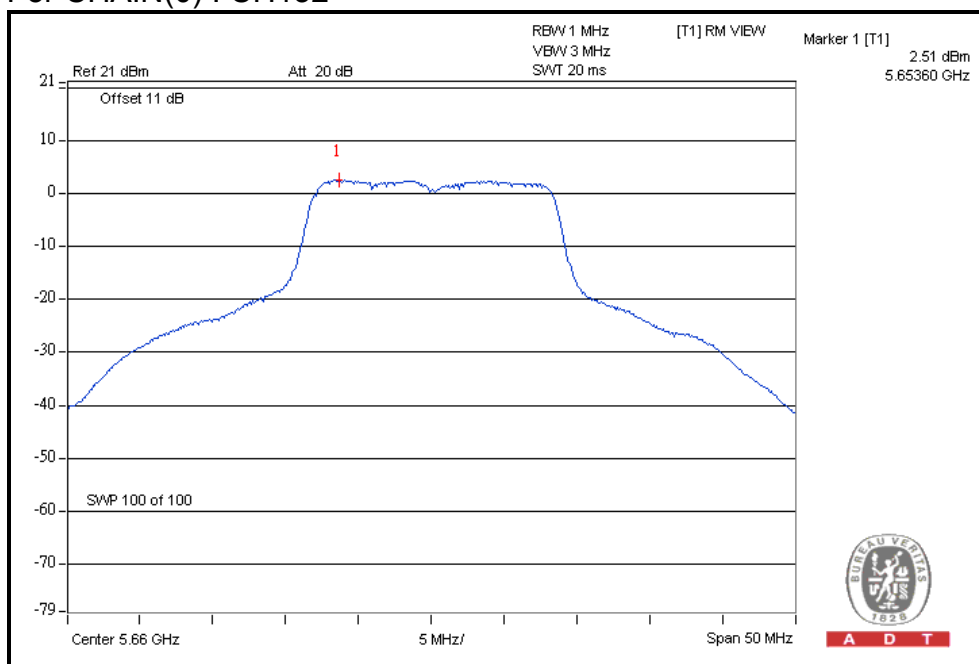
For CHAIN(0) : CH116



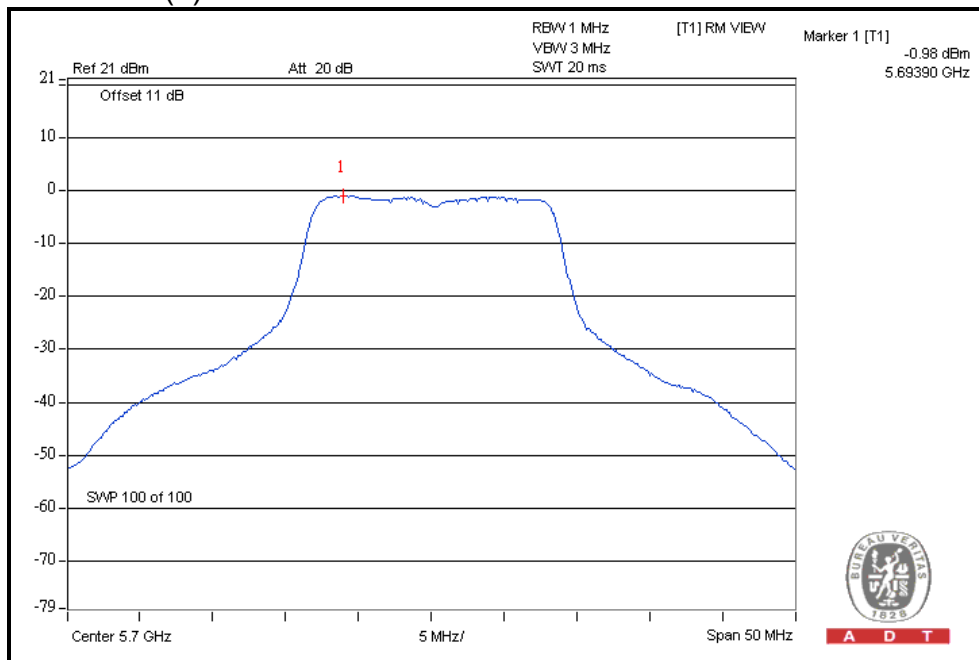


A D T

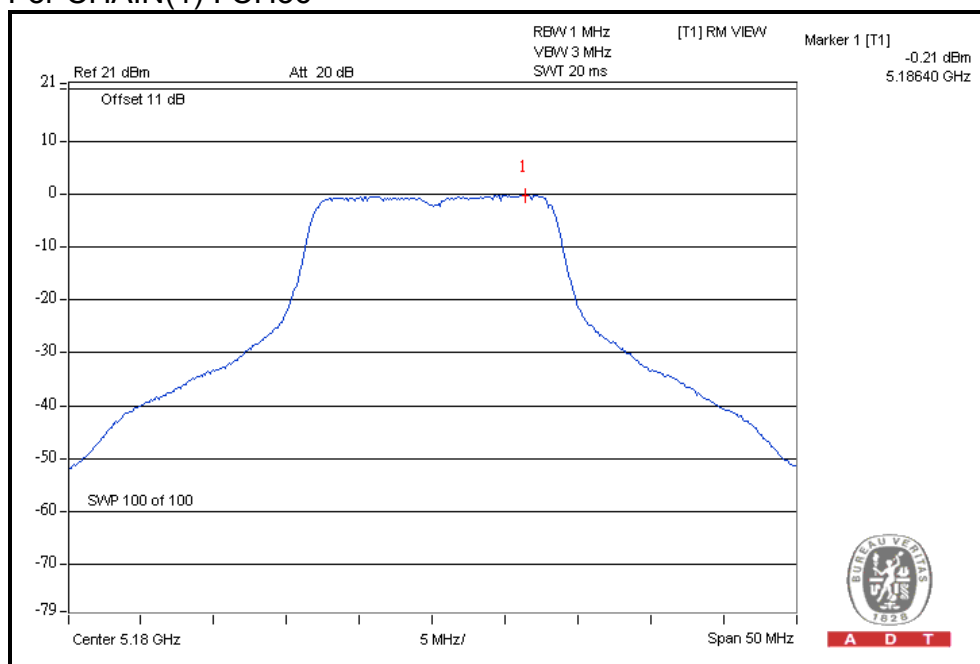
For CHAIN(0) : CH132



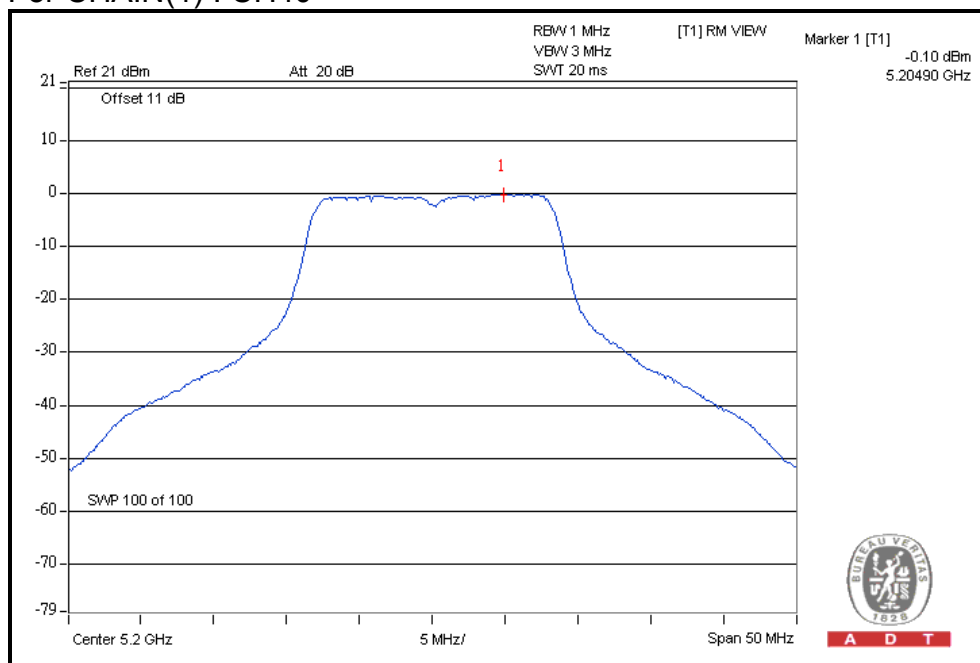
For CHAIN(0) : CH140



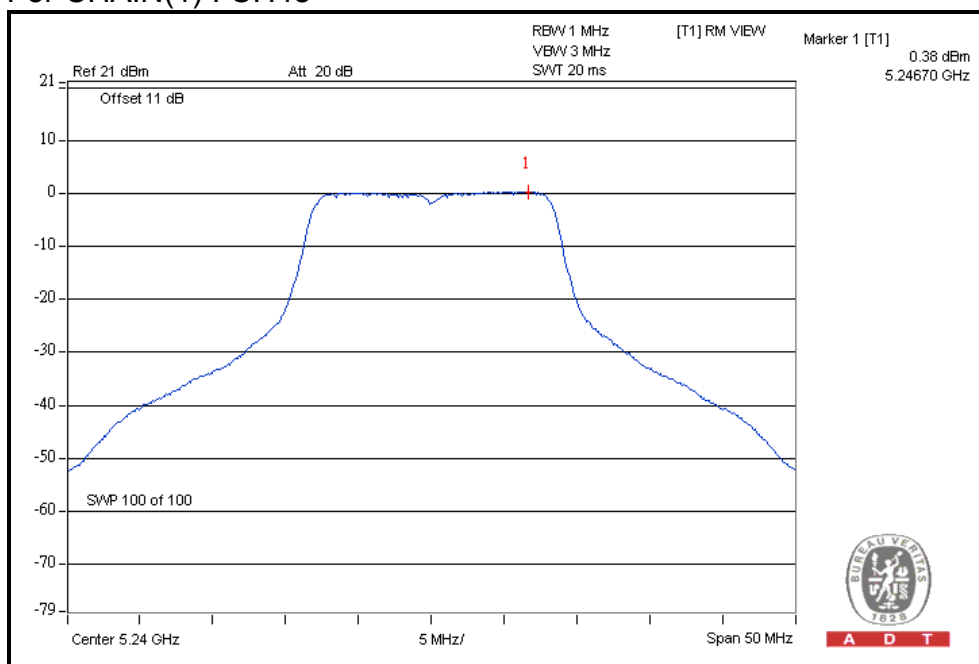
For CHAIN(1) : CH36



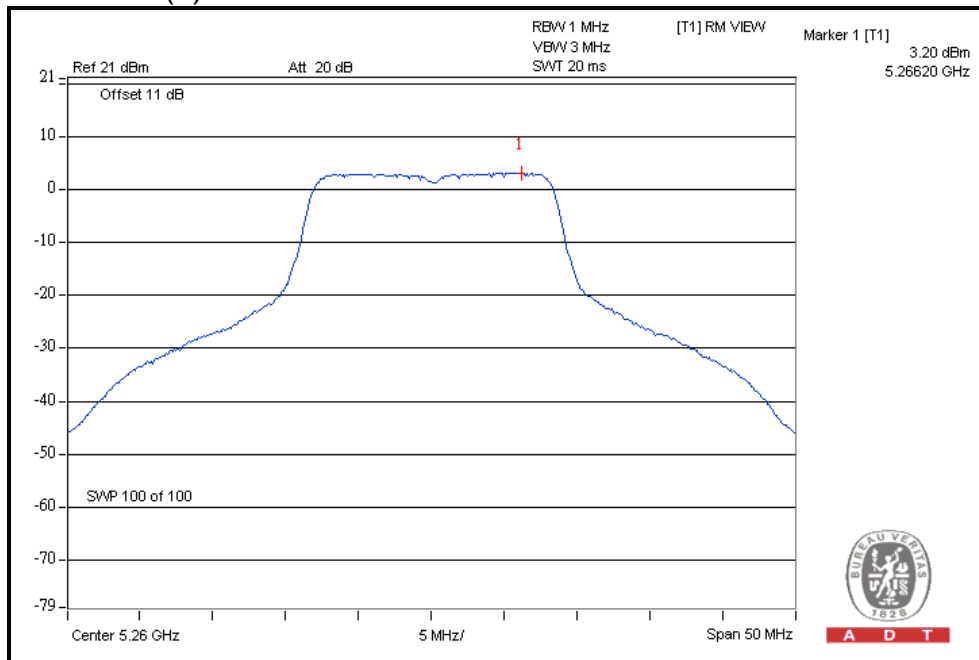
For CHAIN(1) : CH40



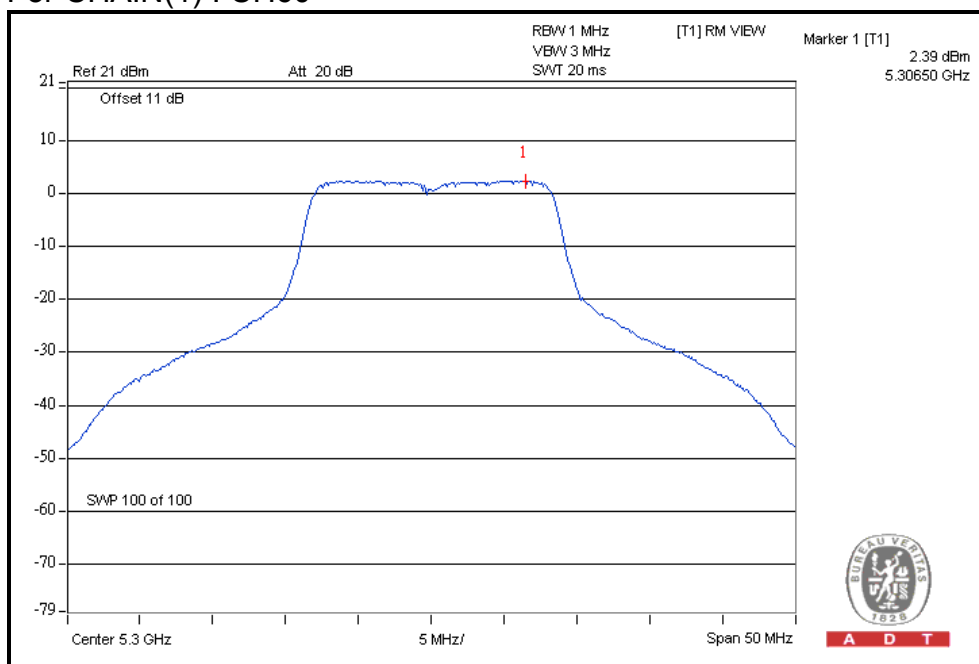
For CHAIN(1) : CH48



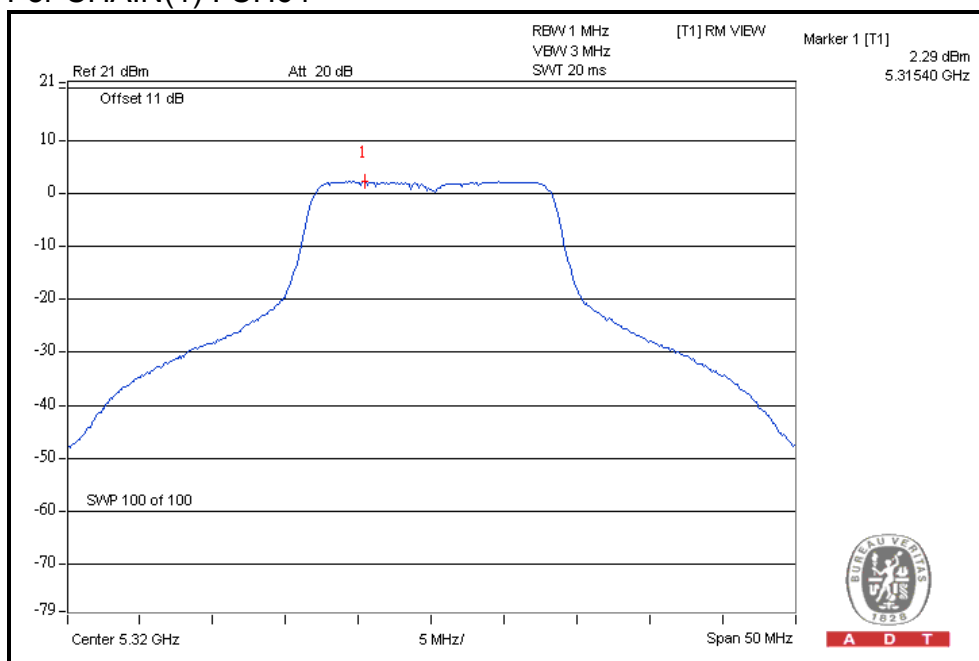
For CHAIN(1) : CH52



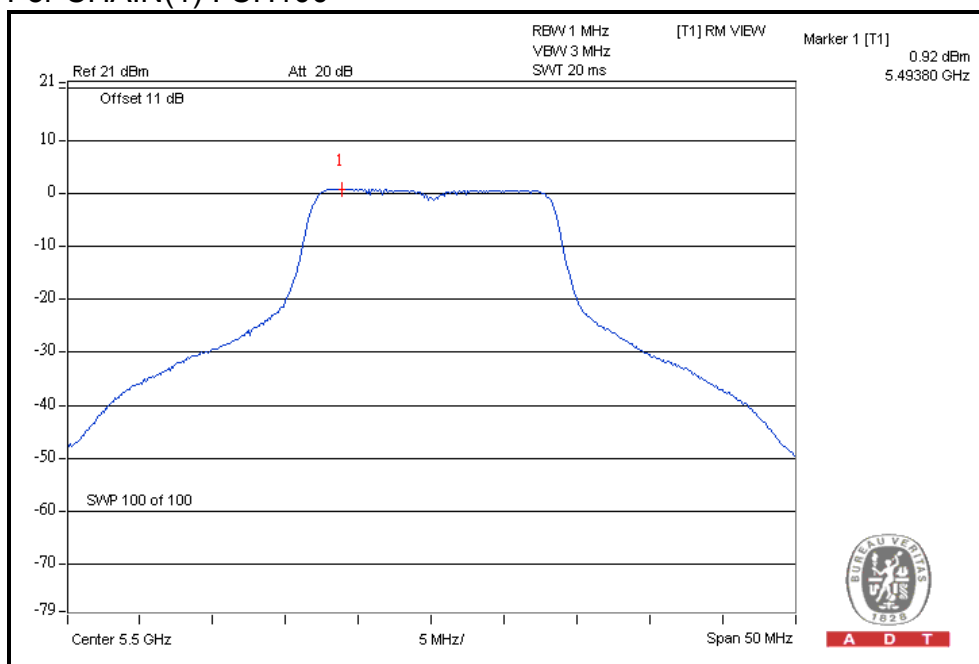
For CHAIN(1) : CH60



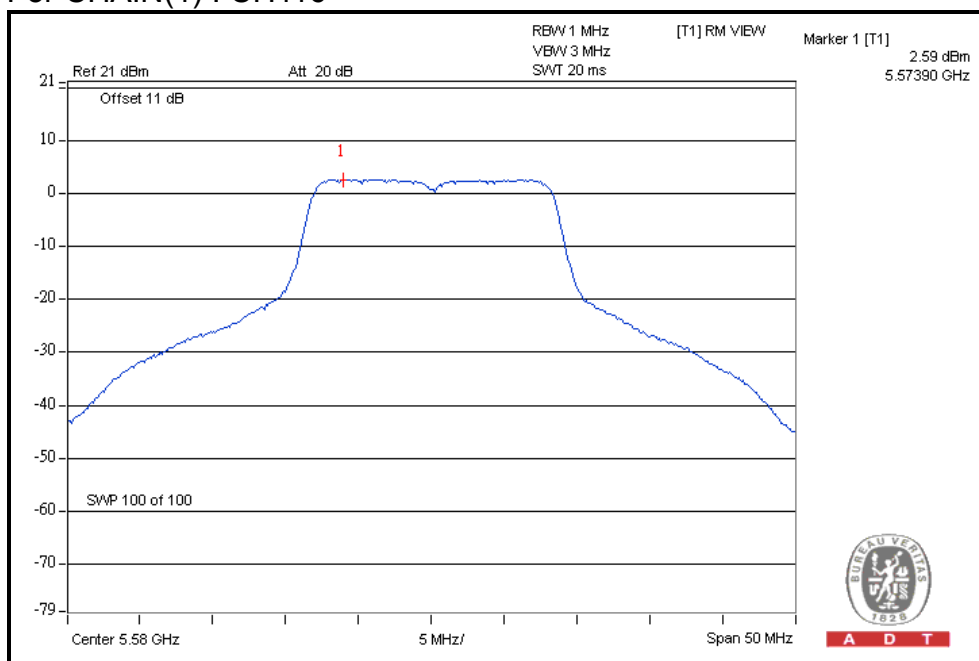
For CHAIN(1) : CH64



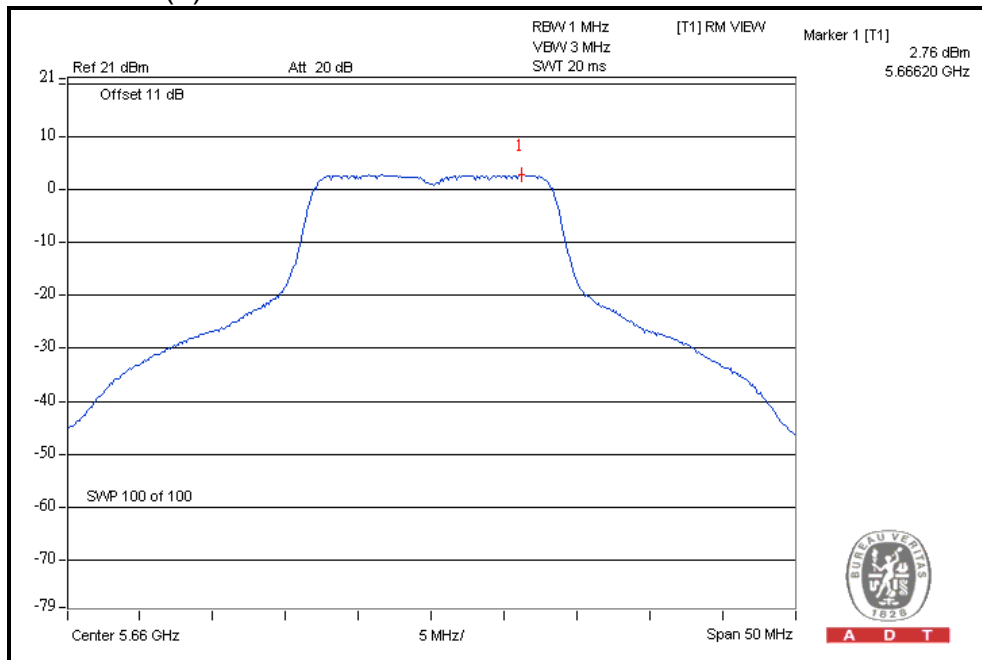
For CHAIN(1) : CH100



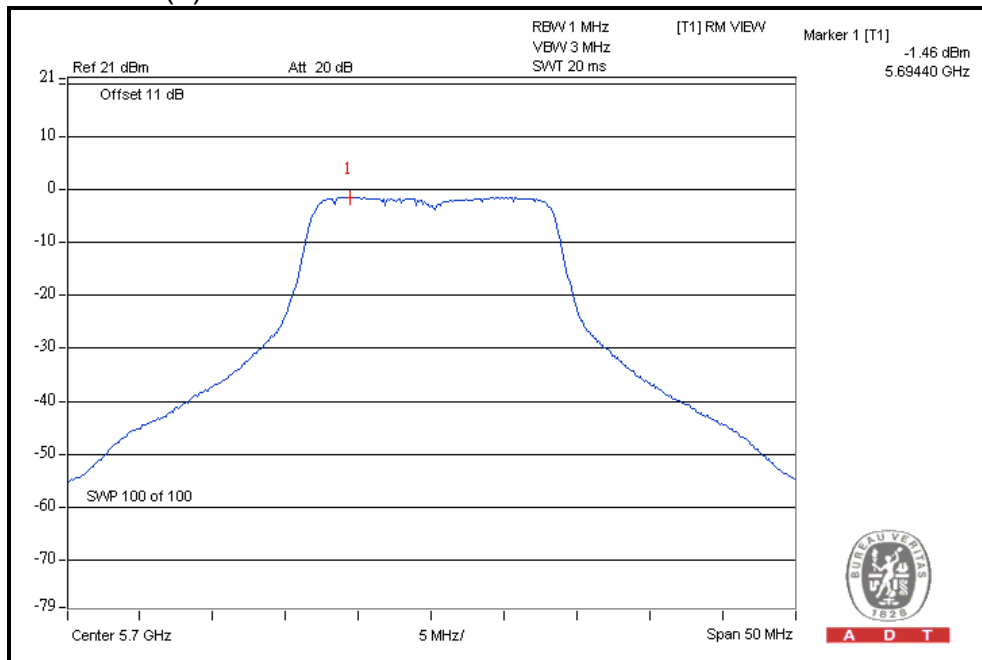
For CHAIN(1) : CH116



For CHAIN(1) : CH132



For CHAIN(1) : CH140



802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (DBM)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN (0)	CHAIN (1)			
36	5180	-1.28	-0.60	2.07	3.91	PASS
40	5200	-1.35	0.24	2.50	3.91	PASS
48	5240	0.21	0.31	3.11	3.91	PASS
52	5260	1.60	1.52	4.43	10.91	PASS
60	5300	1.75	1.47	4.61	10.91	PASS
64	5320	1.85	1.18	4.53	10.91	PASS
100	5500	1.40	0.97	4.19	9.23	PASS
116	5580	1.44	1.14	4.15	9.23	PASS
132	5660	1.94	1.49	4.71	9.23	PASS
140	5700	0.18	-0.86	2.68	9.23	PASS

Note: Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer

For Operated in 5150MHz ~ 5250MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 6.09

The effective legacy gain is 6.09dBi, therefore the limit needs to reduce.

For Operated in 5250MHz ~ 5350MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 6.09

The effective legacy gain is 6.09dBi, therefore the limit needs to reduce.

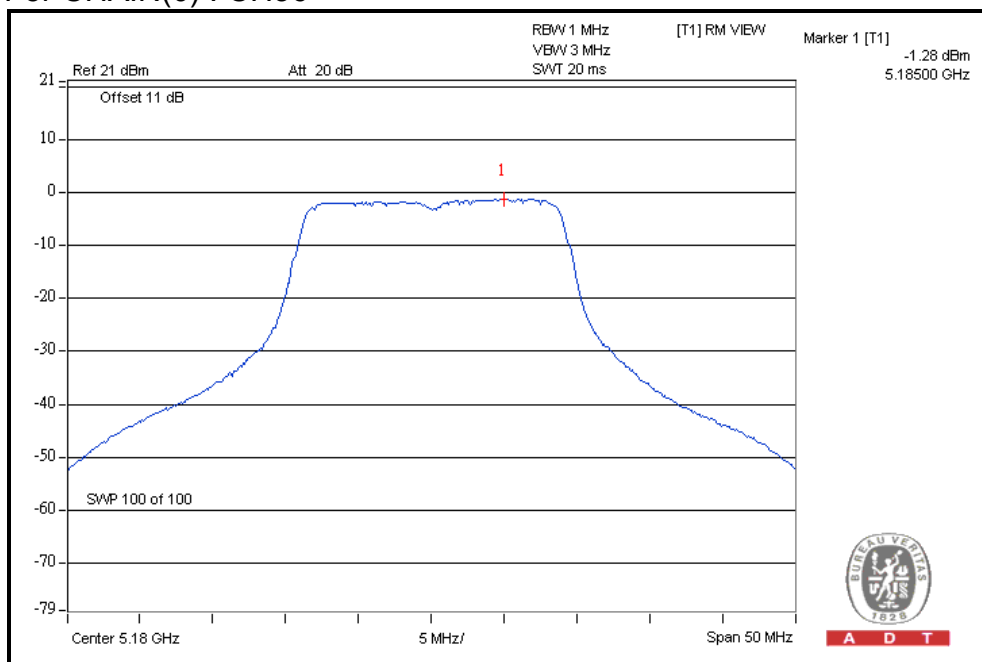
For Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

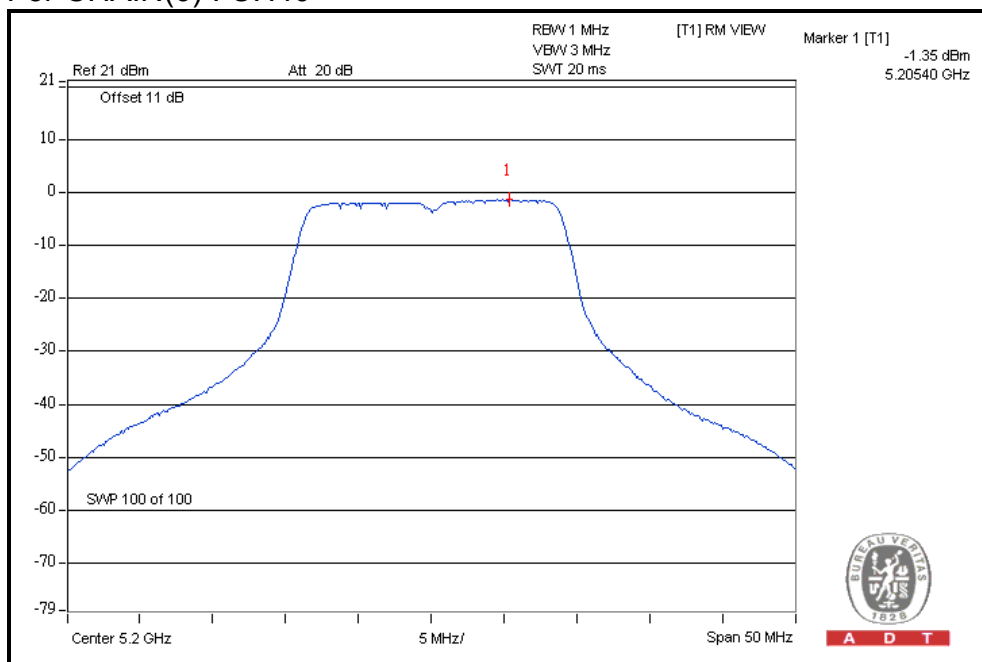
Effective Legacy Gain (dBi) = 7.77

The effective legacy gain is 7.77dBi, therefore the limit needs to reduce.

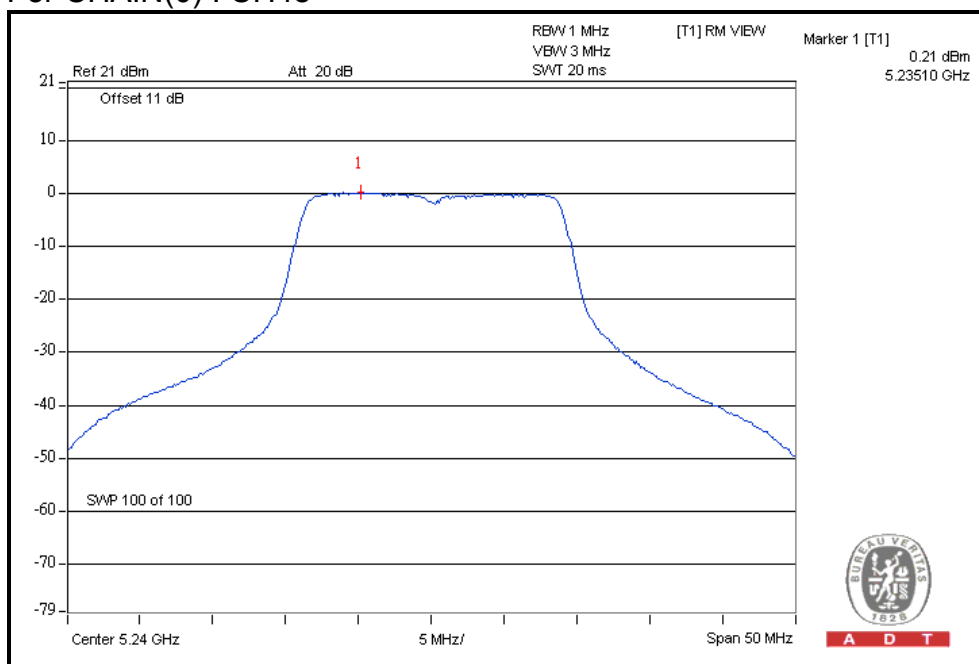
For CHAIN(0) : CH36



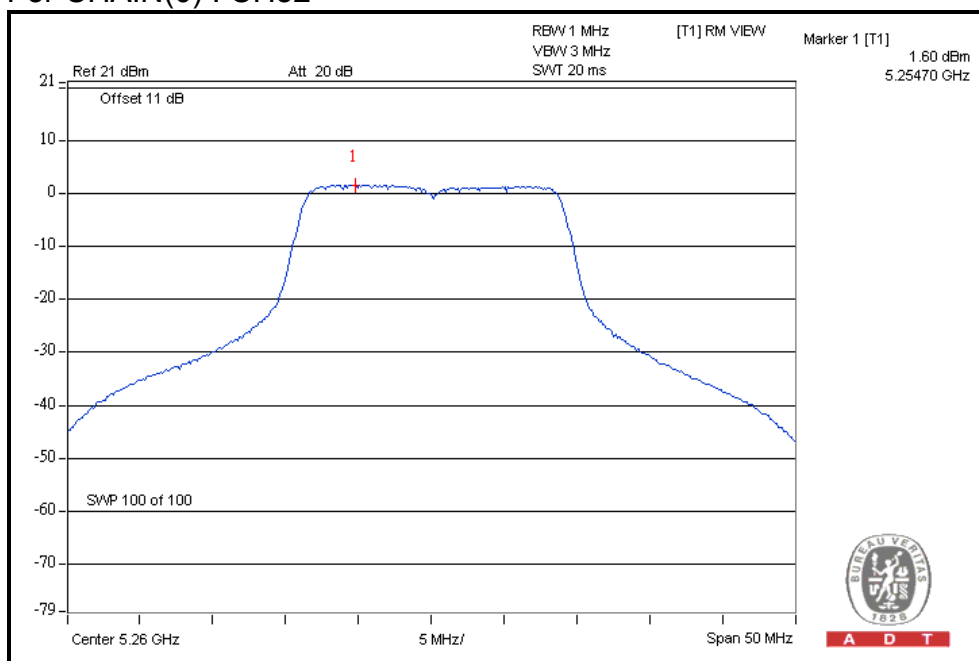
For CHAIN(0) : CH40



For CHAIN(0) : CH48



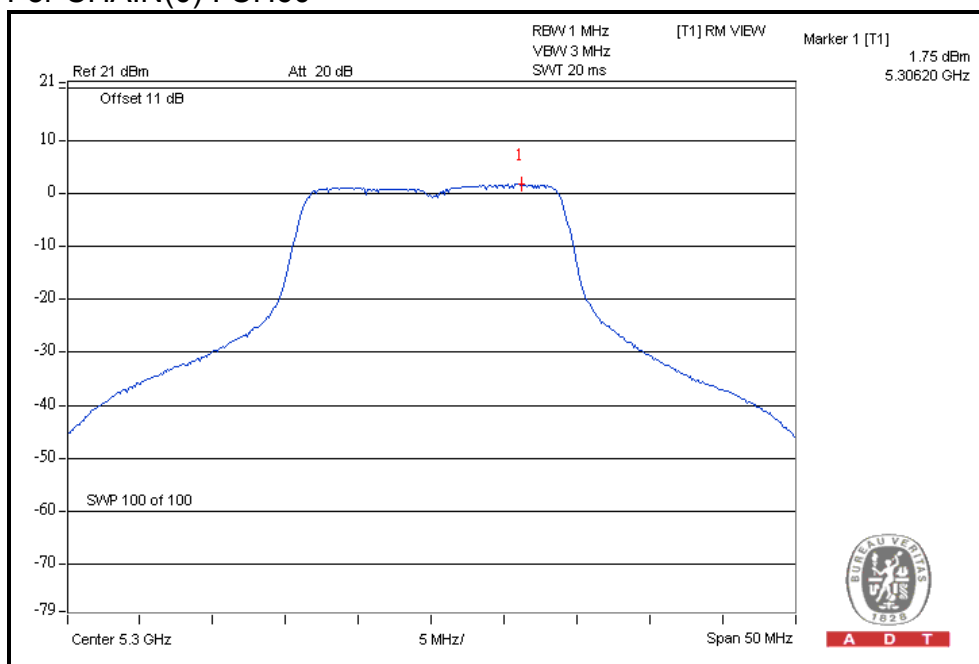
For CHAIN(0) : CH52



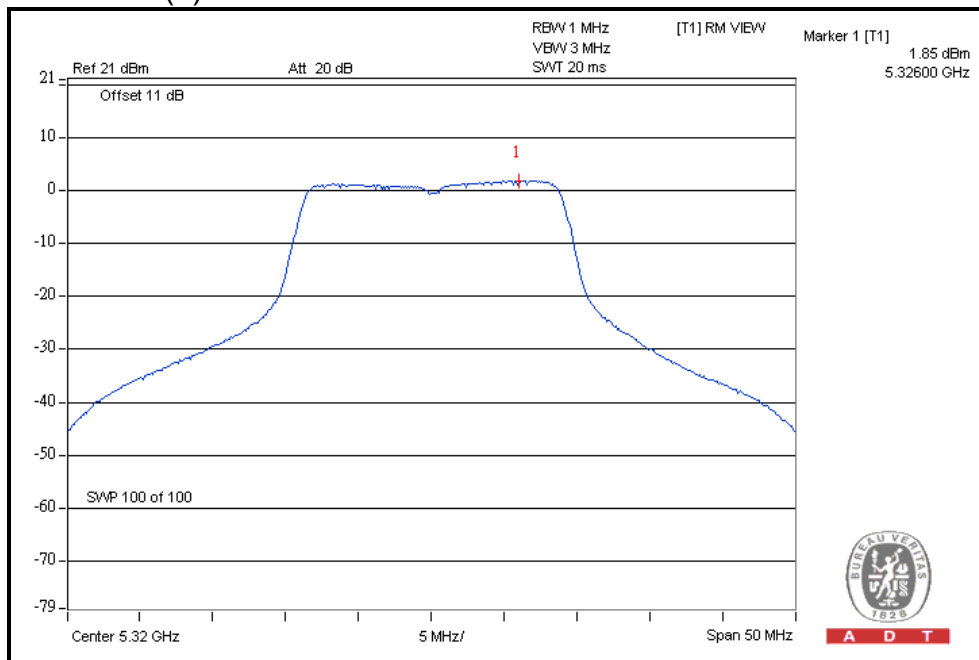


A D T

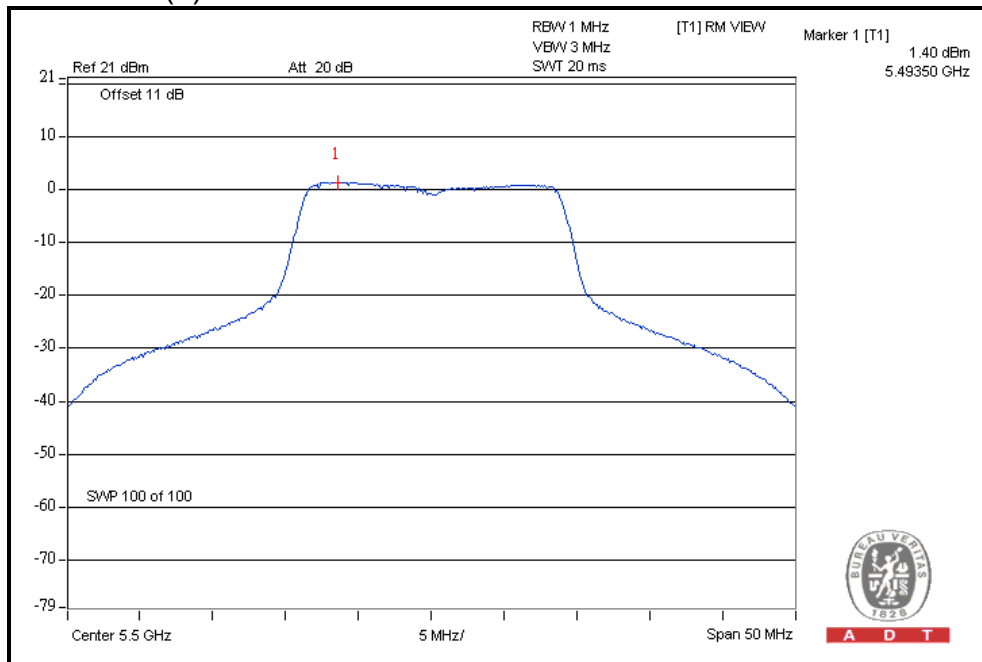
For CHAIN(0) : CH60



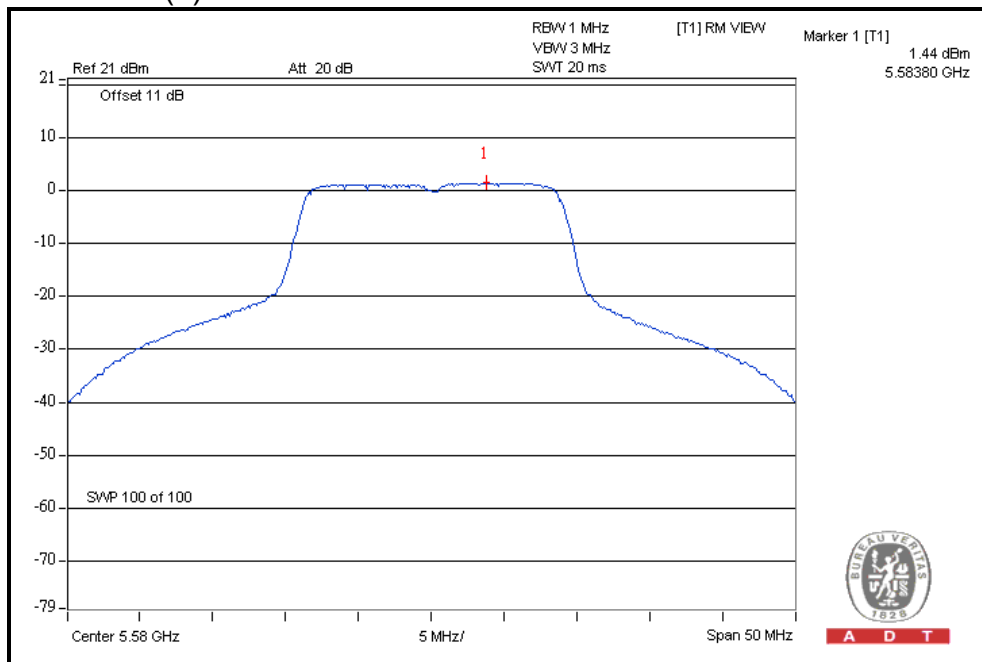
For CHAIN(0) : CH64



For CHAIN(0) : CH100



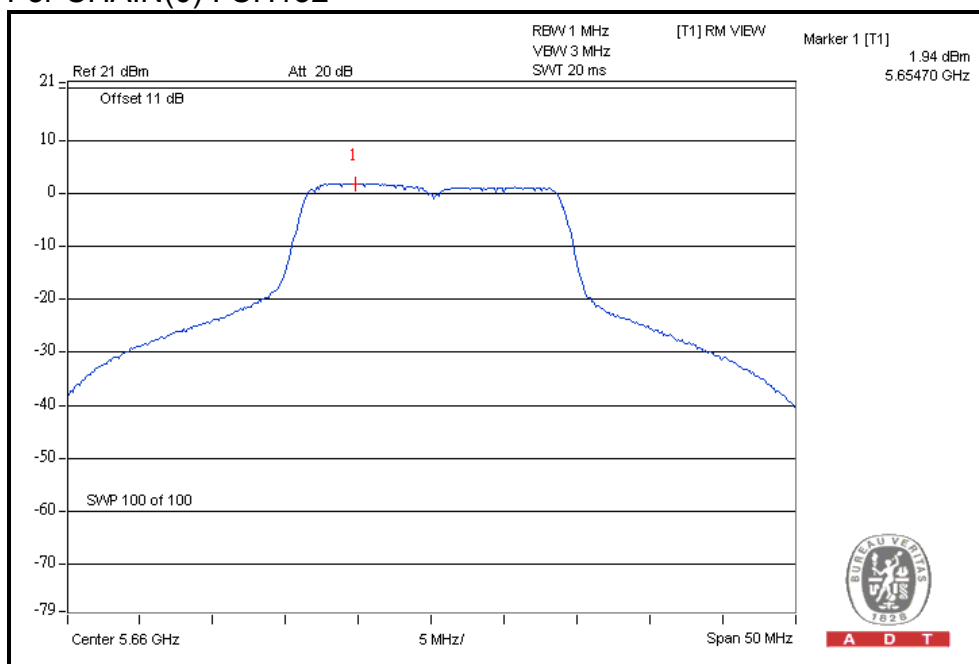
For CHAIN(0) : CH116



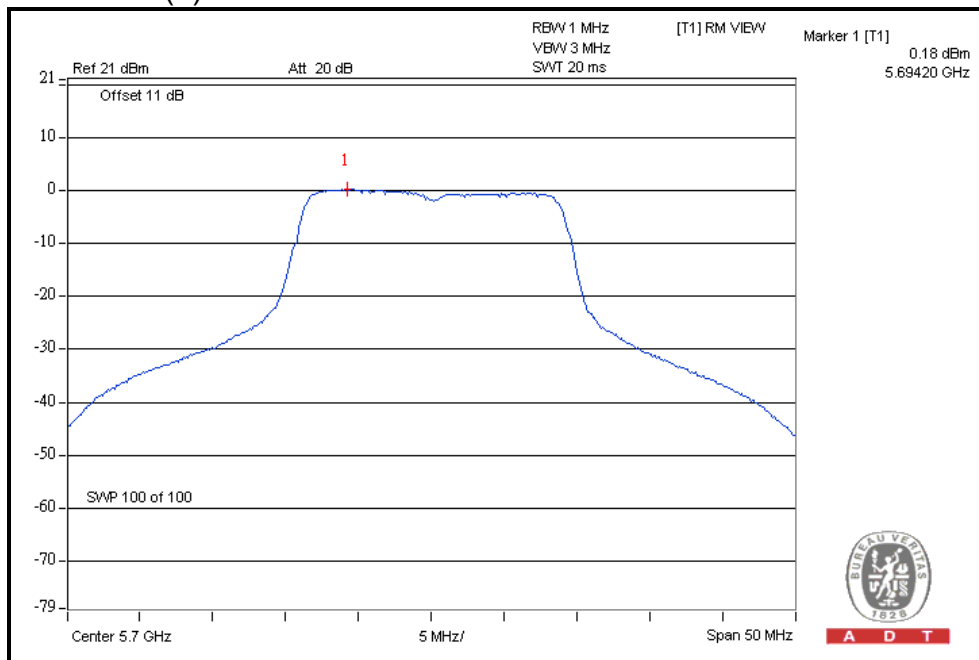


A D T

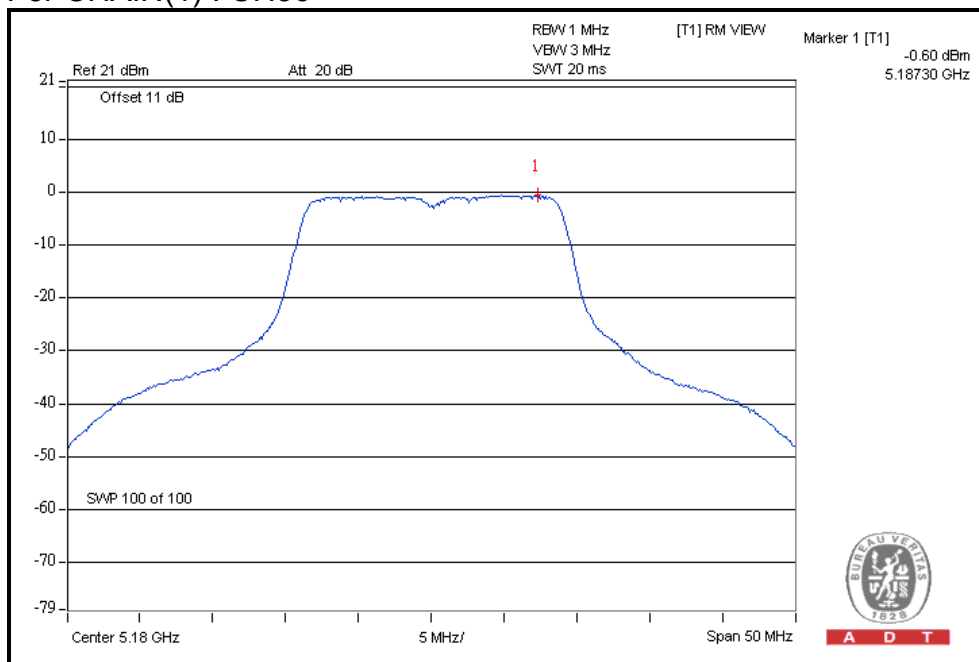
For CHAIN(0) : CH132



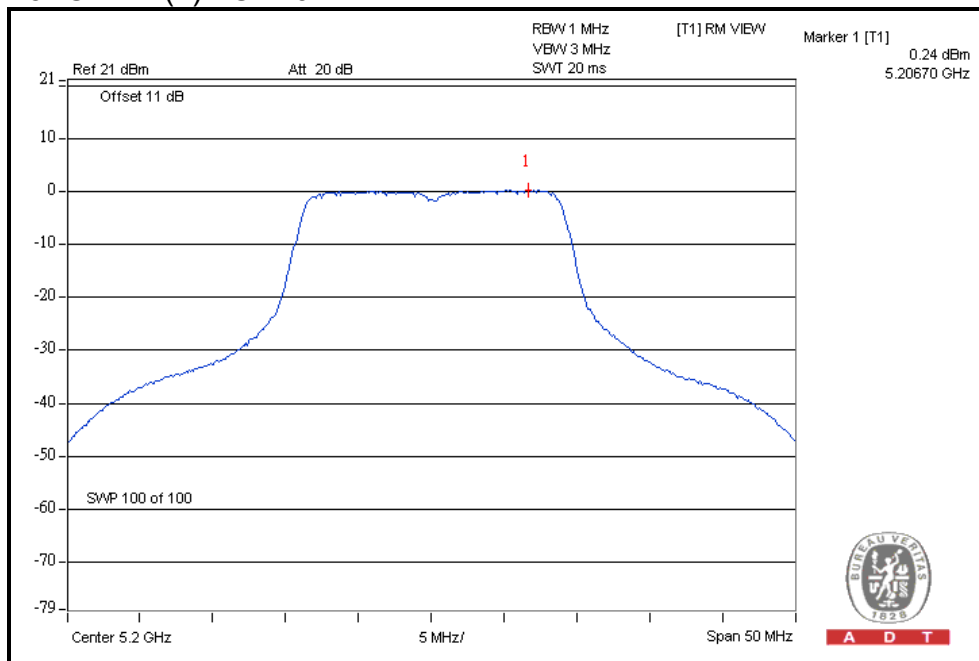
For CHAIN(0) : CH140



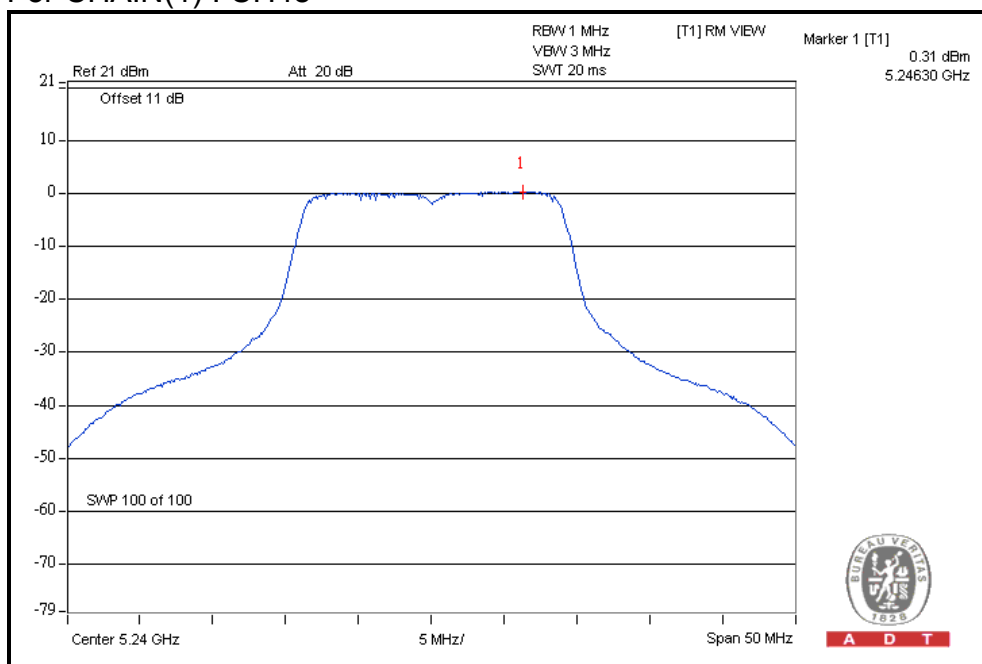
For CHAIN(1) : CH36



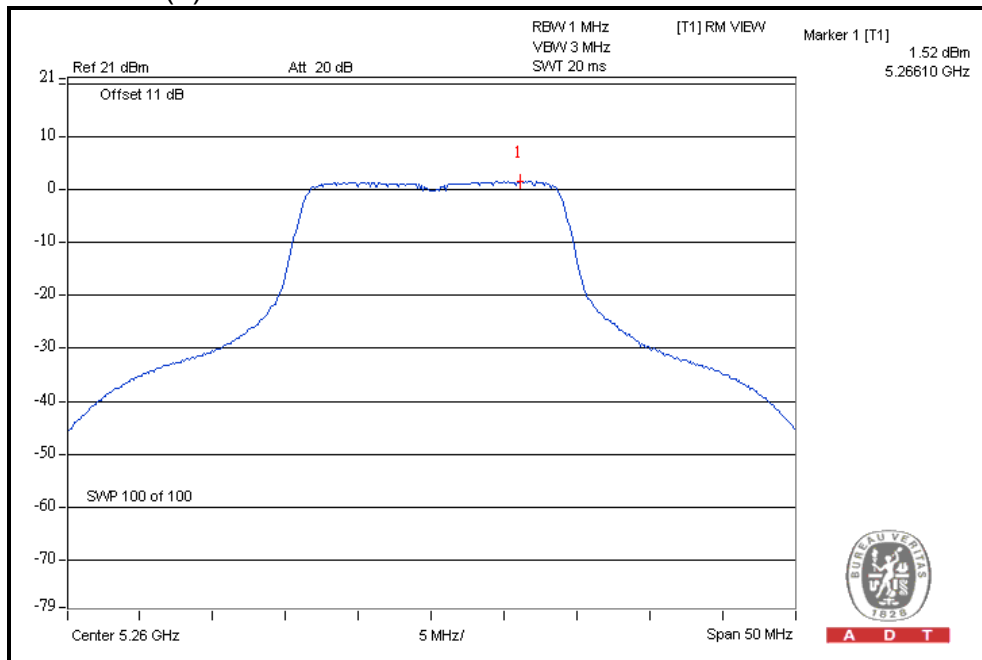
For CHAIN(1) : CH40



For CHAIN(1) : CH48



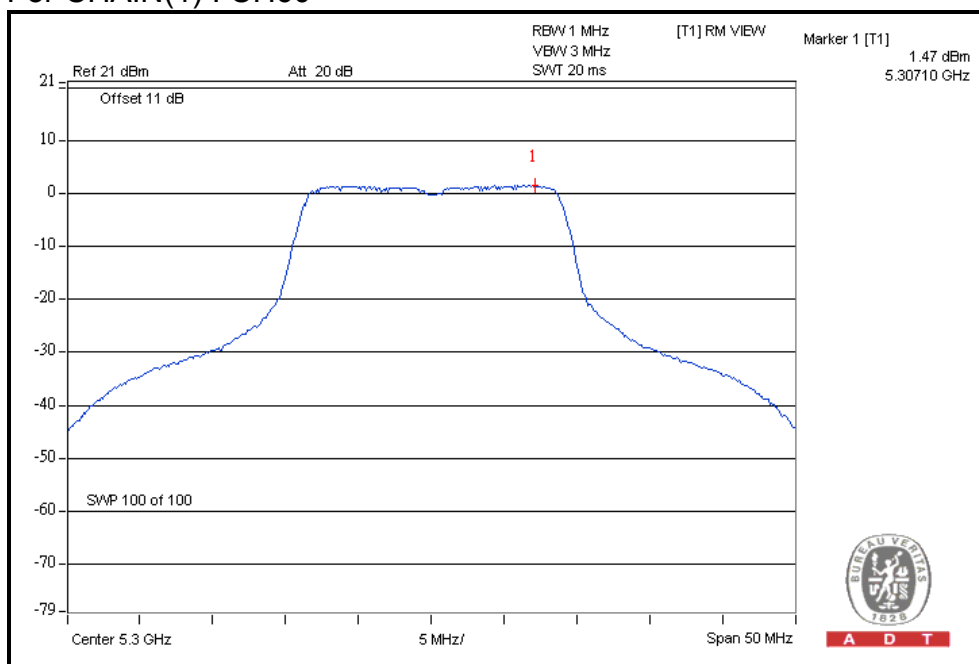
For CHAIN(1) : CH52



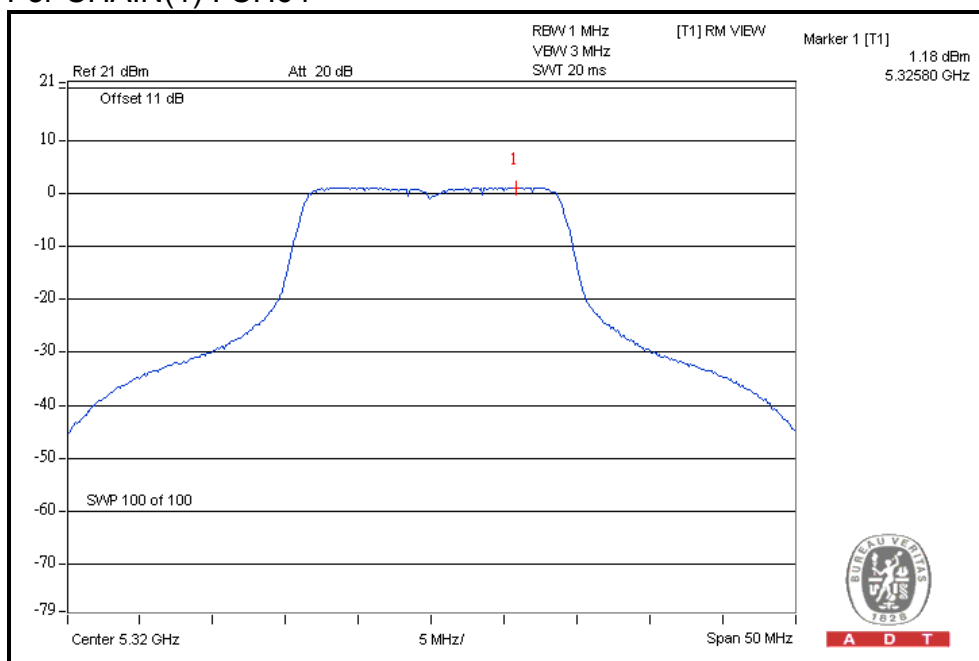


A D T

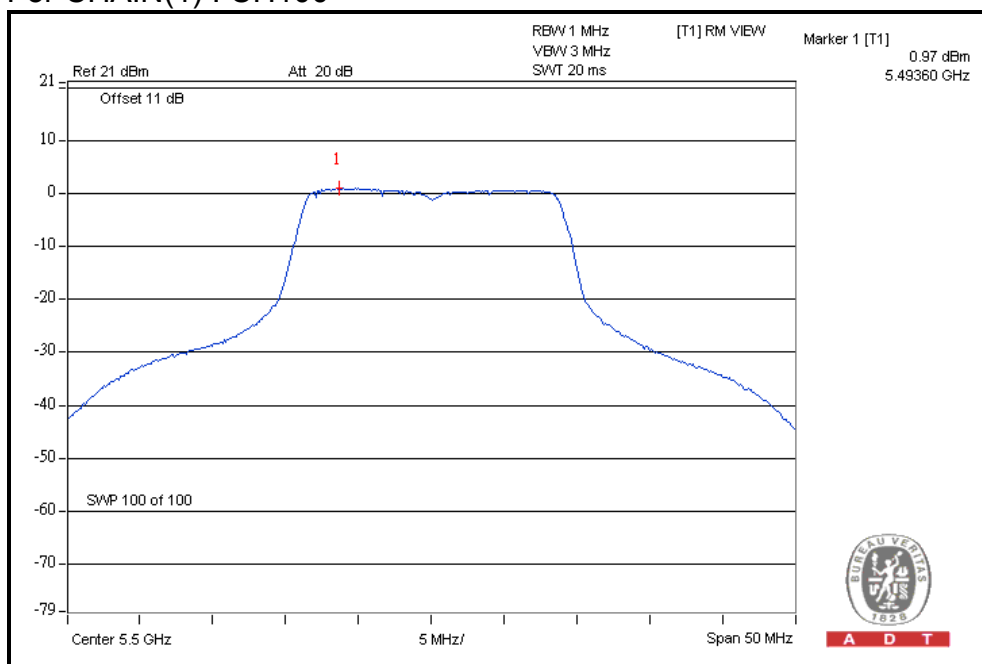
For CHAIN(1) : CH60



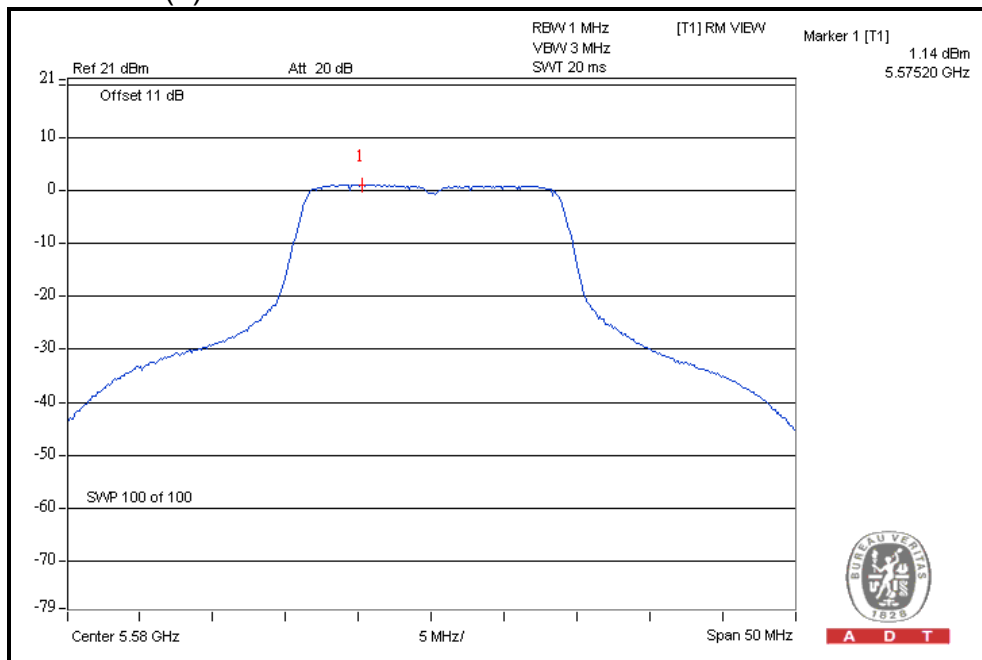
For CHAIN(1) : CH64



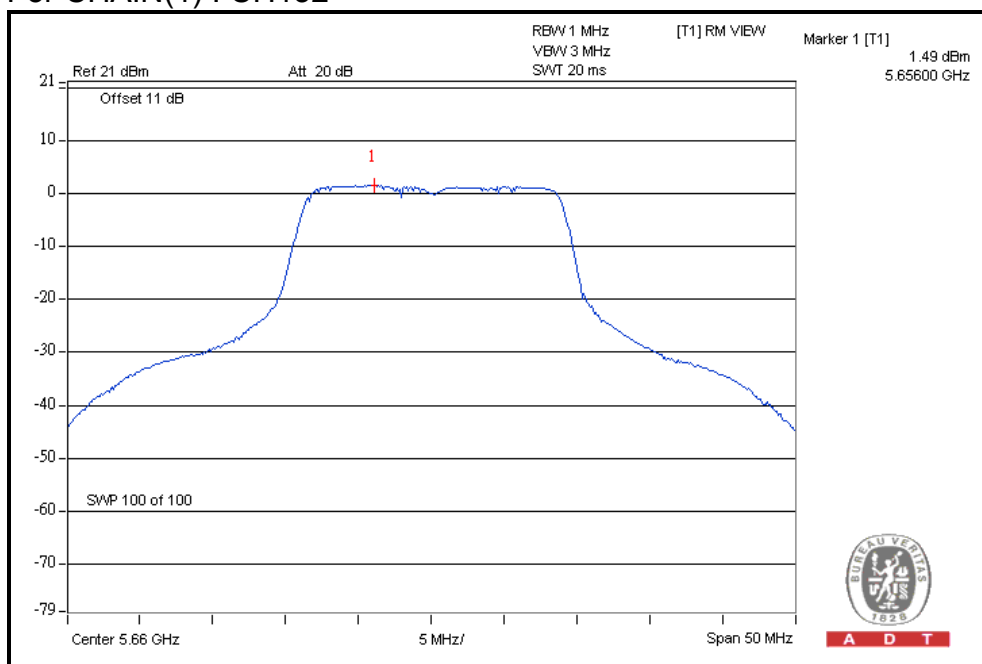
For CHAIN(1) : CH100



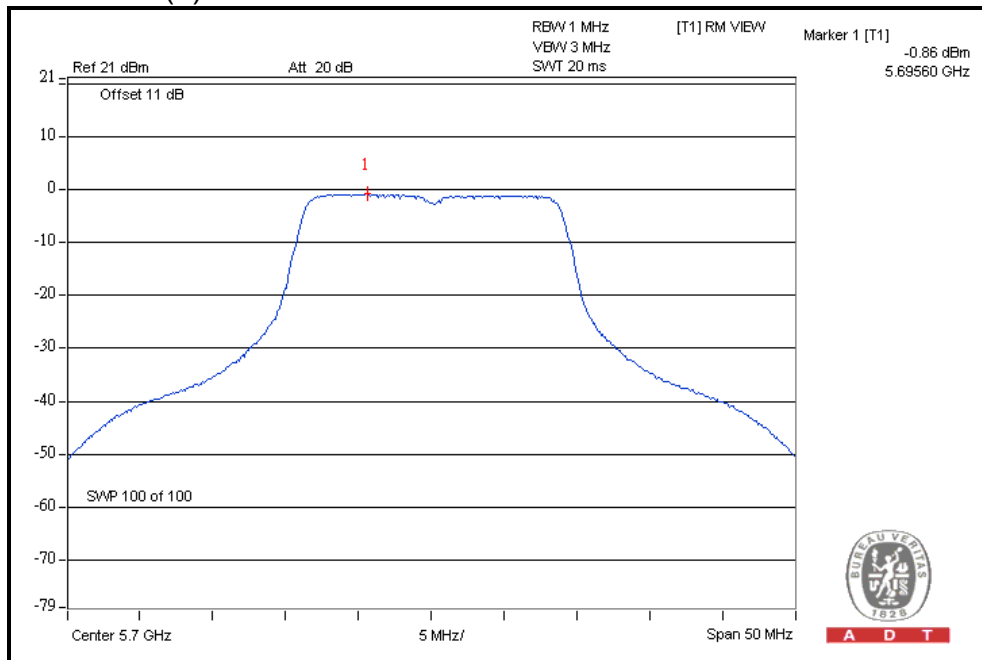
For CHAIN(1) : CH116



For CHAIN(1) : CH132



For CHAIN(1) : CH140



802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (DBM)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN (0)	CHAIN (1)			
38	5190	-2.59	-3.60	-0.08	3.91	PASS
46	5230	-1.87	-1.37	1.39	3.91	PASS
54	5270	-1.65	-1.33	1.43	10.91	PASS
62	5310	-3.85	-4.52	-1.19	10.91	PASS
102	5510	-7.05	-7.57	-4.34	9.23	PASS
110	5550	-1.65	-1.46	1.38	9.23	PASS
134	5670	-1.61	-1.50	1.40	9.23	PASS

Note: Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer

For Operated in 5150MHz ~ 5250MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 6.09

The effective legacy gain is 6.09dBi, therefore the limit needs to reduce.

For Operated in 5250MHz ~ 5350MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 6.09

The effective legacy gain is 6.09dBi, therefore the limit needs to reduce.

For Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

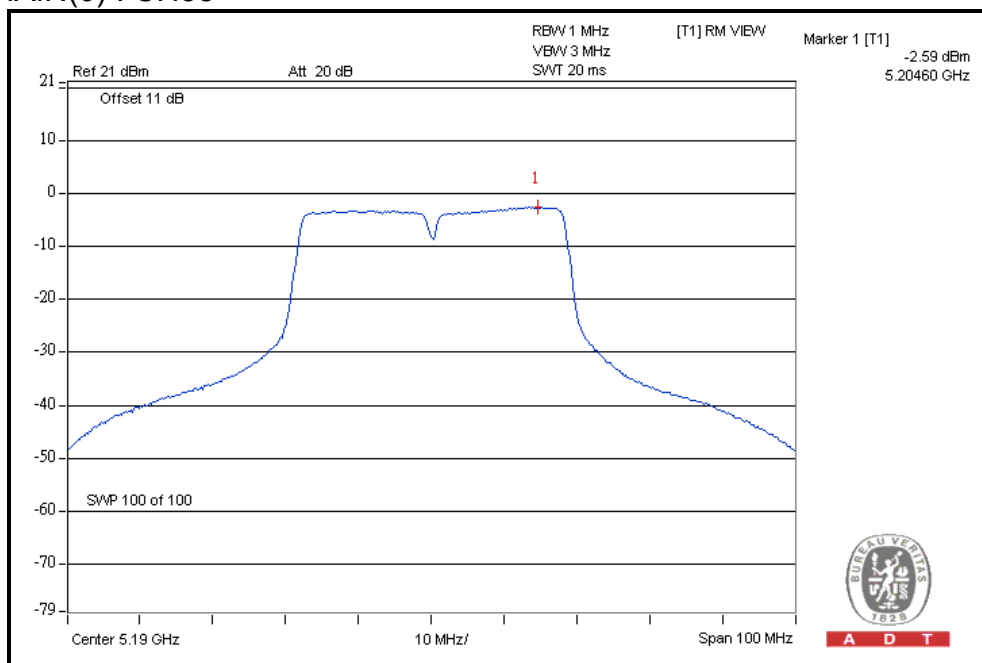
Effective Legacy Gain (dBi) = 7.77

The effective legacy gain is 7.77dBi, therefore the limit needs to reduce.

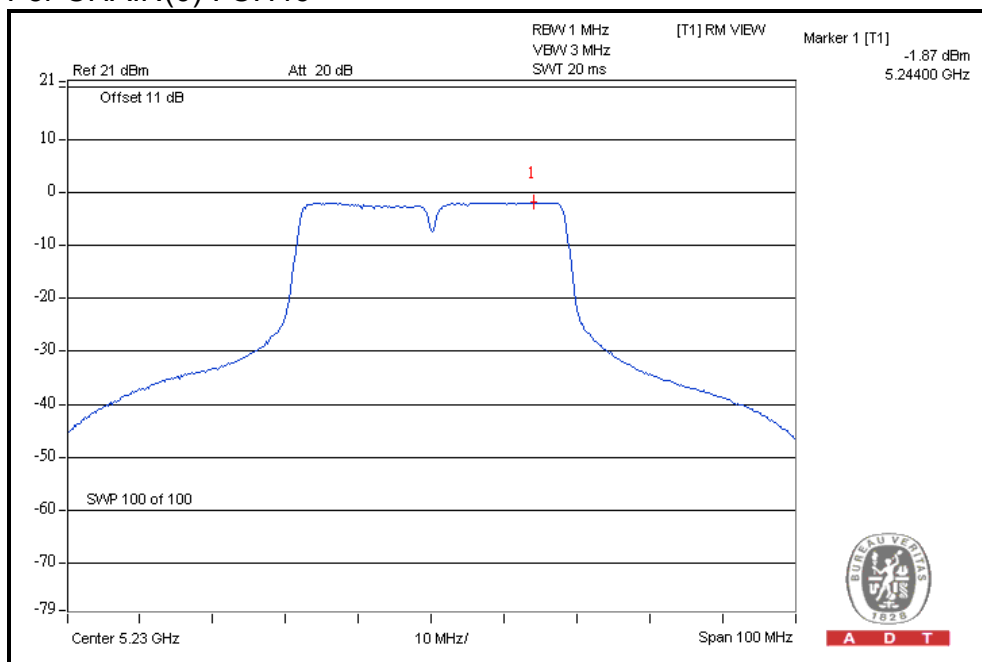


A D T

For CHAIN(0) : CH38



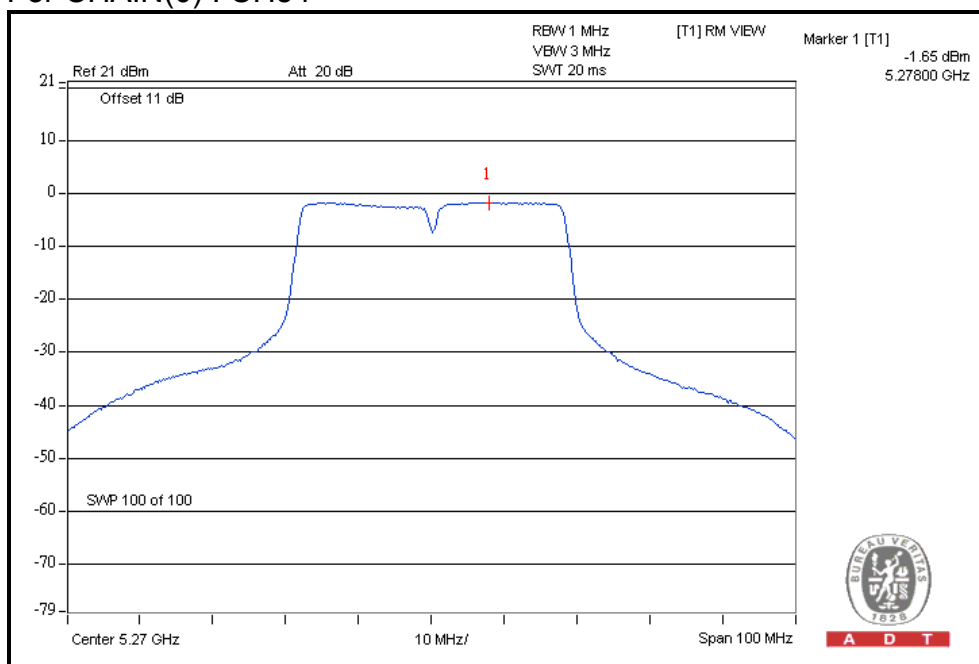
For CHAIN(0) : CH46



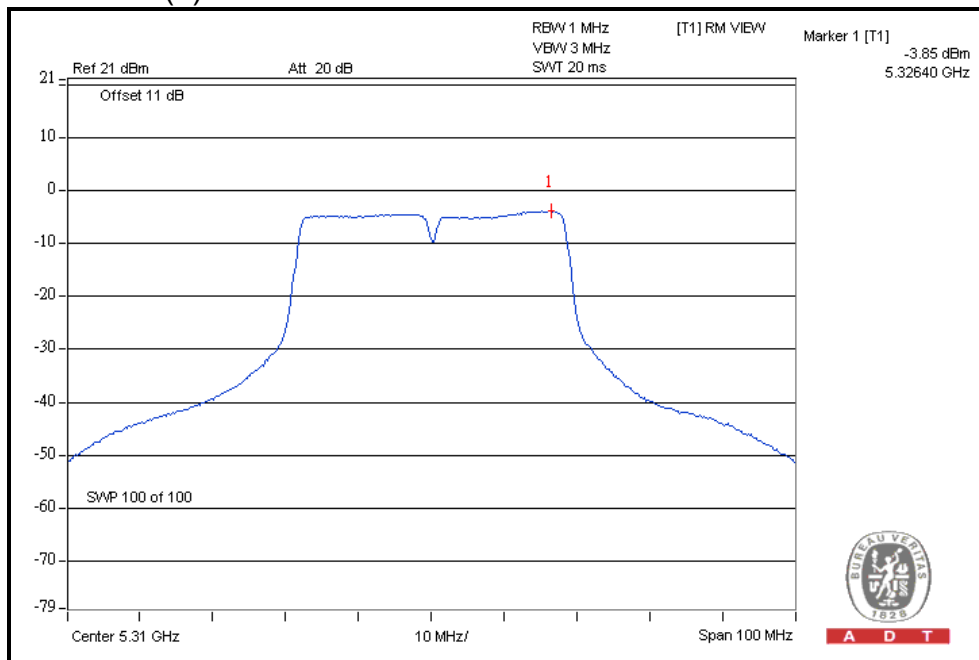


A D T

For CHAIN(0) : CH54



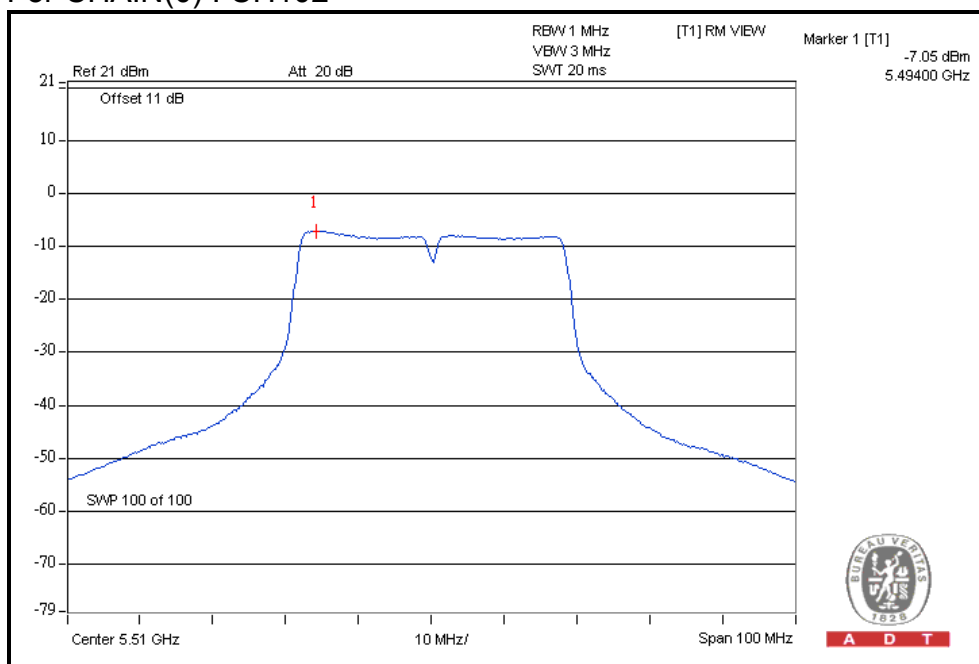
For CHAIN(0) : CH62



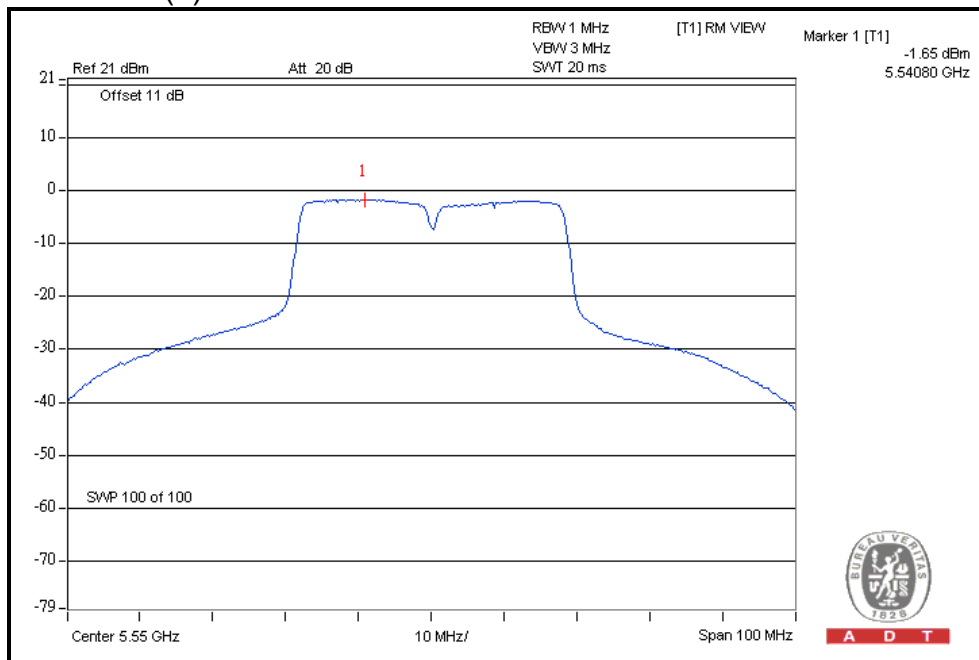


A D T

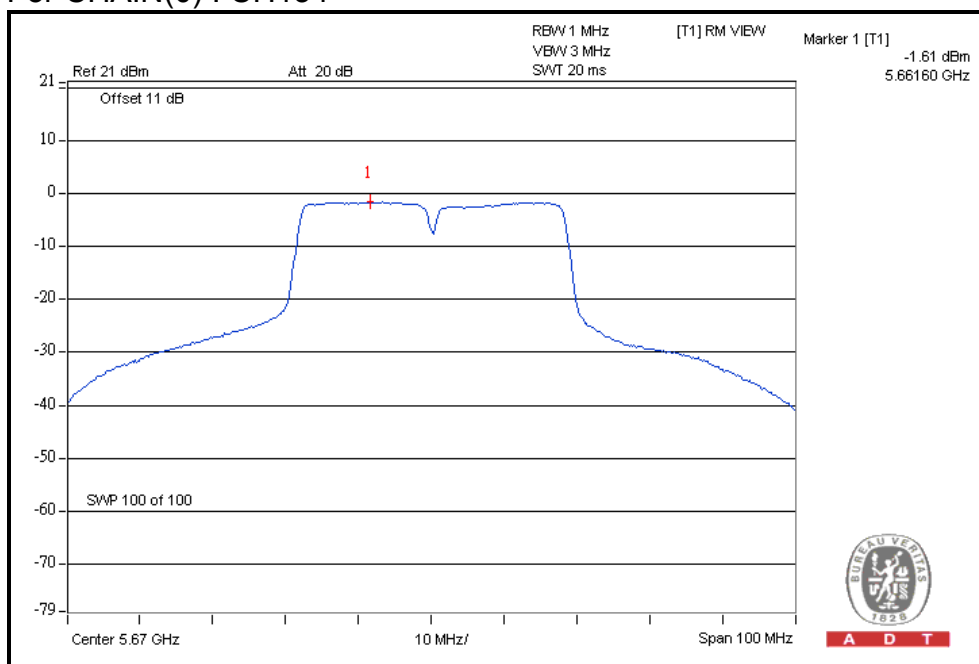
For CHAIN(0) : CH102



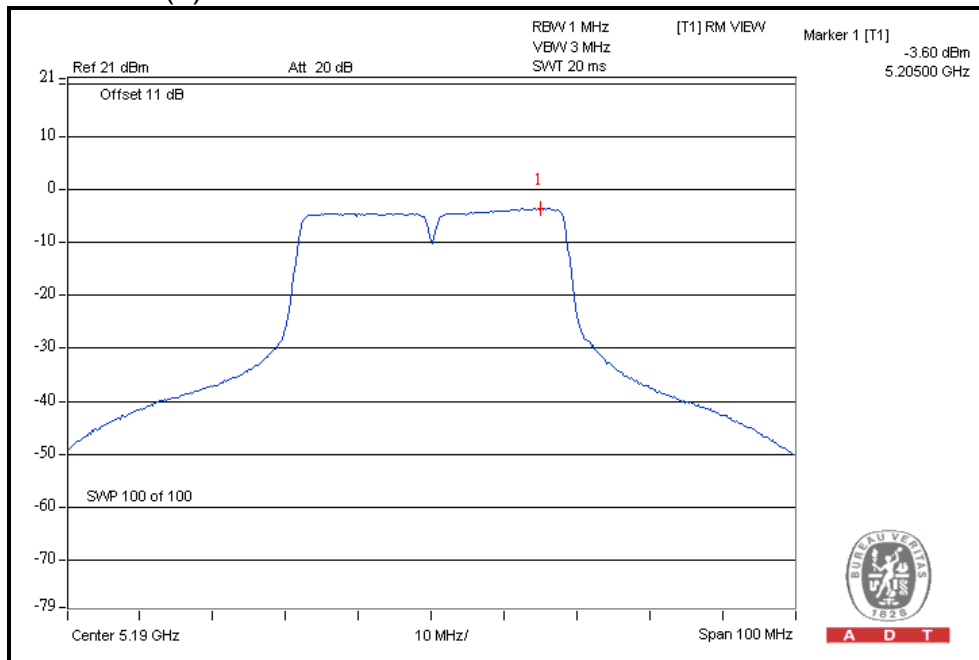
For CHAIN(0) : CH110



For CHAIN(0) : CH134



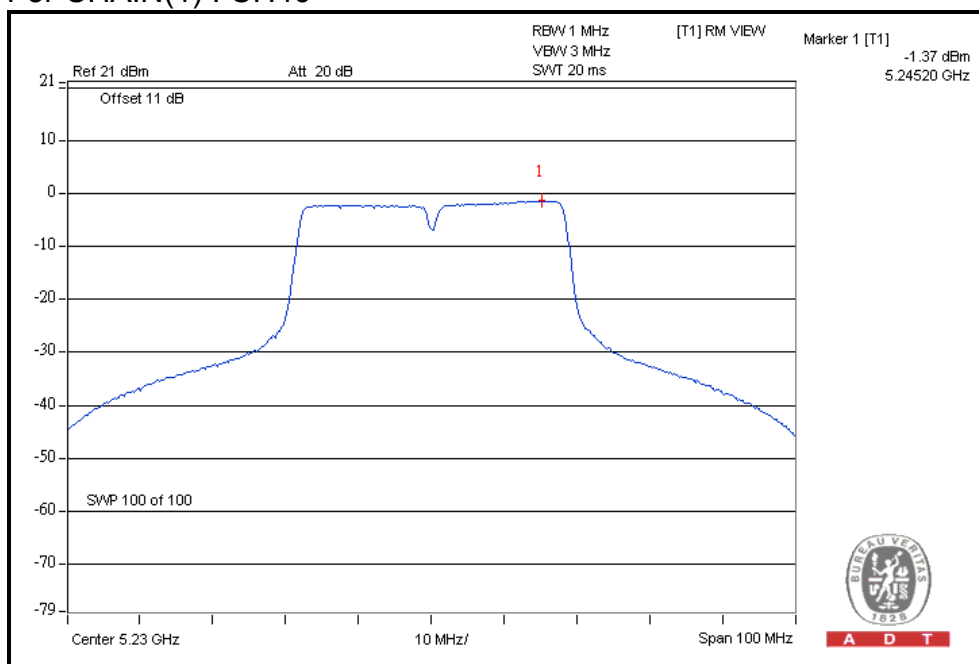
For CHAIN(1) : CH38





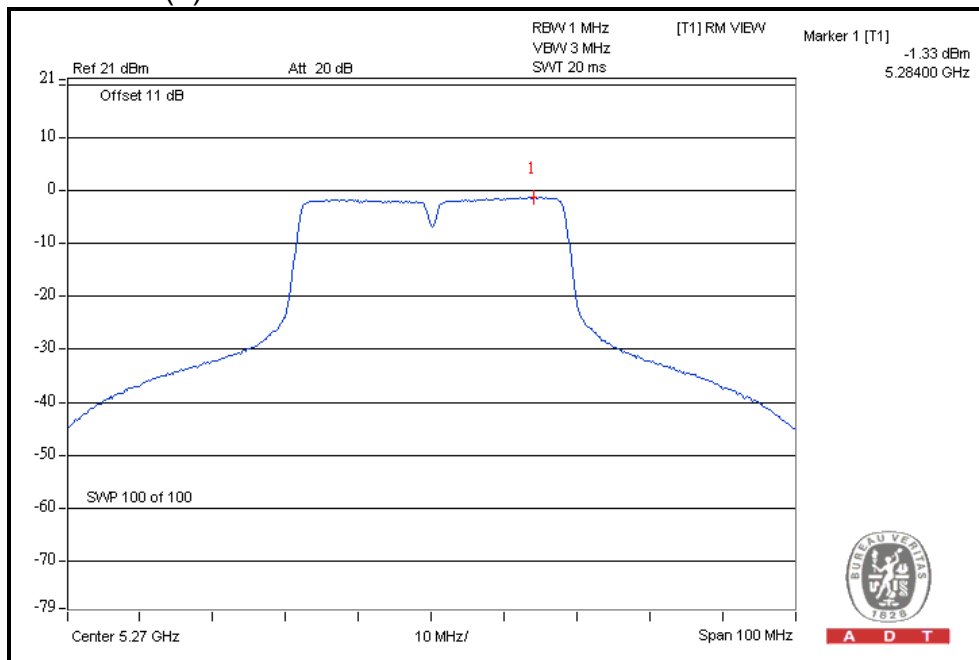
A D T

For CHAIN(1) : CH46



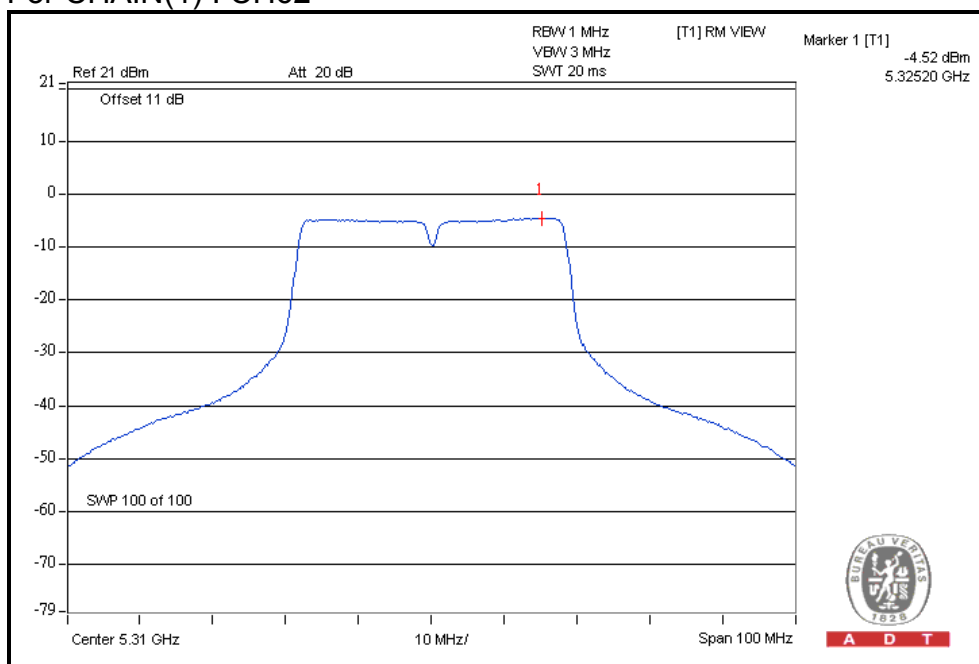
A D T

For CHAIN(1) : CH54

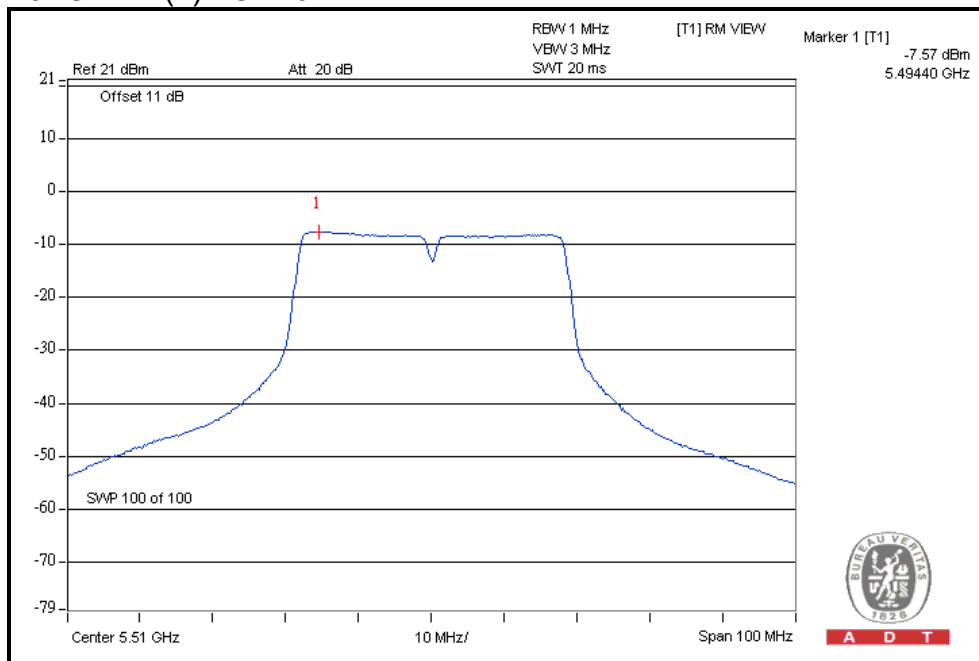


A D T

For CHAIN(1) : CH62



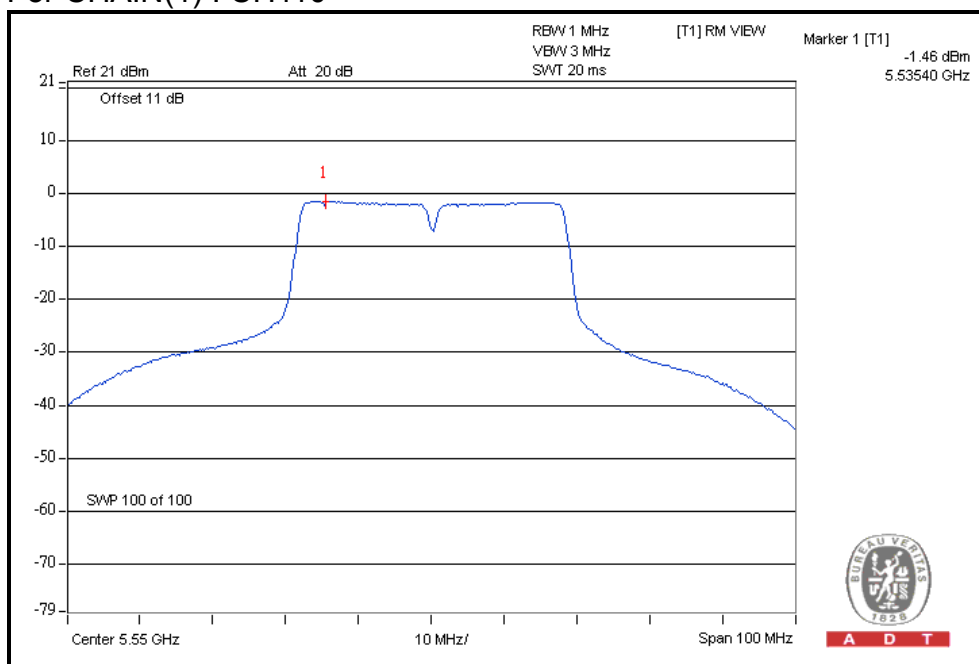
For CHAIN(1) : CH102



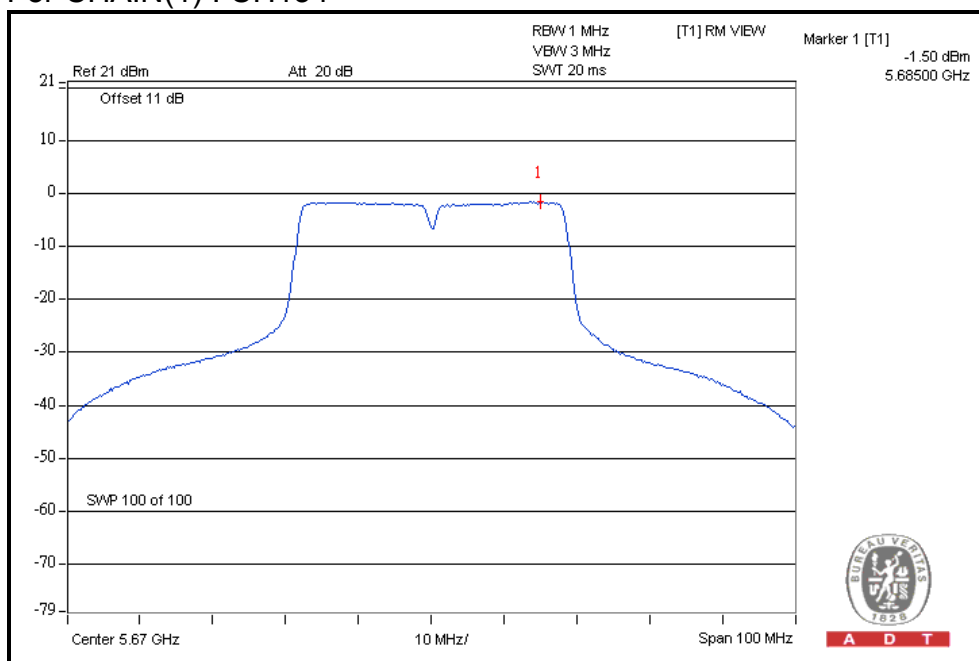


A D T

For CHAIN(1) : CH110



For CHAIN(1) : CH134



4.6 OCCUPIED BANDWIDTH MEASUREMENT

4.6.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP 40	100060	May 11, 2011	May 10, 2012

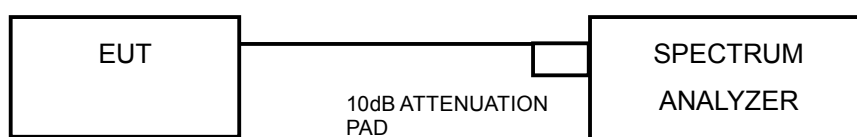
Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Apr. 12, 2012

4.6.2 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 kHz RBW and 300 kHz VBW. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

4.6.3 TEST SETUP



4.6.4 EUT OPERATING CONDITIONS

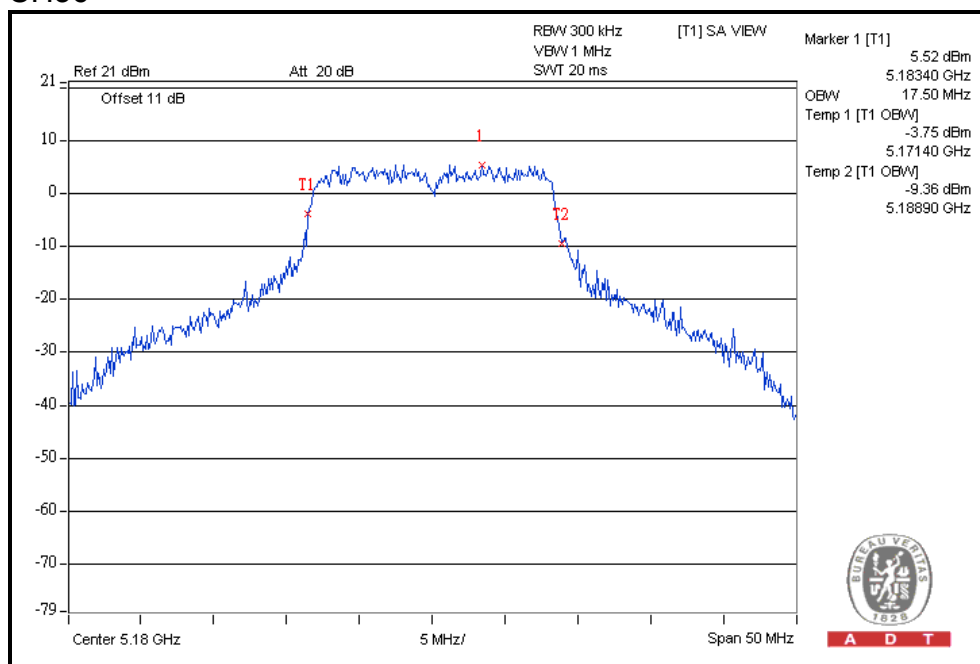
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.6.5 TEST RESULTS

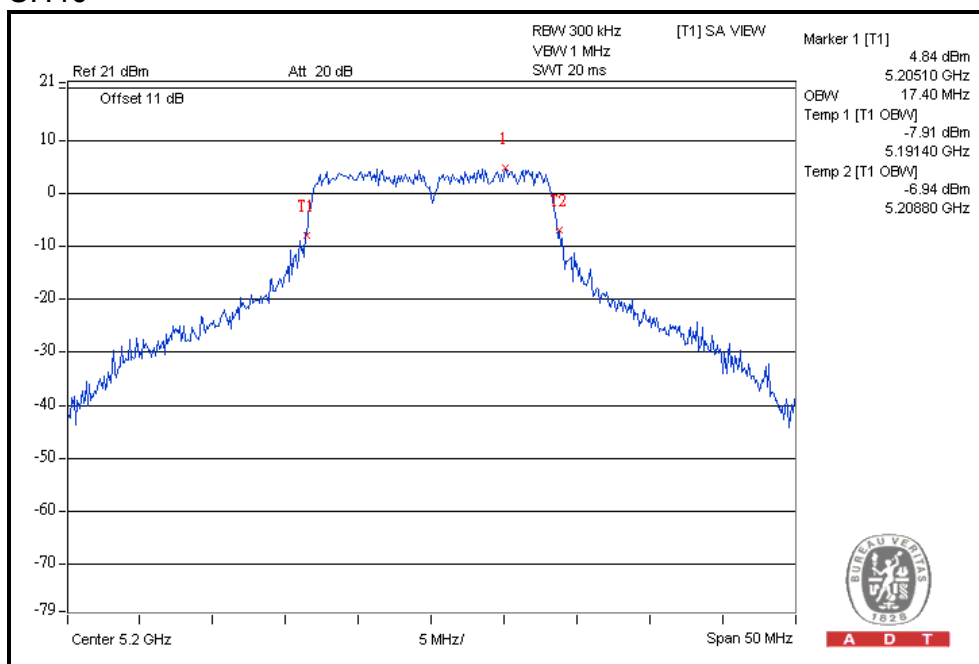
Single chain - 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)
36	5180	17.50
40	5200	17.40
48	5240	17.30
52	5260	18.30
60	5300	19.00
64	5320	19.20
100	5500	17.70
116	5580	18.70
132	5660	18.60
140	5700	17.20

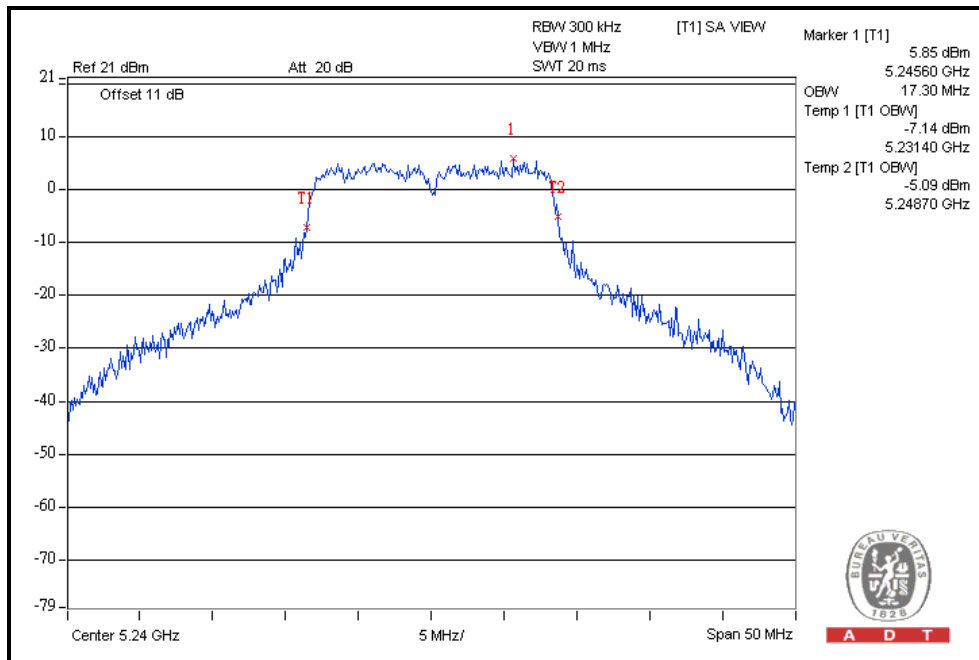
CH36



CH40



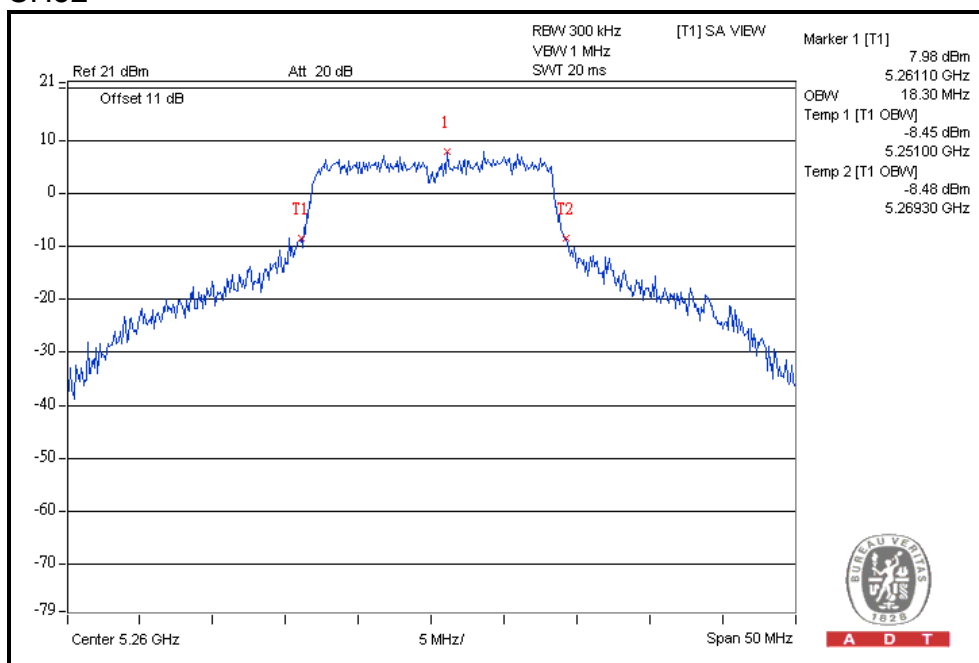
CH48





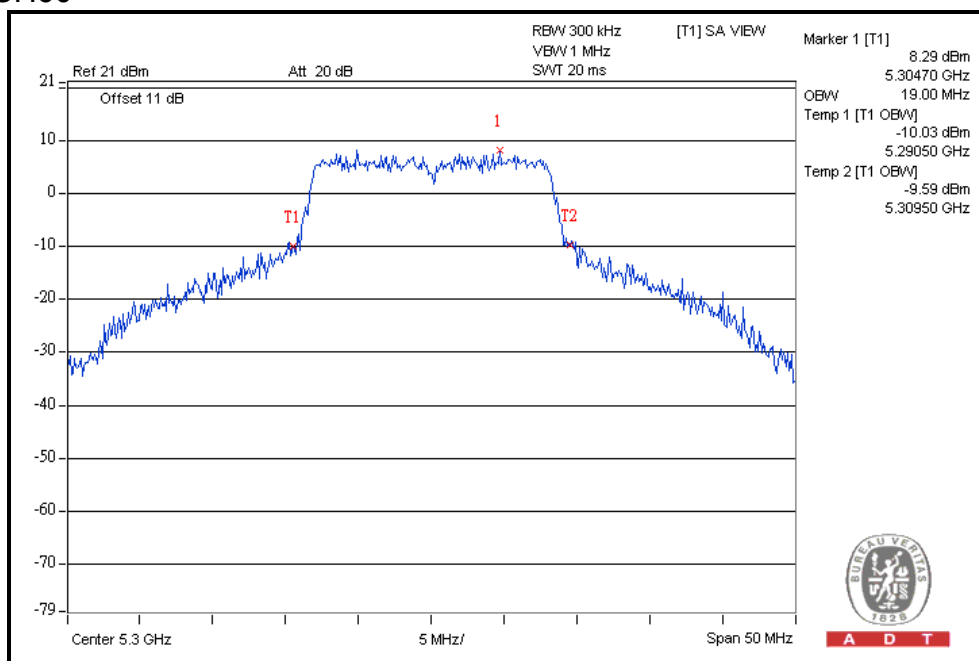
A D T

CH52



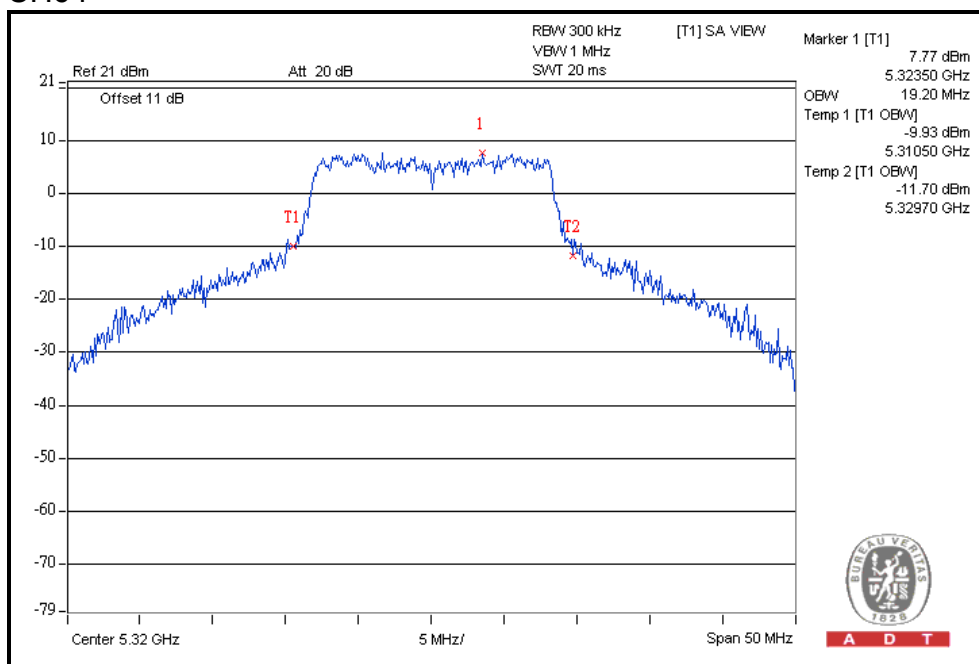
A D T

CH60

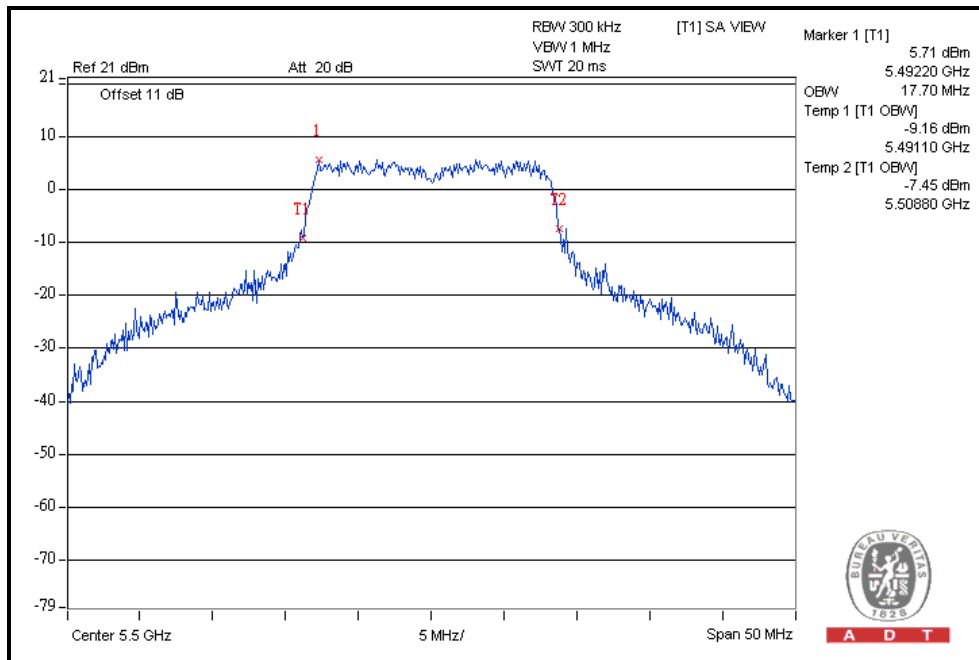


A D T

CH64



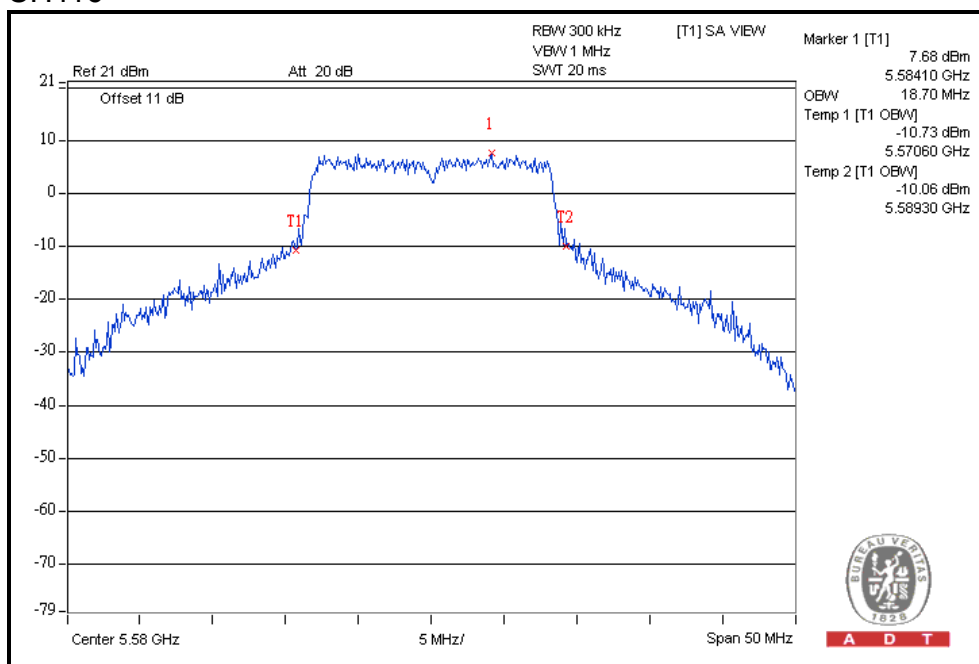
CH100



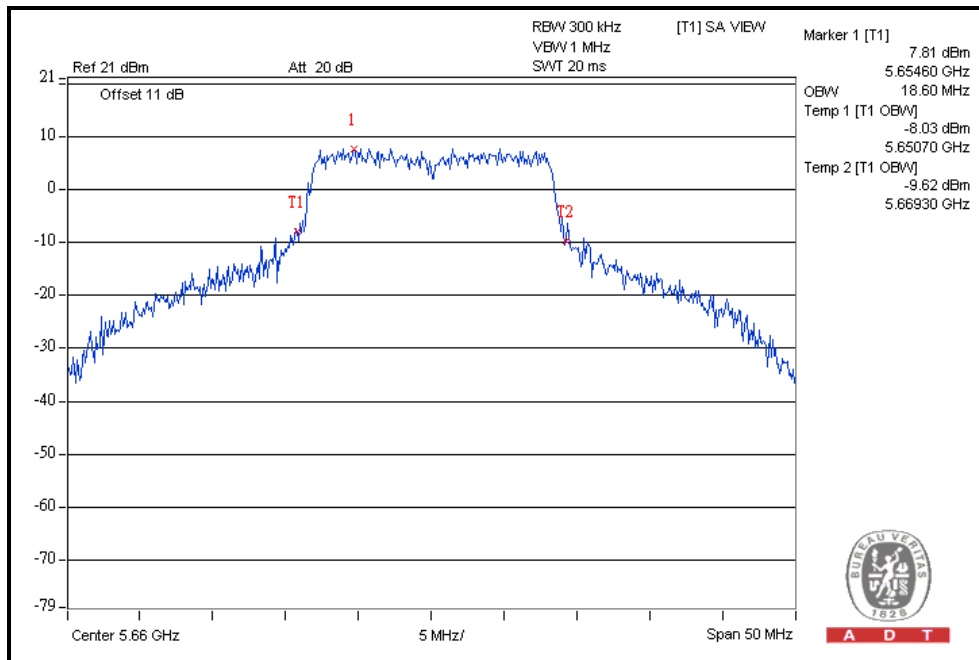


A D T

CH116



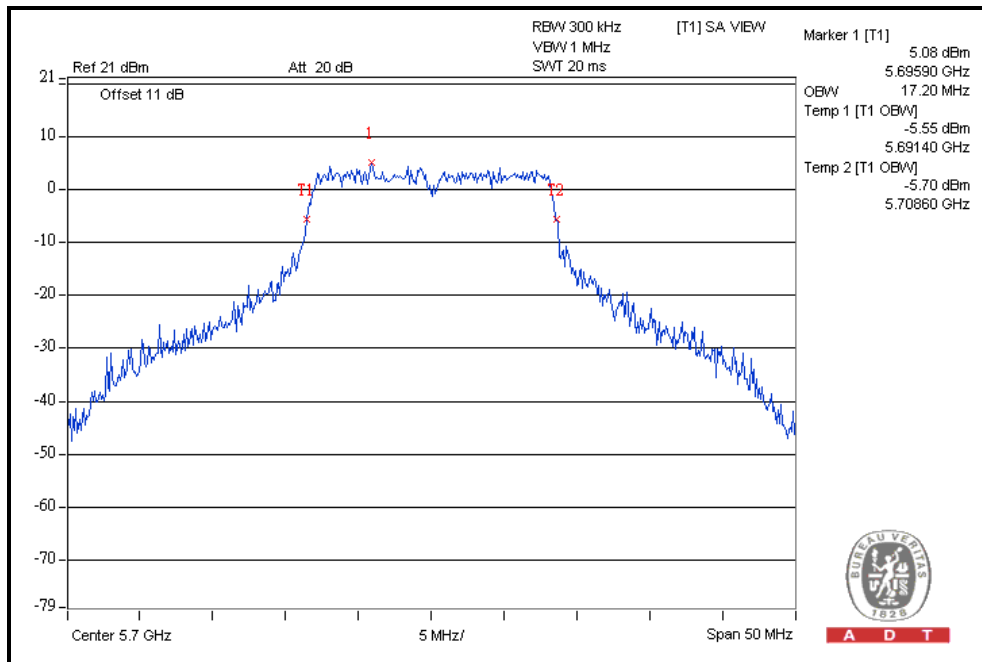
CH132





A D T

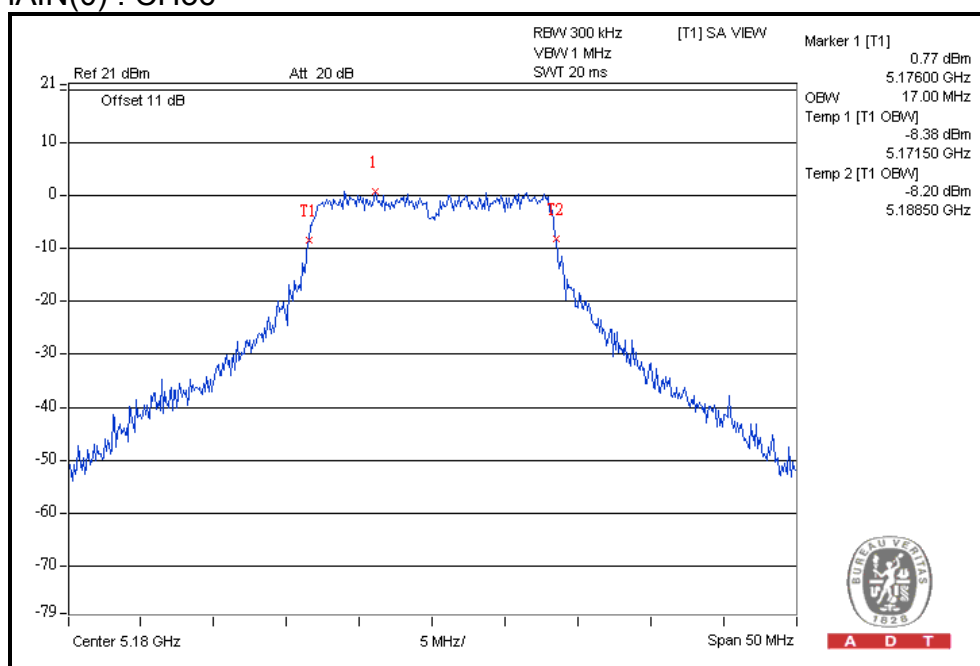
CH140



Multiple chain - 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)	
		CHAIN(0)	CHAIN(1)
36	5180	17.00	17.00
40	5200	17.00	17.00
48	5240	17.00	17.00
52	5260	17.10	17.20
60	5300	17.20	17.10
64	5320	17.30	17.20
100	5500	17.40	17.30
116	5580	18.20	17.30
132	5660	18.80	17.30
140	5700	17.10	17.00

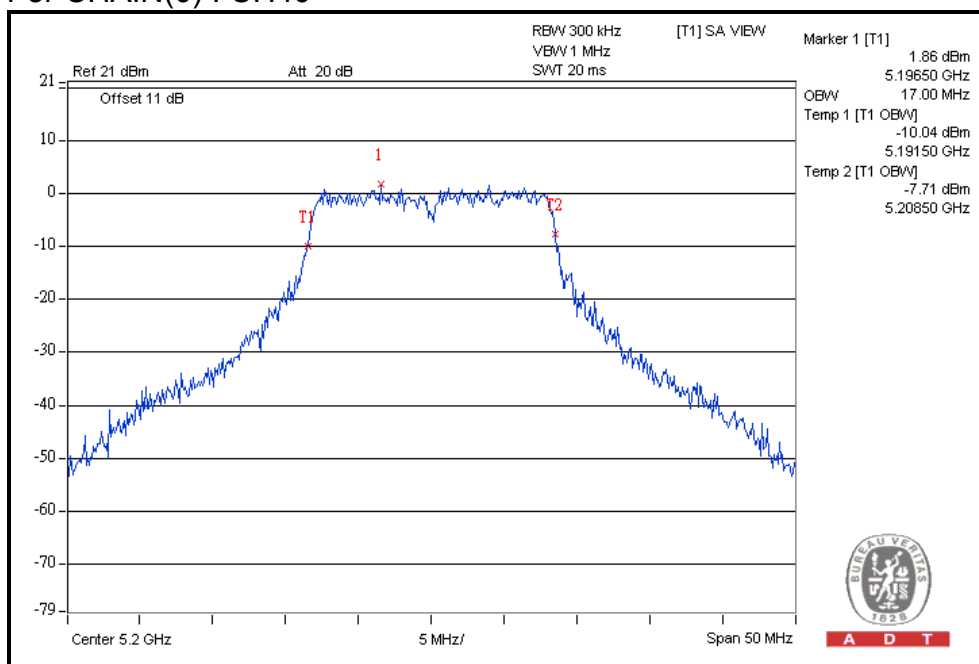
For CHAIN(0) : CH36



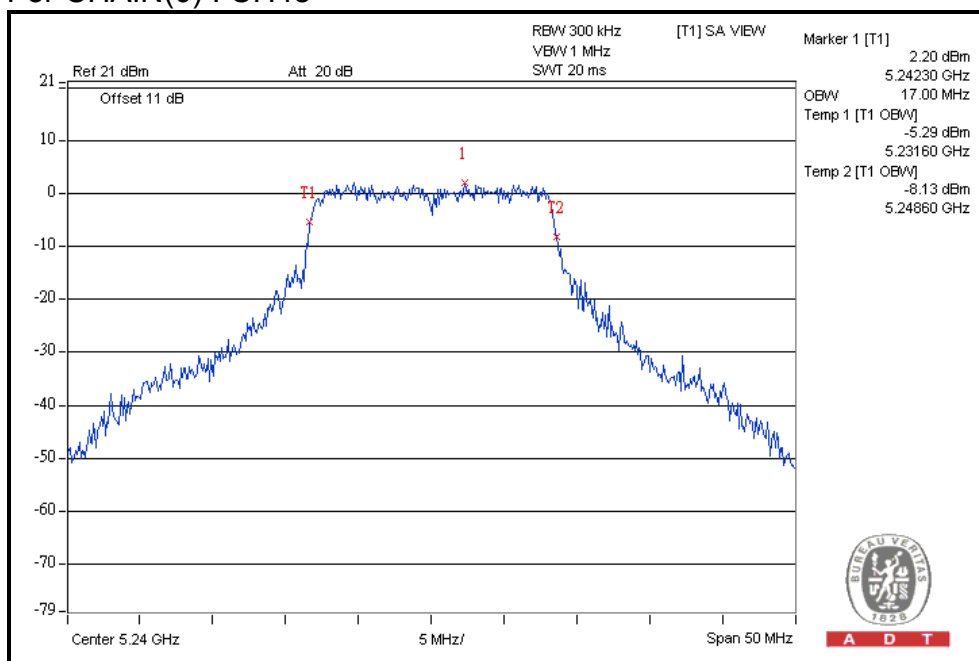


A D T

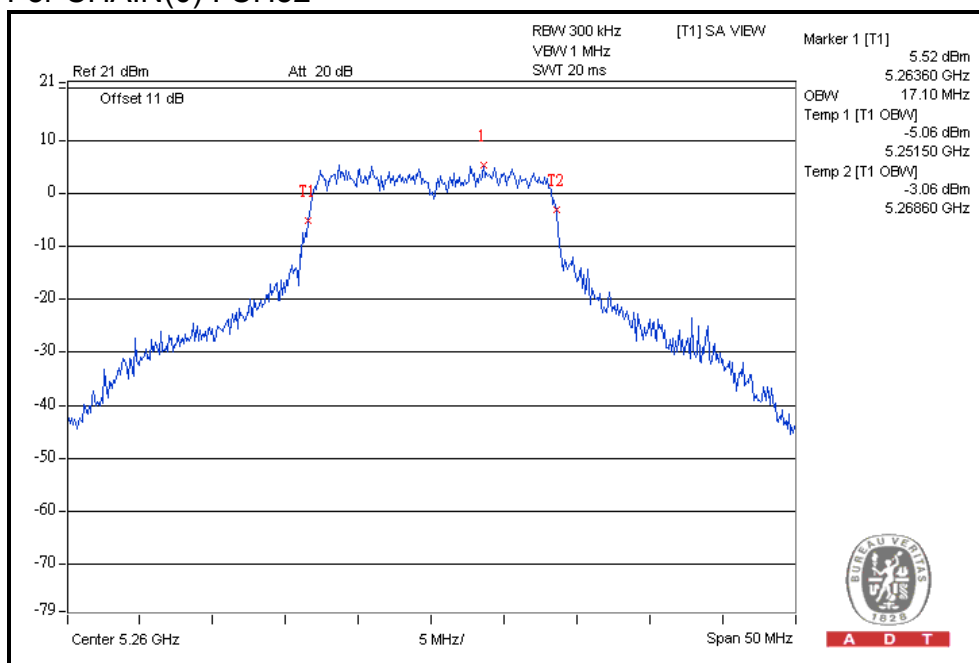
For CHAIN(0) : CH40



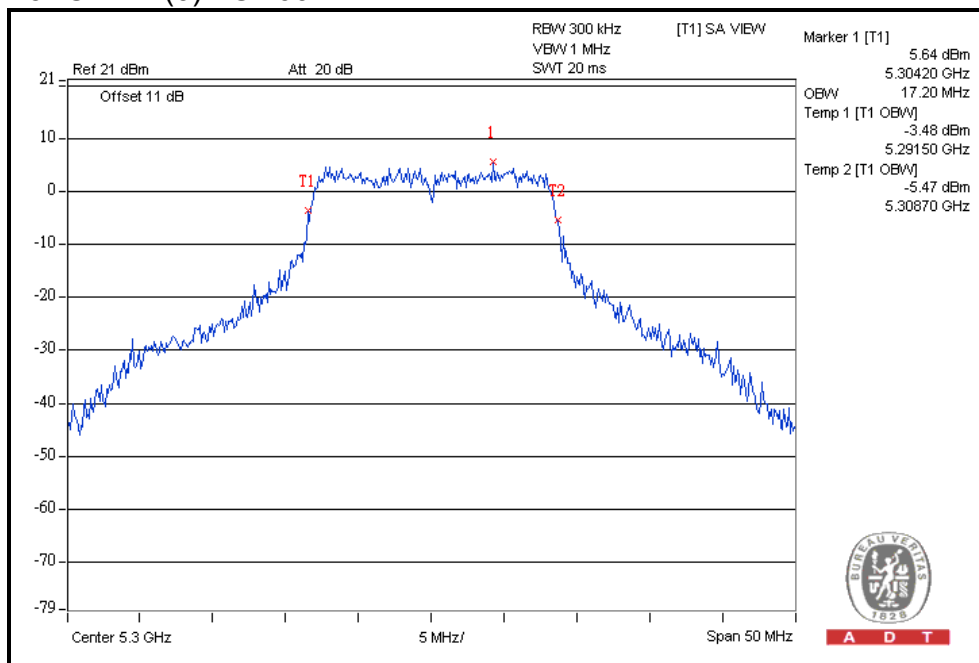
For CHAIN(0) : CH48



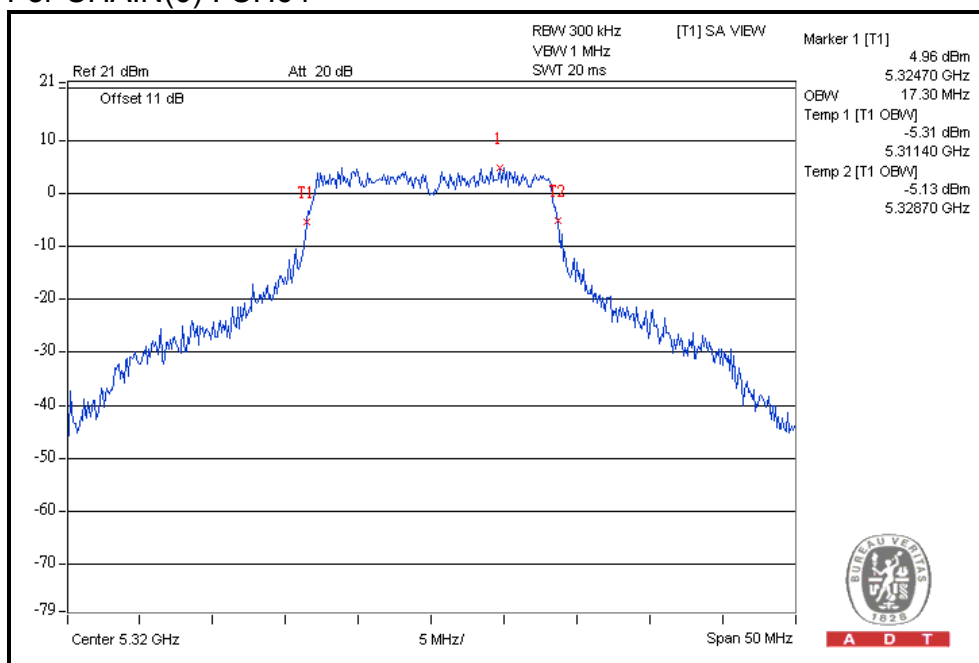
For CHAIN(0) : CH52



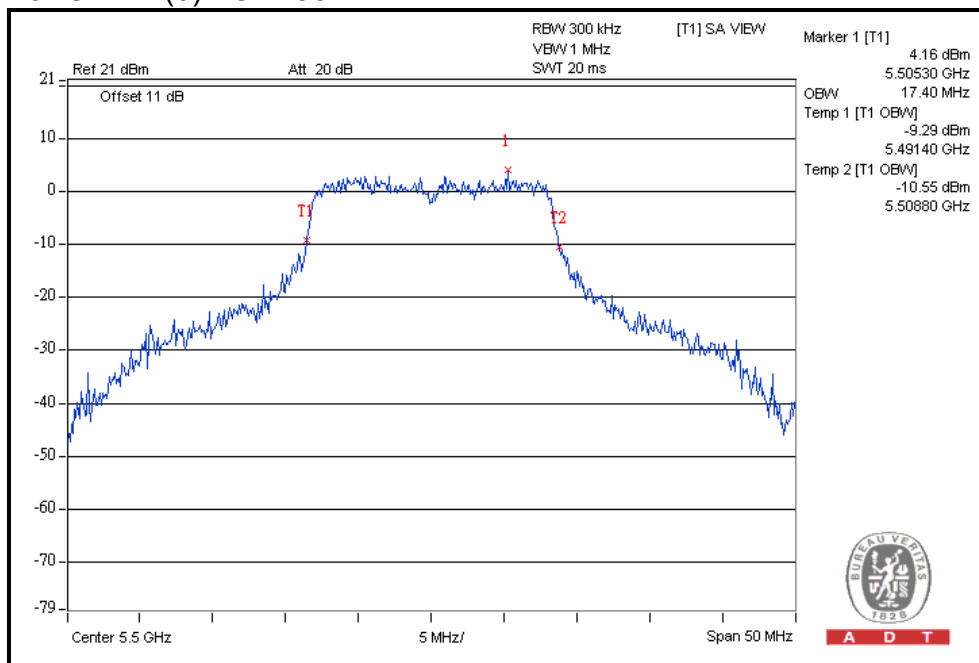
For CHAIN(0) : CH60



For CHAIN(0) : CH64



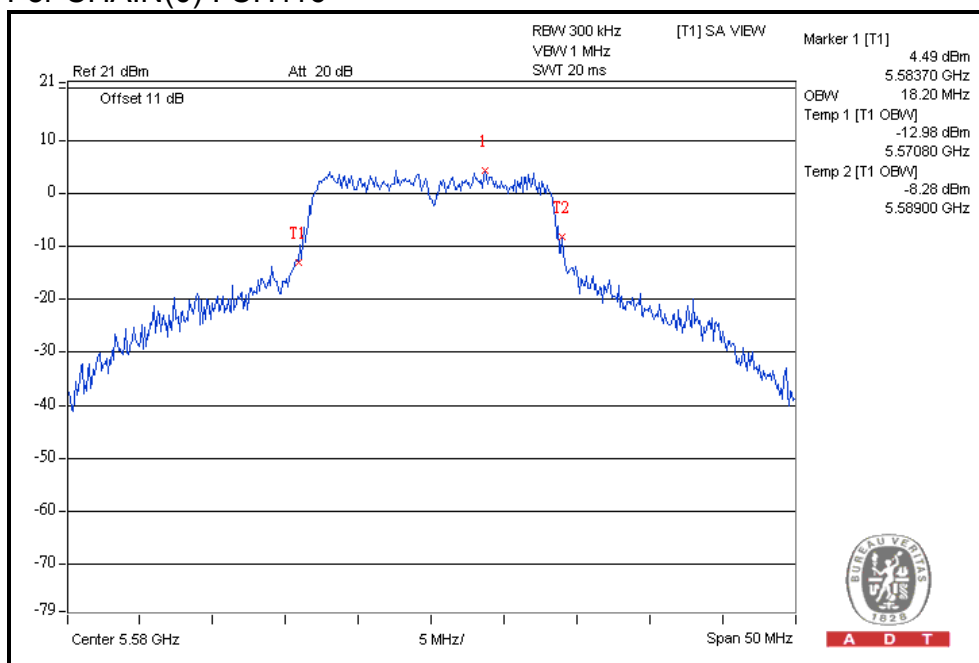
For CHAIN(0) : CH100



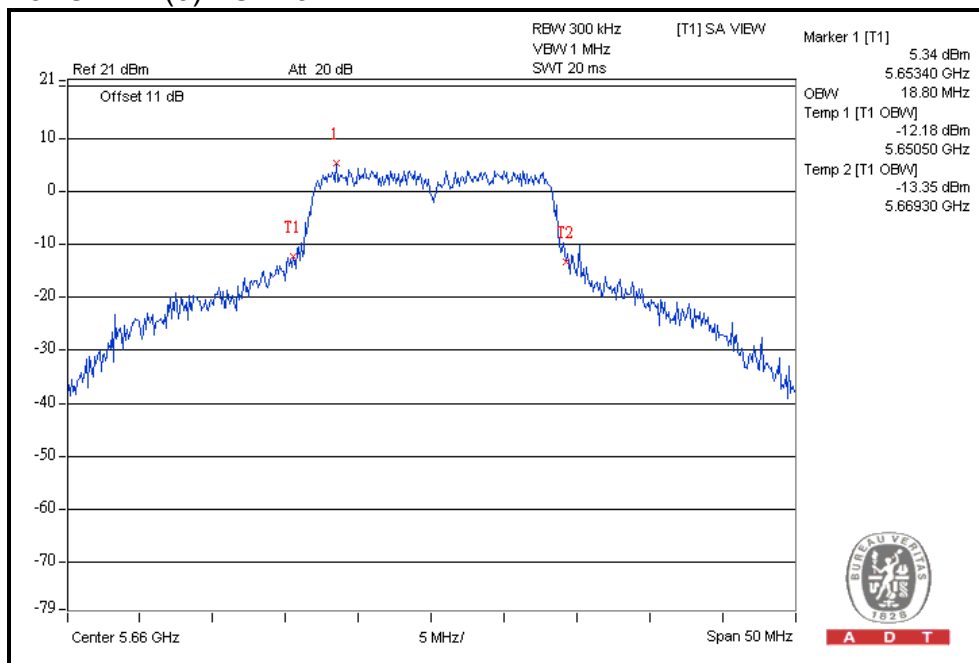


A D T

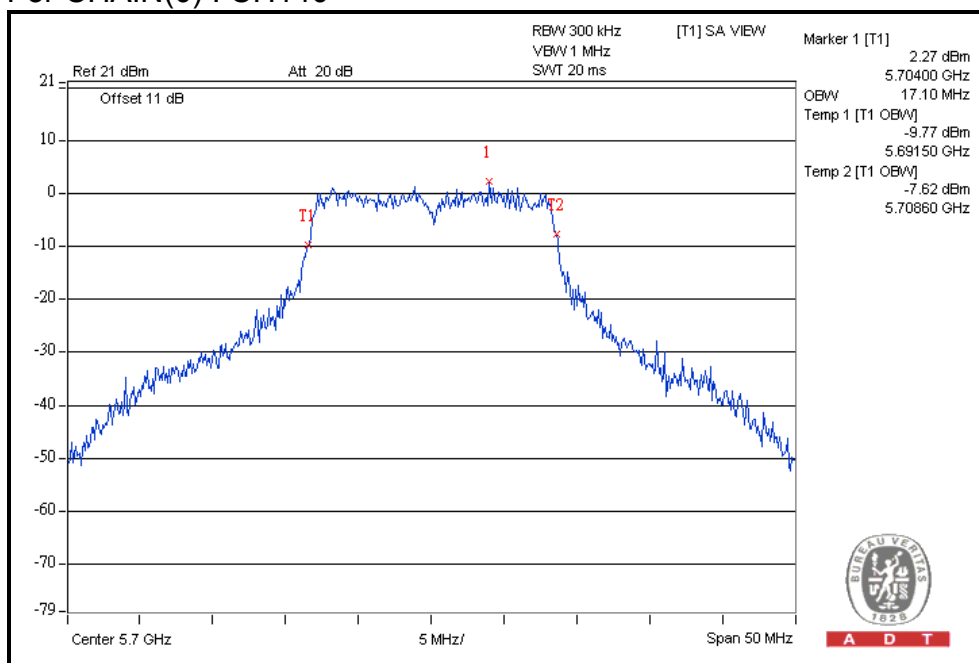
For CHAIN(0) : CH116



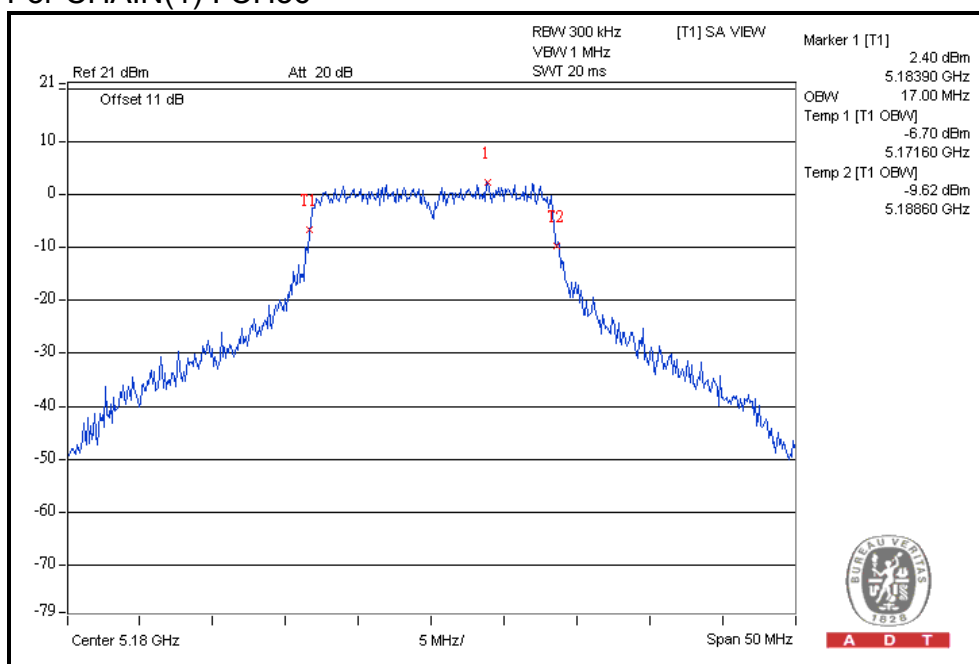
For CHAIN(0) : CH132



For CHAIN(0) : CH140



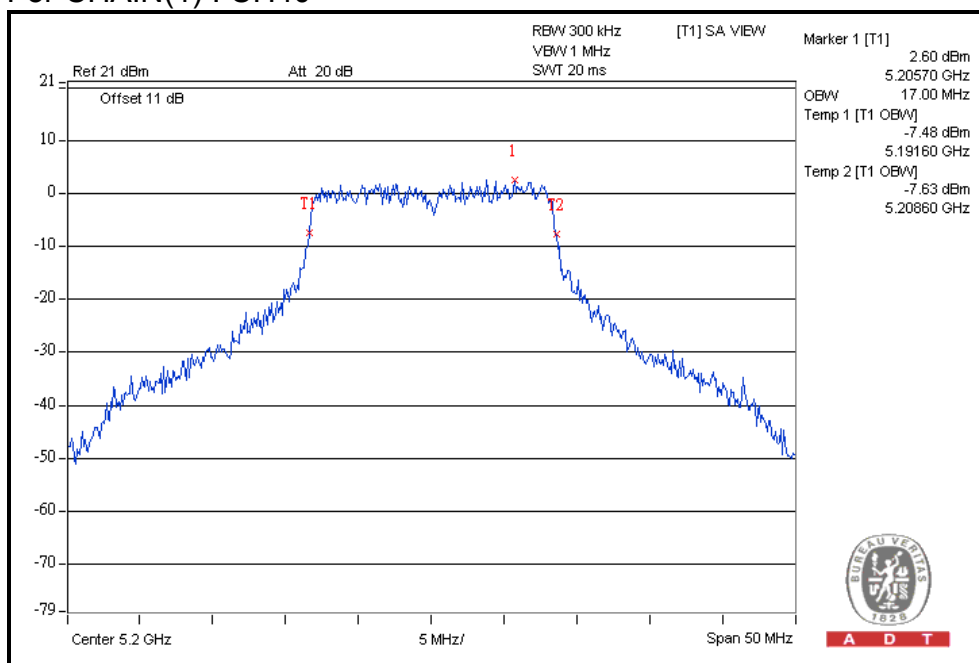
For CHAIN(1) : CH36



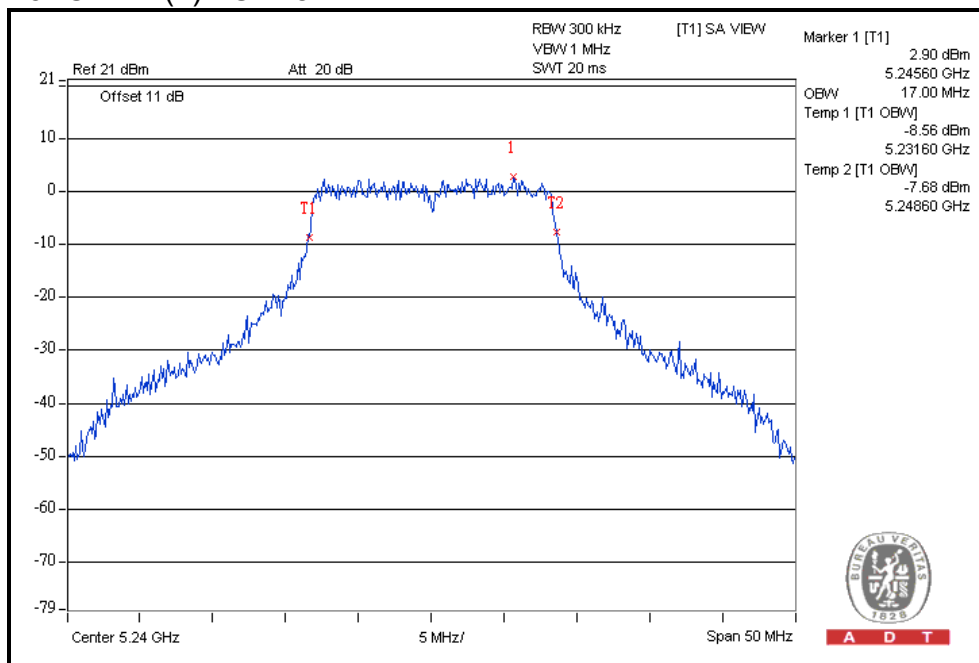


A D T

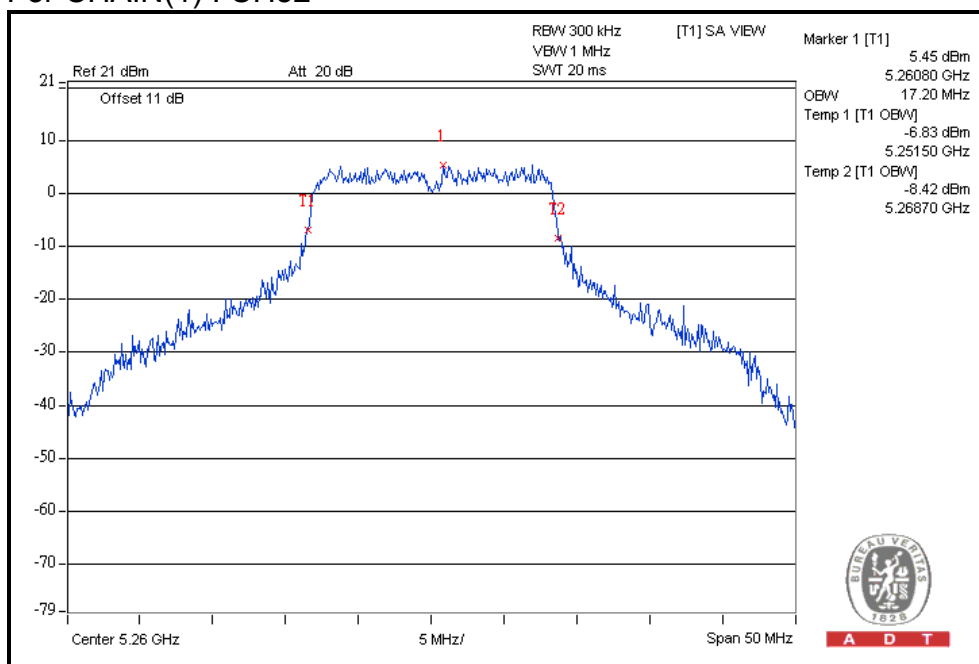
For CHAIN(1) : CH40



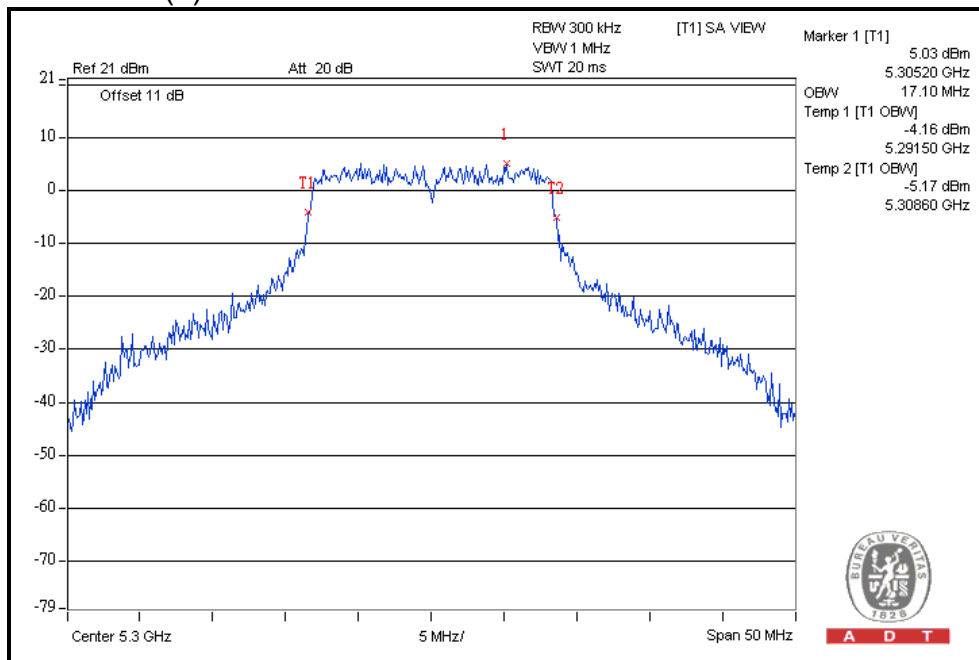
For CHAIN(1) : CH48



For CHAIN(1) : CH52



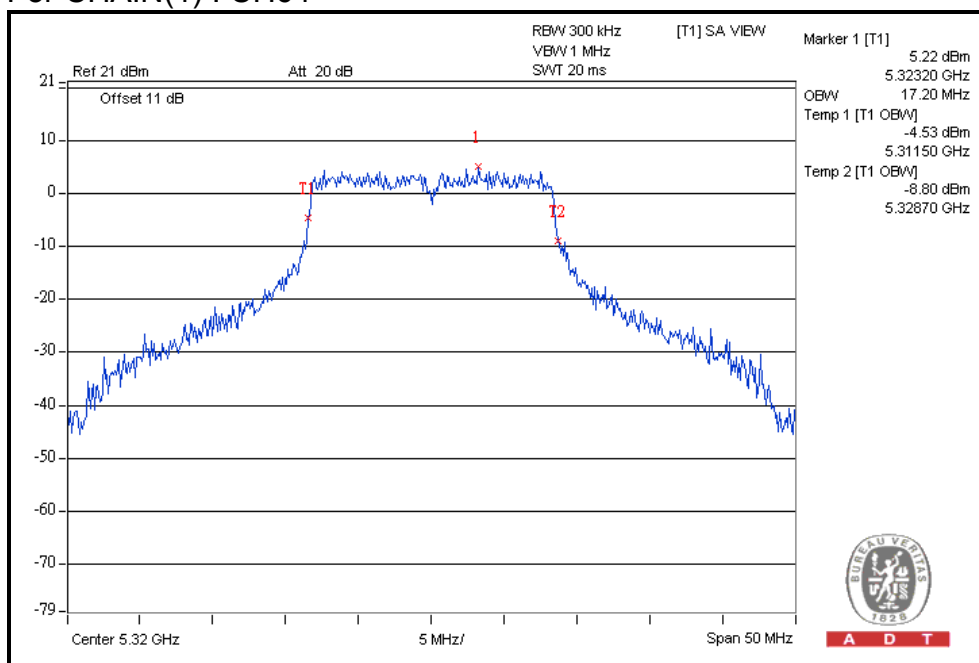
For CHAIN(1) : CH60



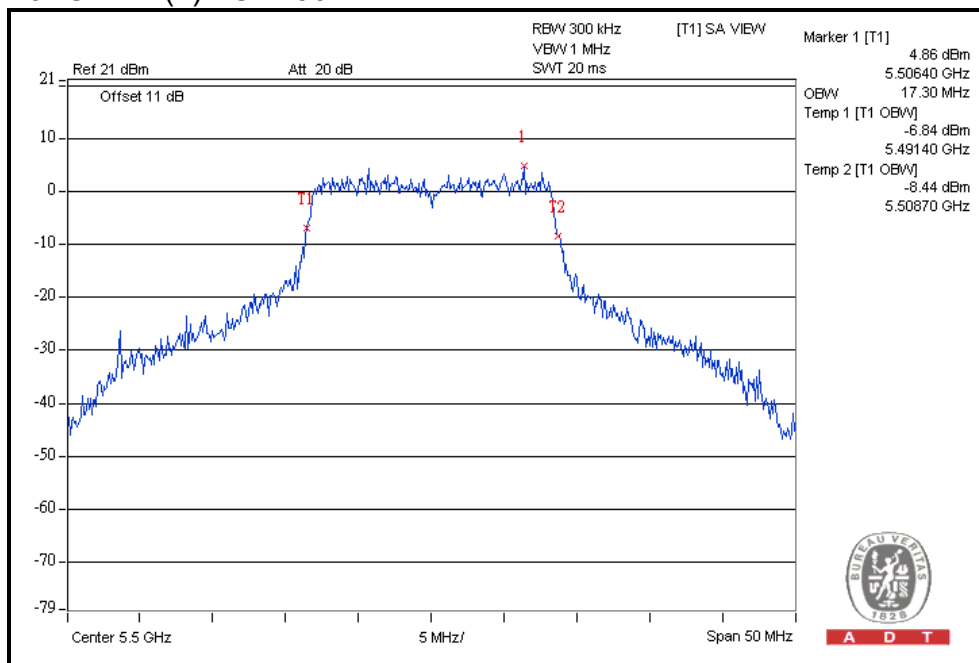


A D T

For CHAIN(1) : CH64



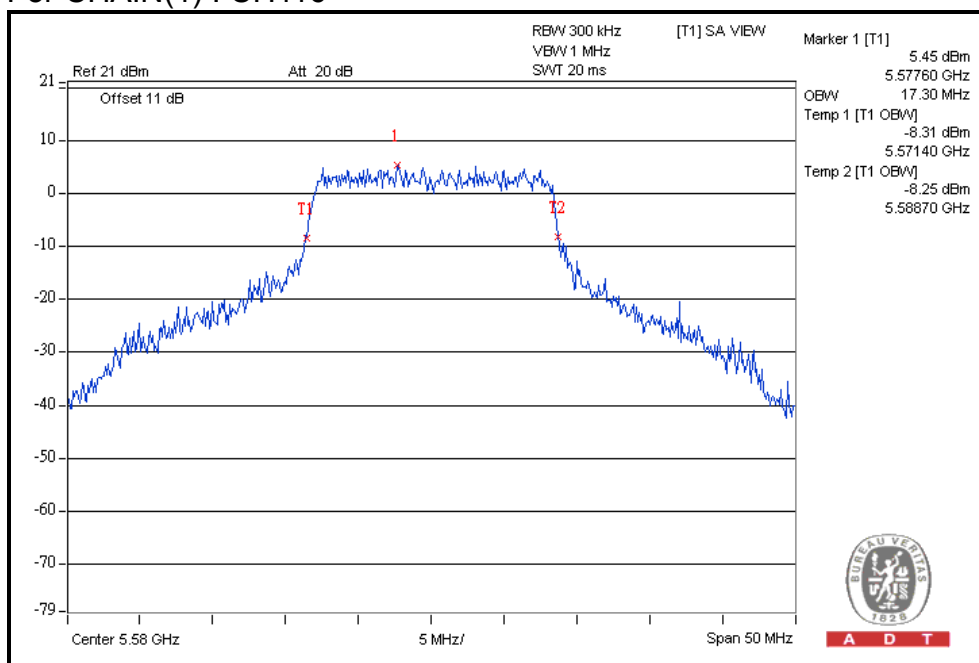
For CHAIN(1) : CH100



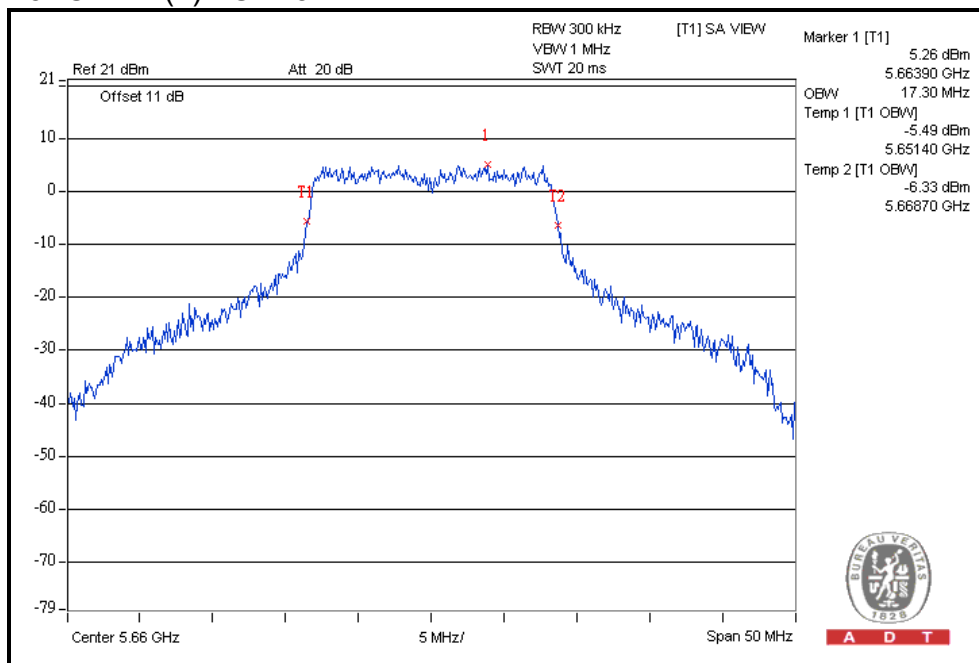


A D T

For CHAIN(1) : CH116



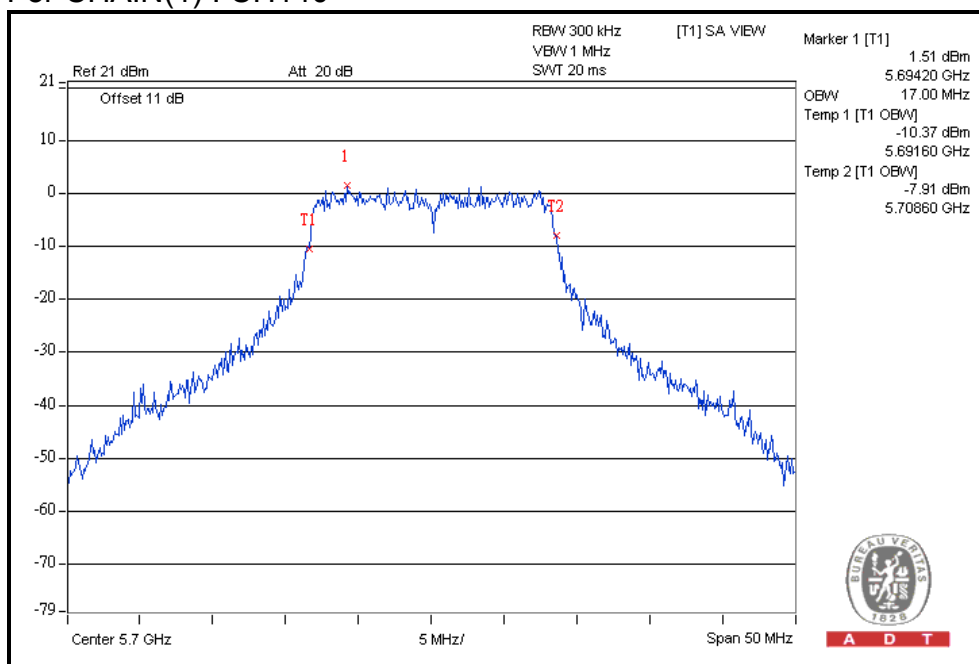
For CHAIN(1) : CH132





A D T

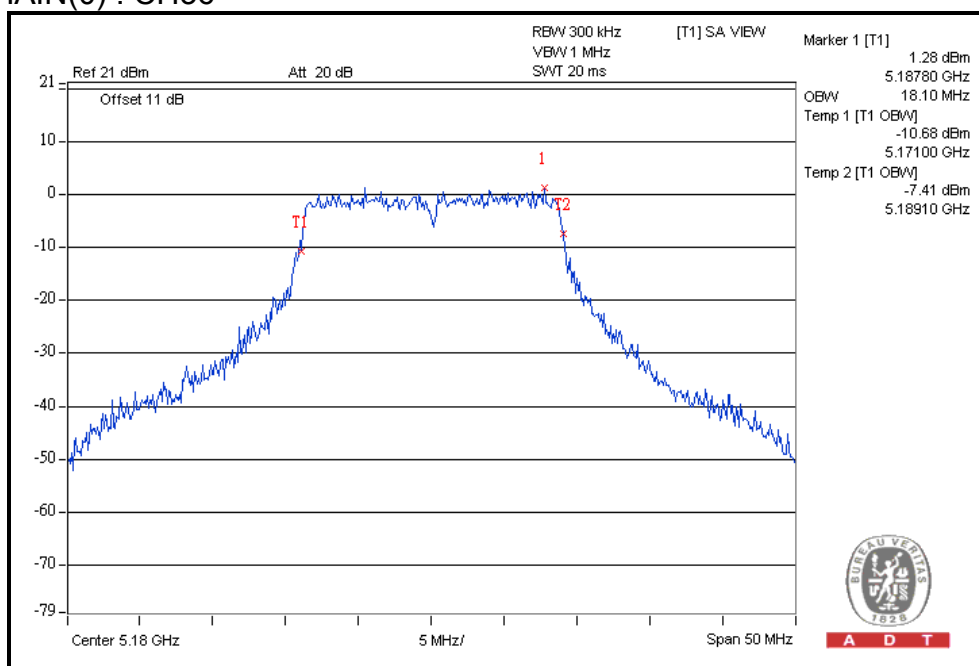
For CHAIN(1) : CH140



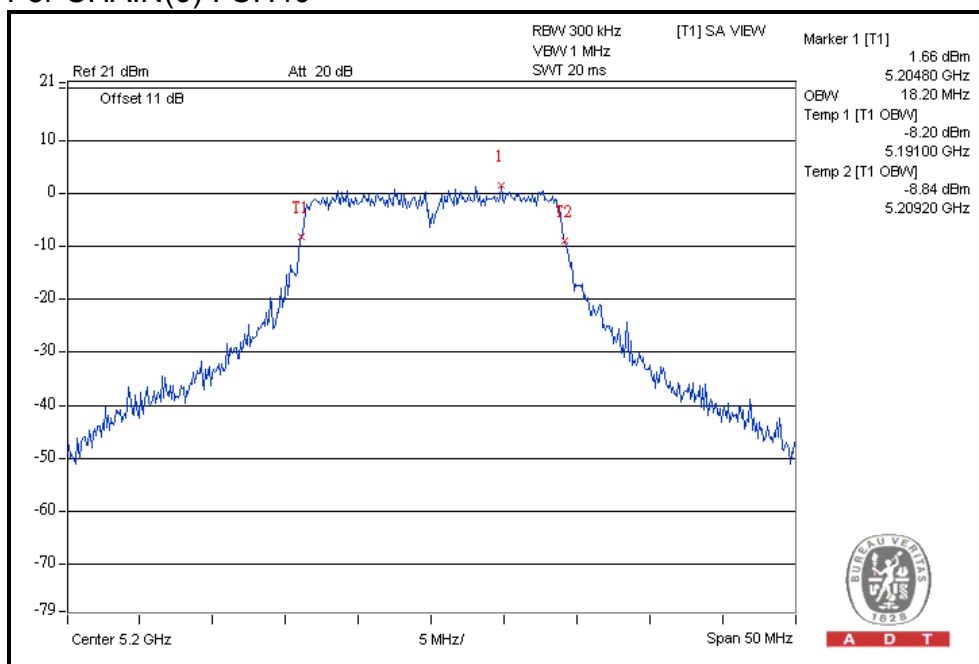
802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)	
		CHAIN(0)	CHAIN(1)
36	5180	18.10	18.10
40	5200	18.20	18.30
48	5240	18.10	18.10
52	5260	18.30	18.30
60	5300	18.30	18.30
64	5320	18.30	18.30
100	5500	18.70	18.30
116	5580	18.80	18.20
132	5660	19.30	18.30
140	5700	18.30	18.10

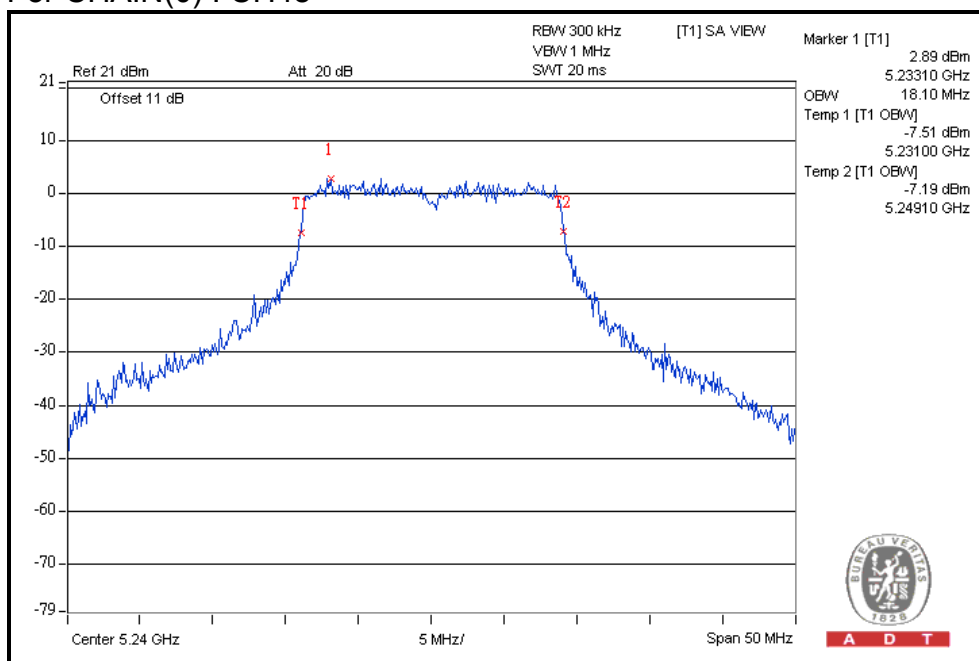
For CHAIN(0) : CH36



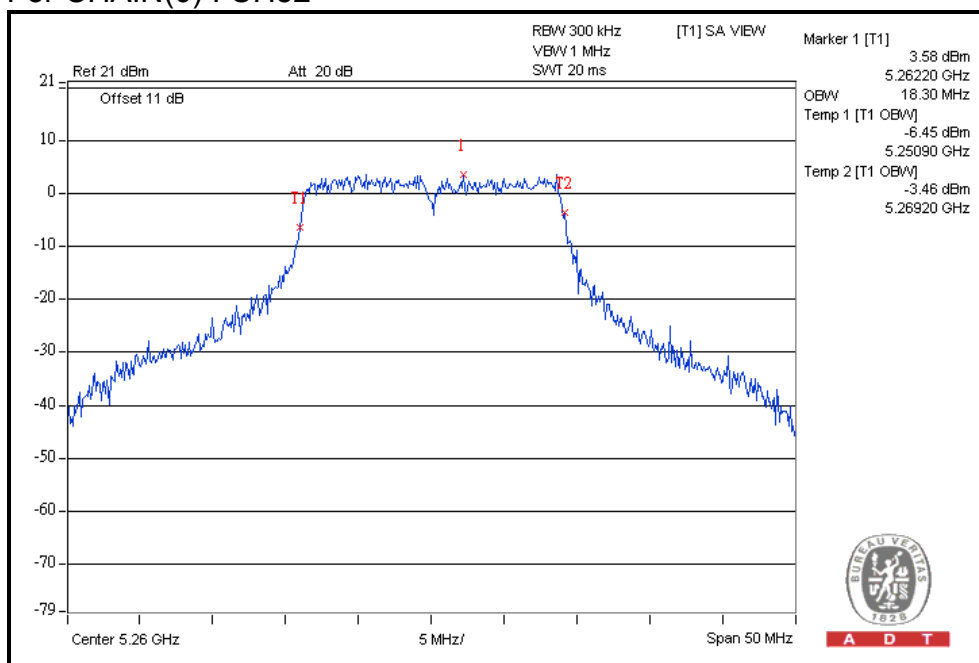
For CHAIN(0) : CH40



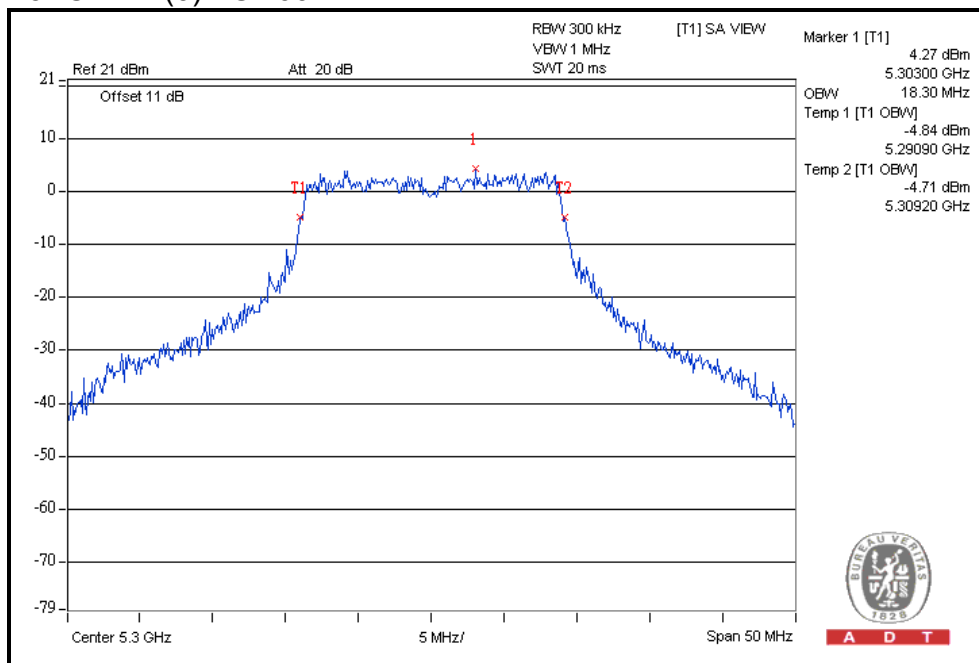
For CHAIN(0) : CH48



For CHAIN(0) : CH52



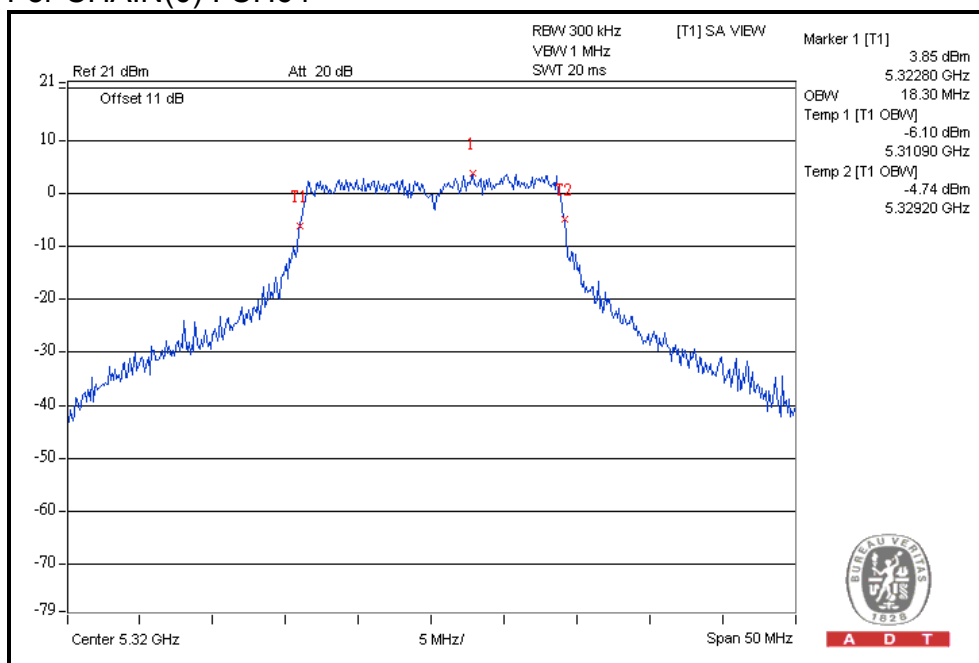
For CHAIN(0) : CH60



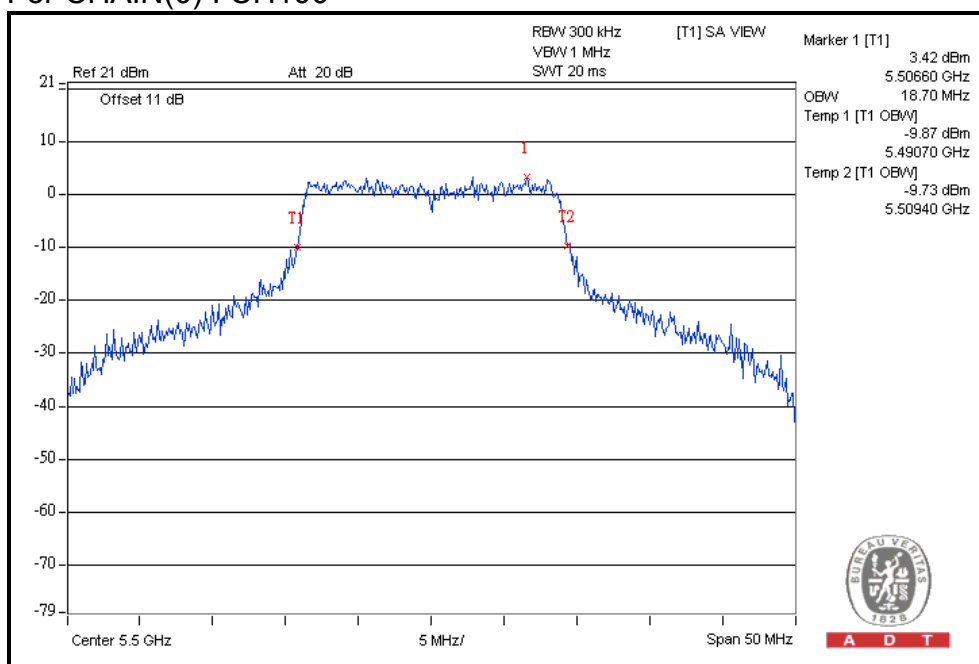


A D T

For CHAIN(0) : CH64



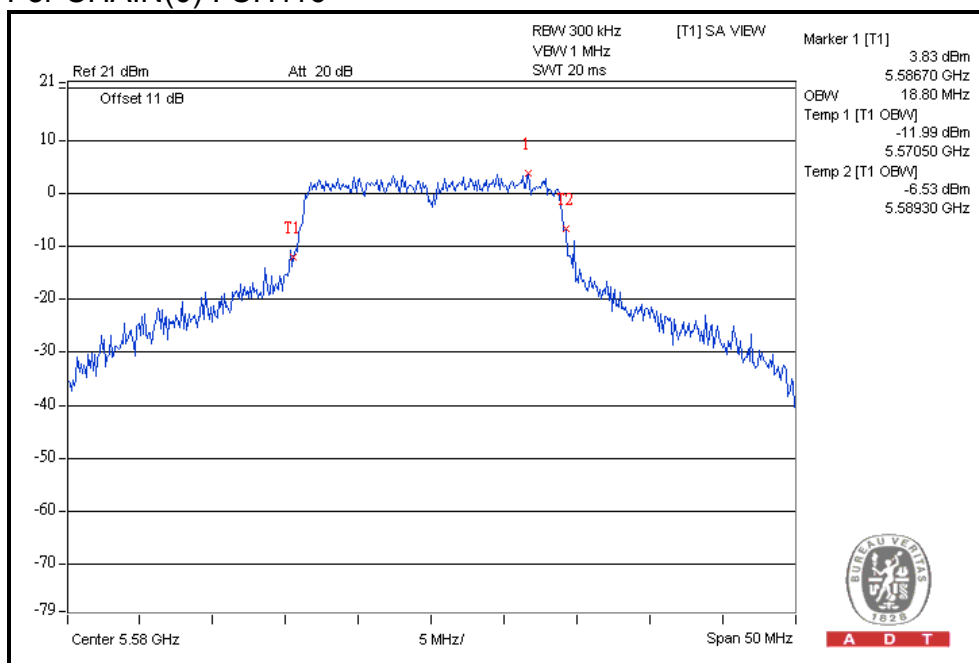
For CHAIN(0) : CH100



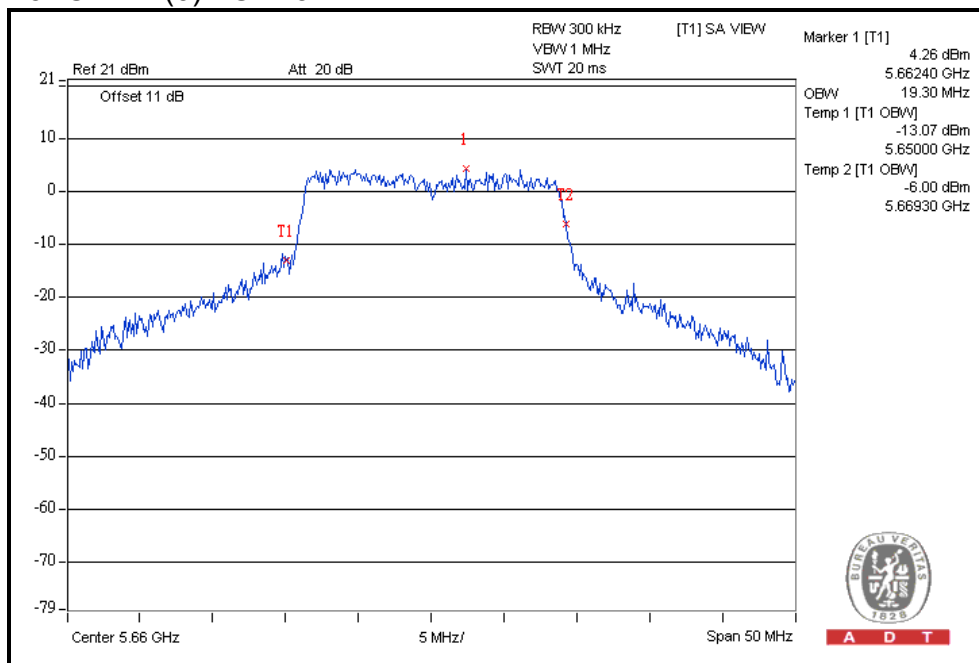


A D T

For CHAIN(0) : CH116



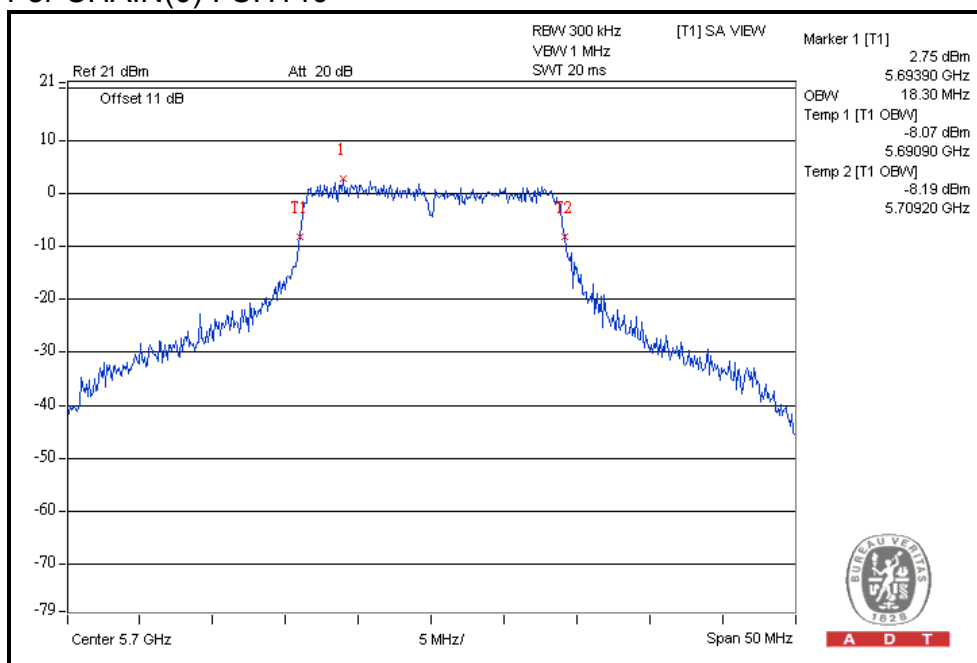
For CHAIN(0) : CH132



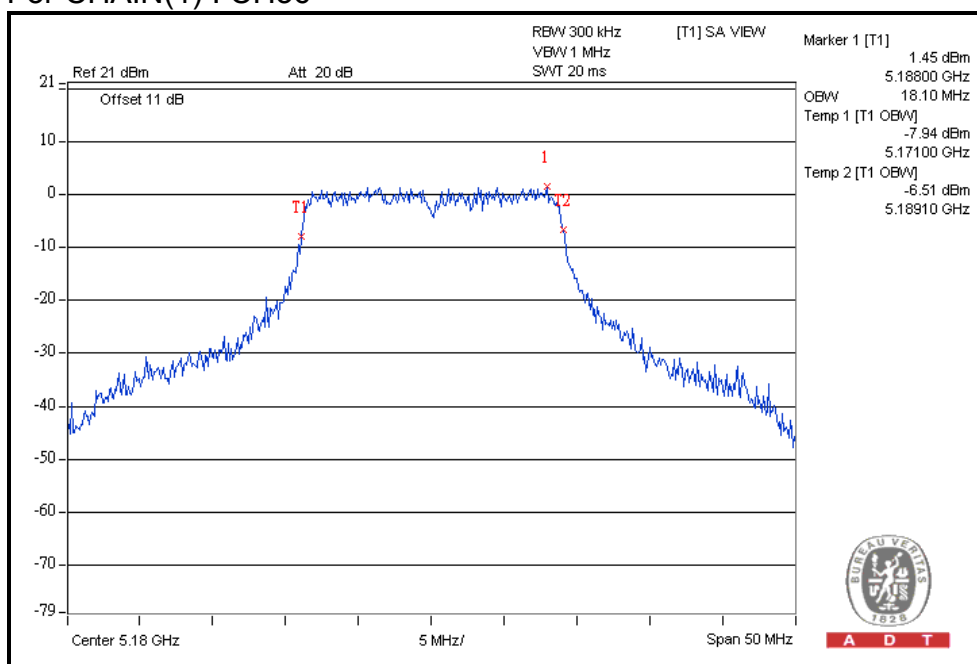


A D T

For CHAIN(0) : CH140



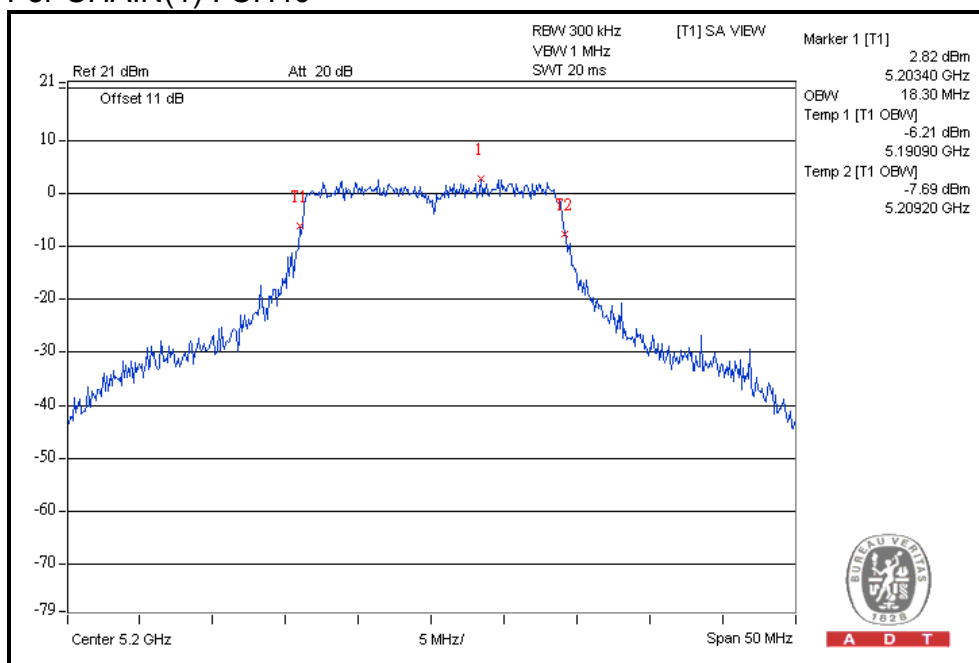
For CHAIN(1) : CH36



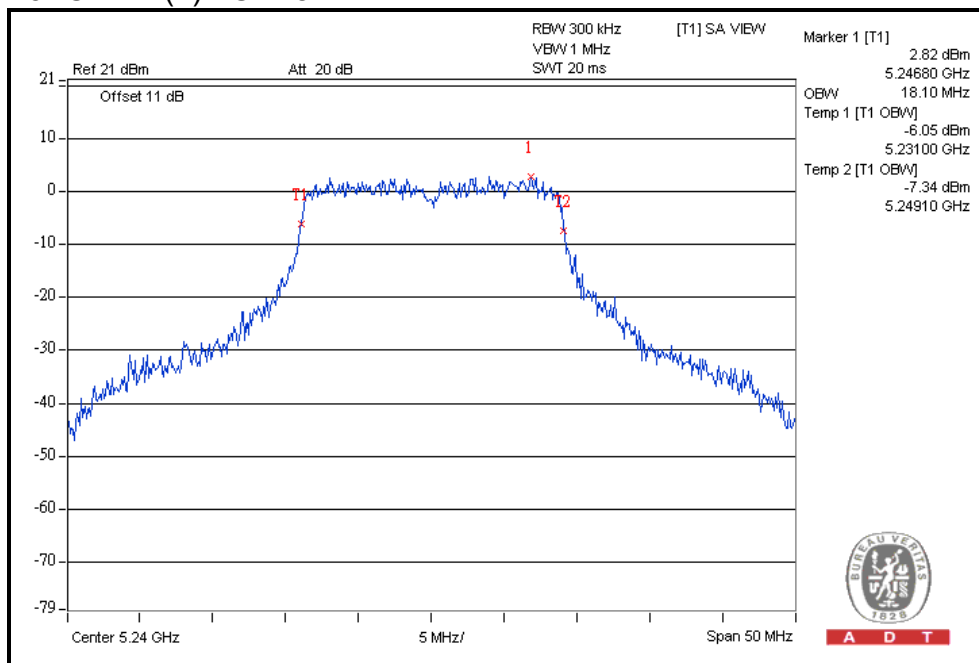


A D T

For CHAIN(1) : CH40



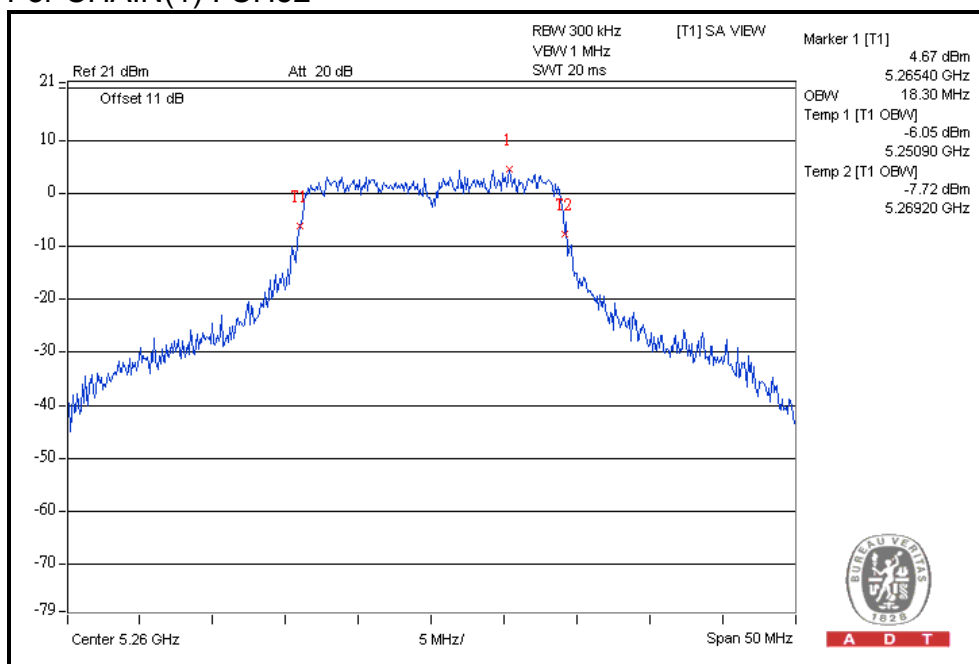
For CHAIN(1) : CH48





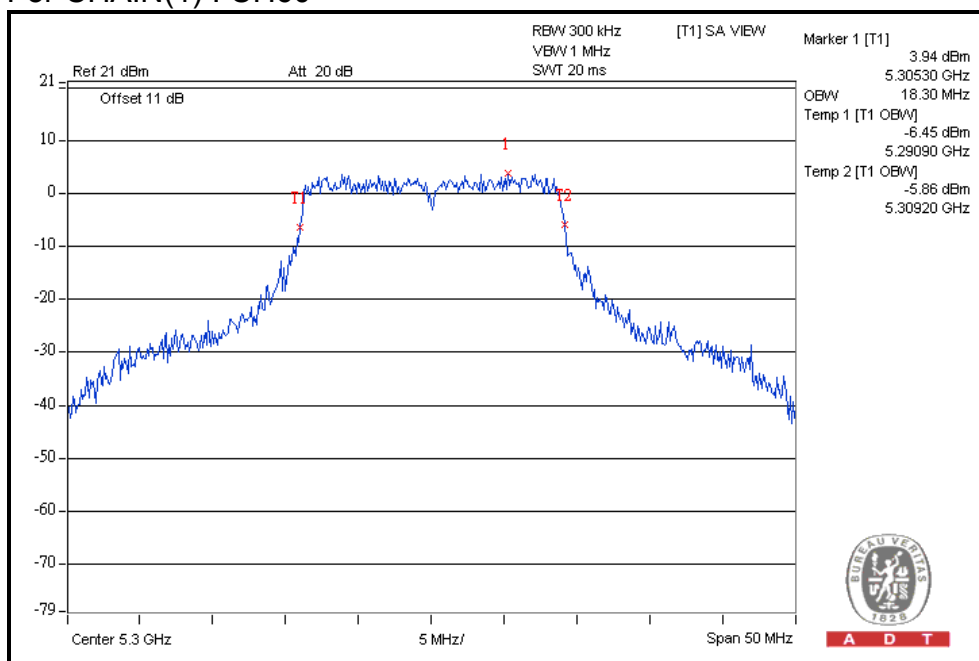
A D T

For CHAIN(1) : CH52



A D T

For CHAIN(1) : CH60

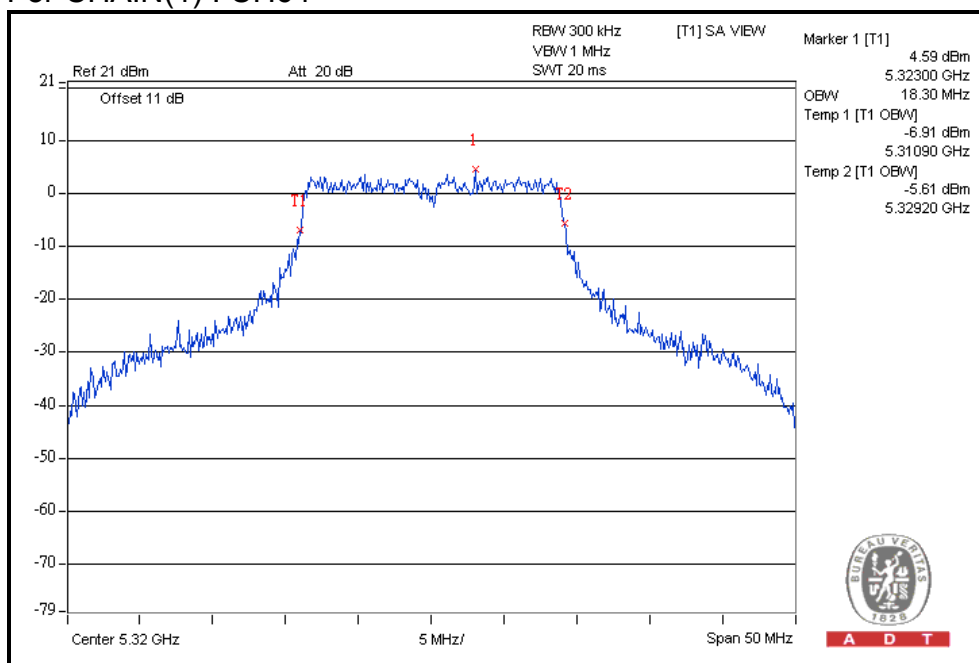


A D T

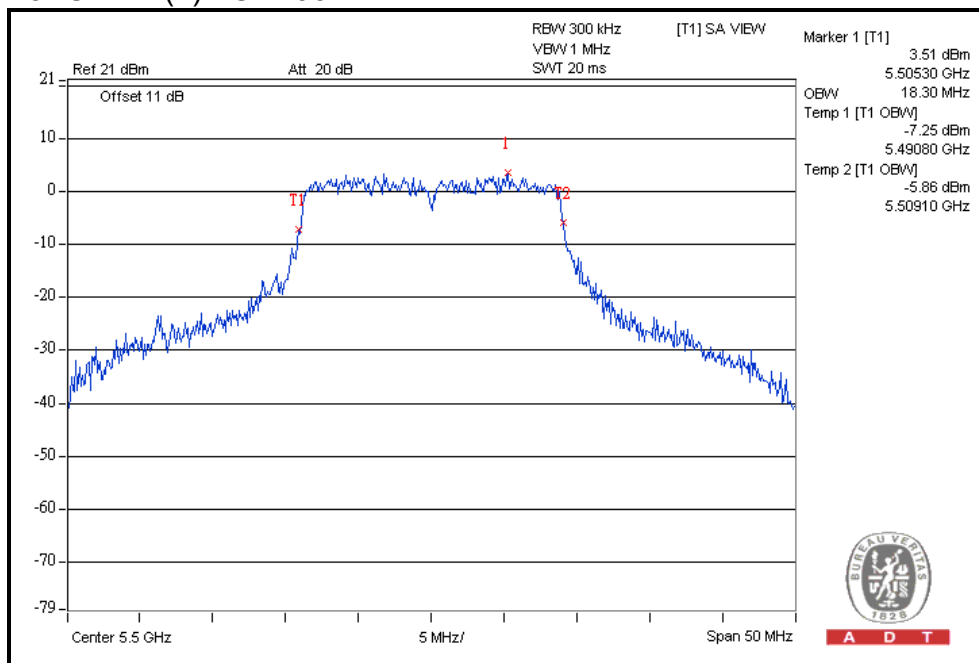


A D T

For CHAIN(1) : CH64



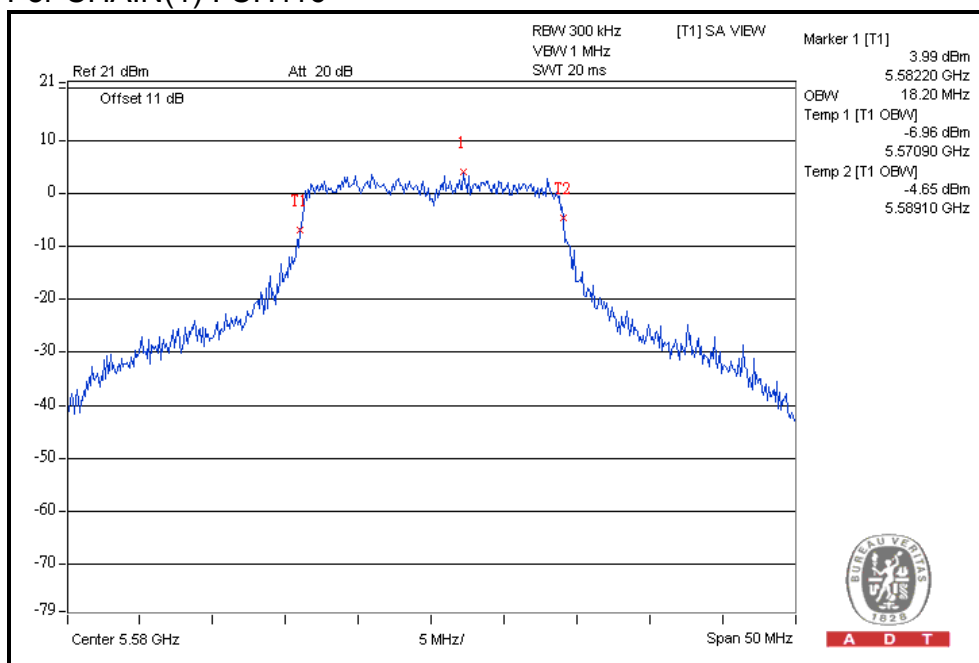
For CHAIN(1) : CH100



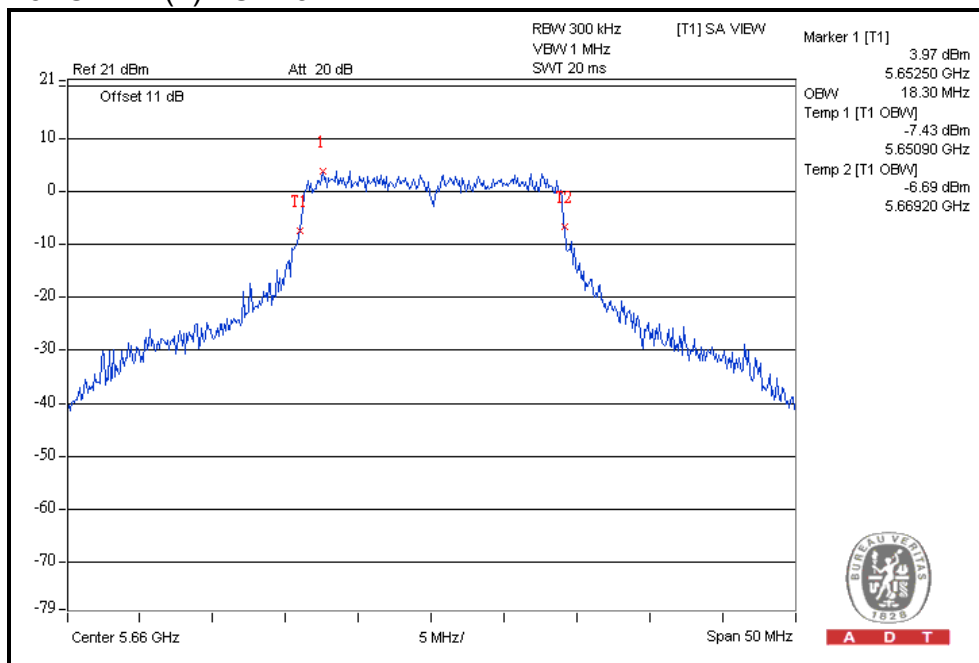


A D T

For CHAIN(1) : CH116



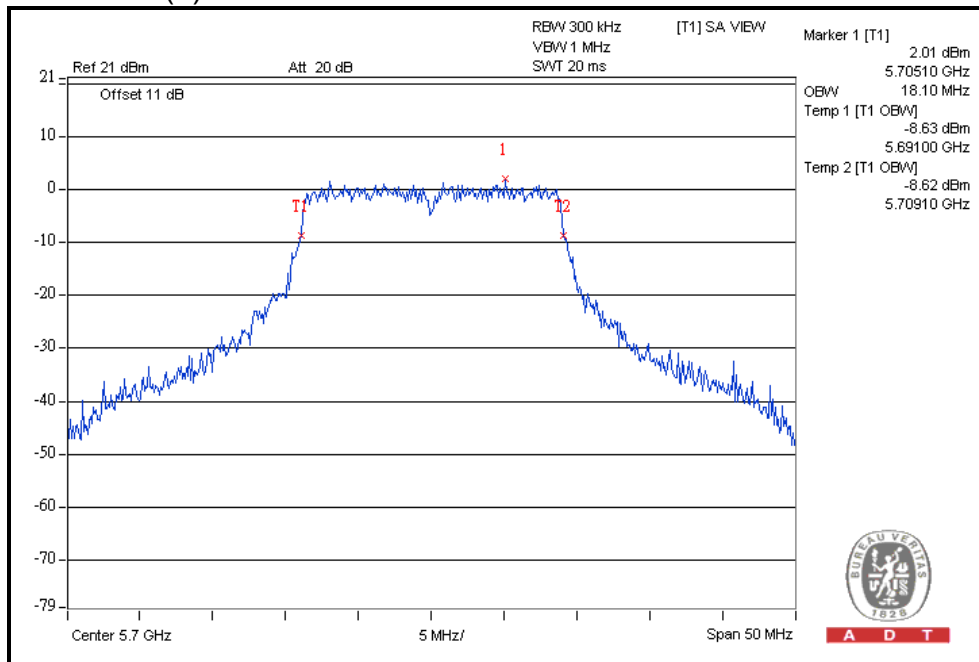
For CHAIN(1) : CH132





A D T

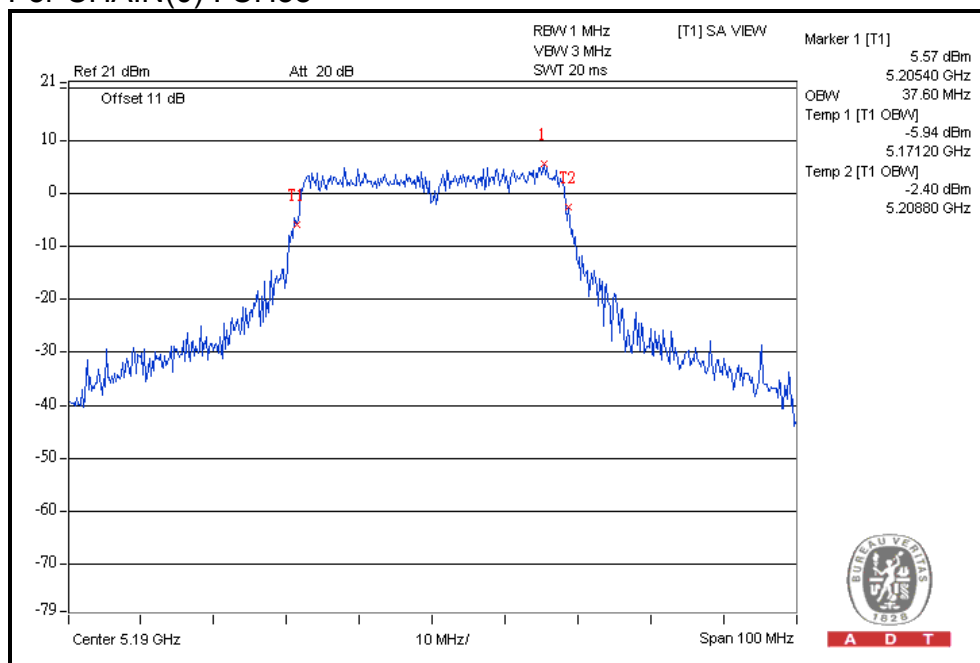
For CHAIN(1) : CH140



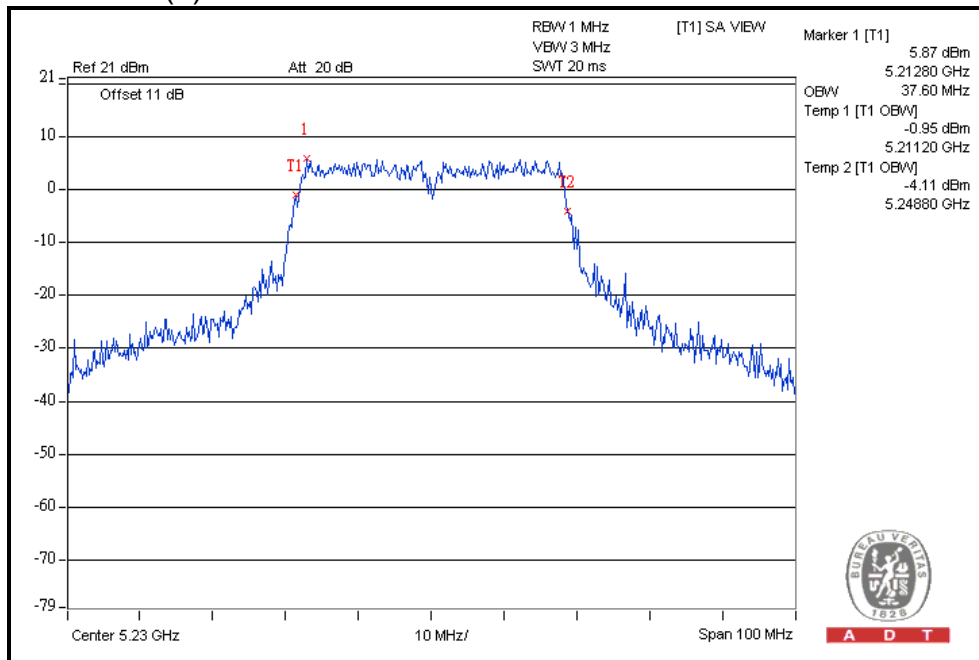
802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)	
		CHAIN(0)	CHAIN(1)
38	5190	37.60	37.60
46	5230	37.60	37.60
54	5270	37.60	37.60
62	5310	38.00	37.60
102	5510	37.80	37.40
110	5550	38.40	37.80
134	5670	38.20	37.60

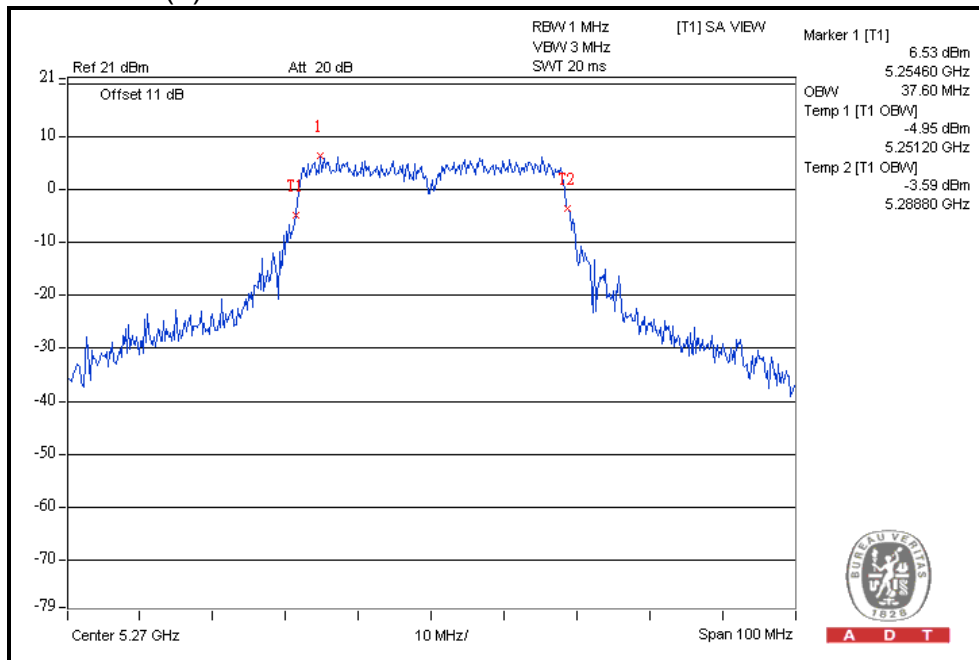
For CHAIN(0) : CH38



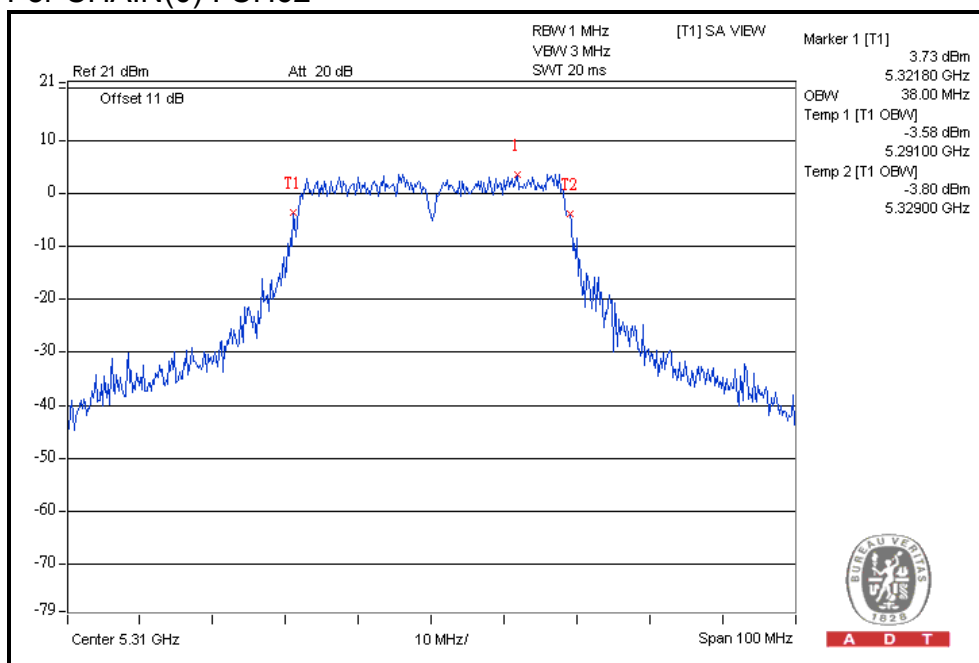
For CHAIN(0) : CH46



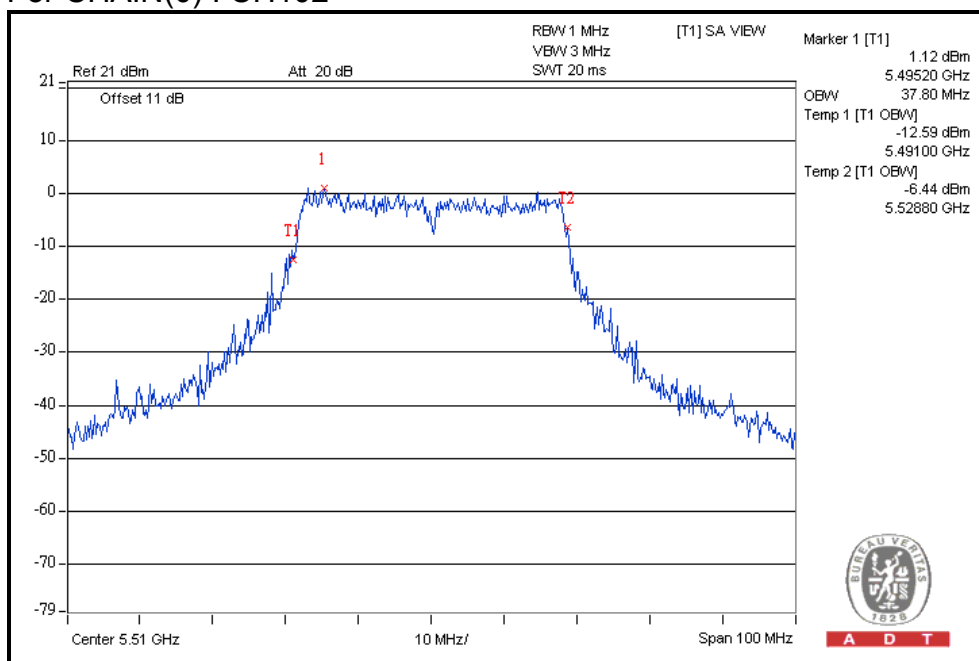
For CHAIN(0) : CH54



For CHAIN(0) : CH62



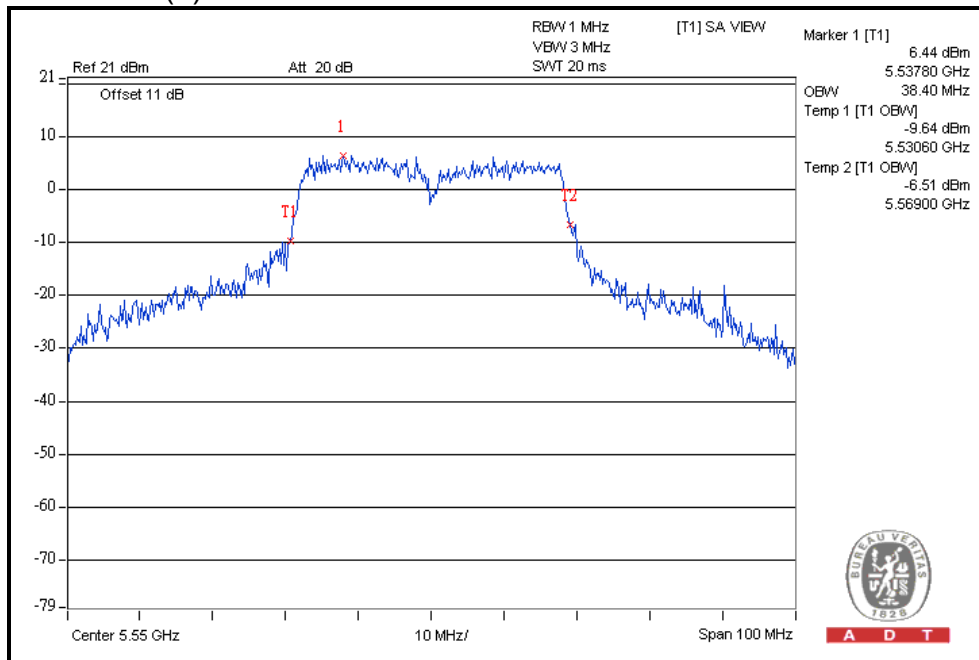
For CHAIN(0) : CH102



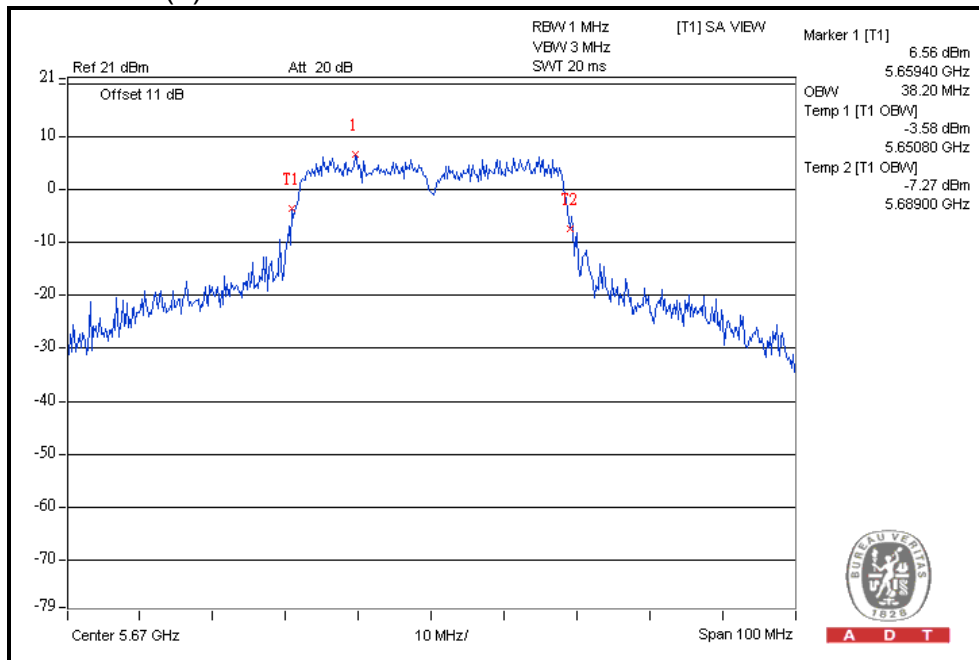


A D T

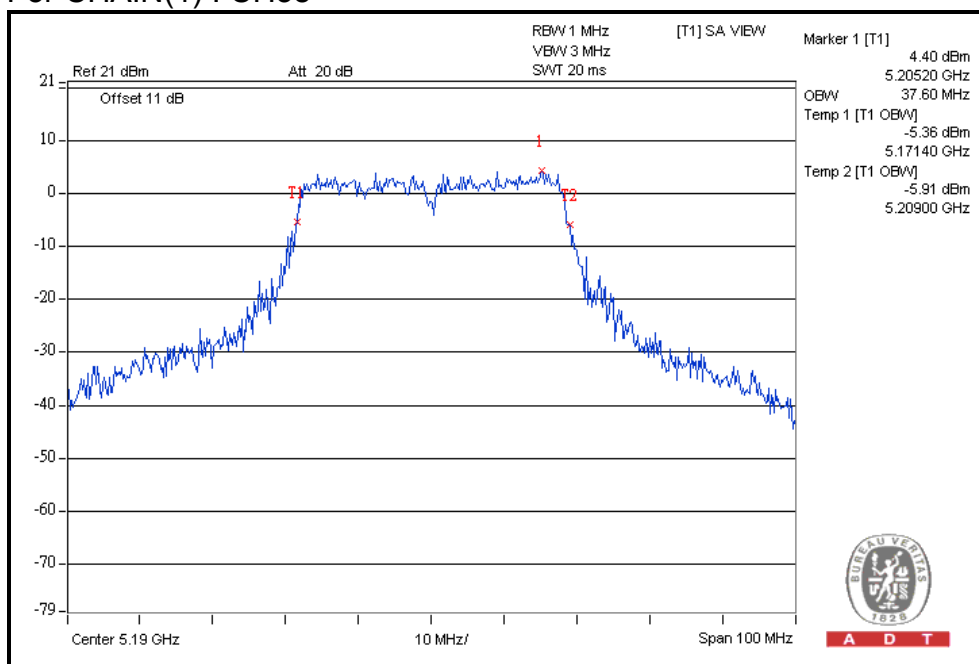
For CHAIN(0) : CH110



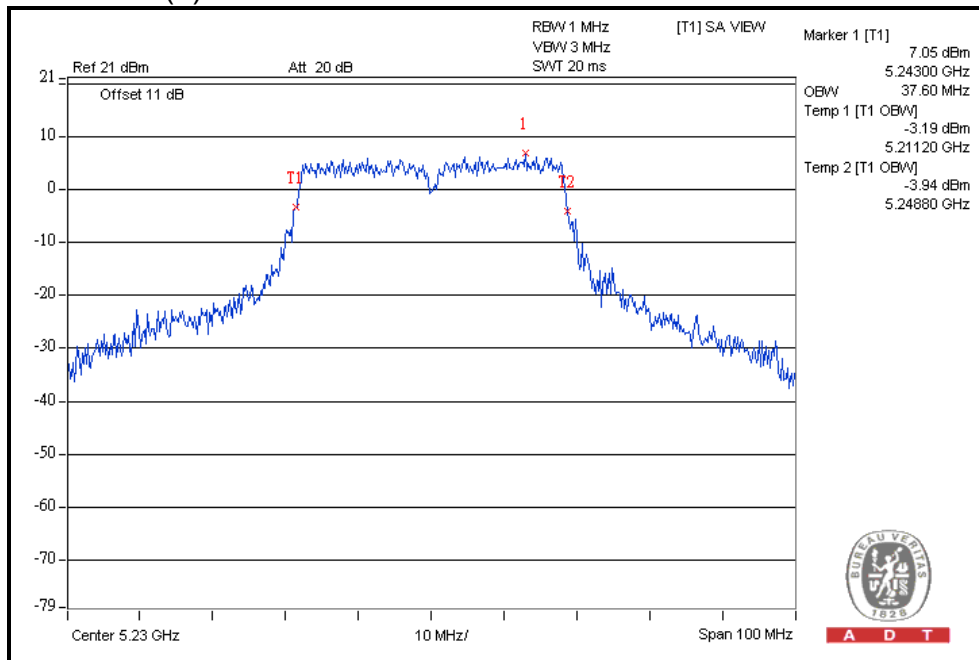
For CHAIN(0) : CH134



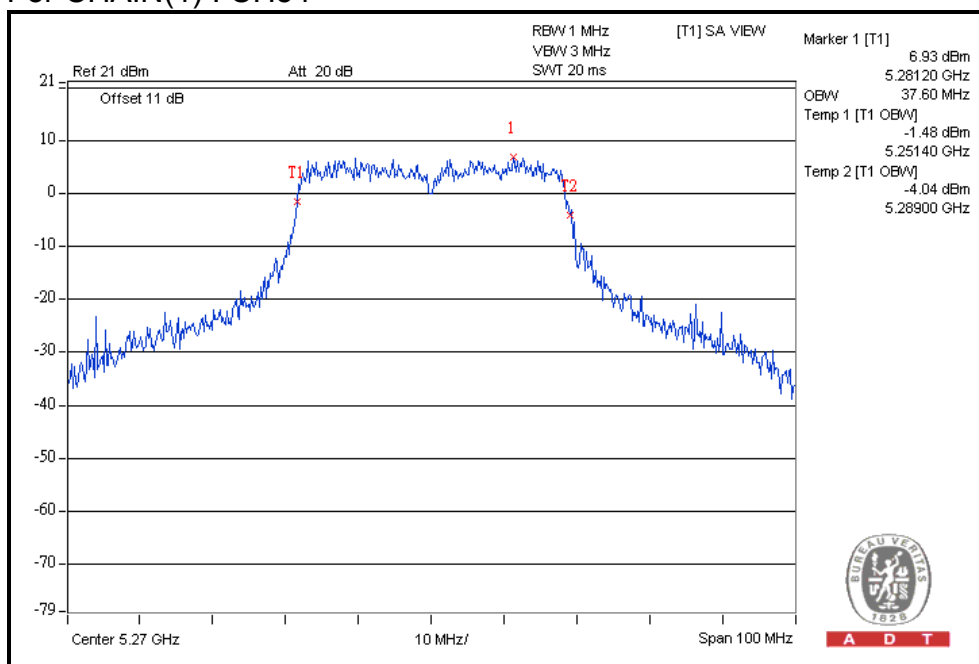
For CHAIN(1) : CH38



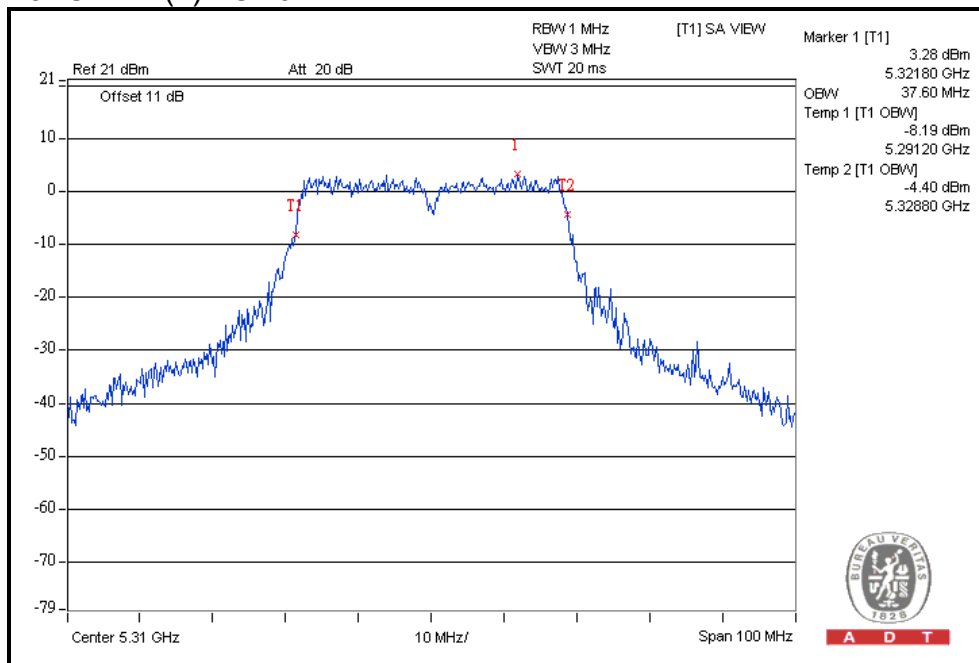
For CHAIN(1) : CH46



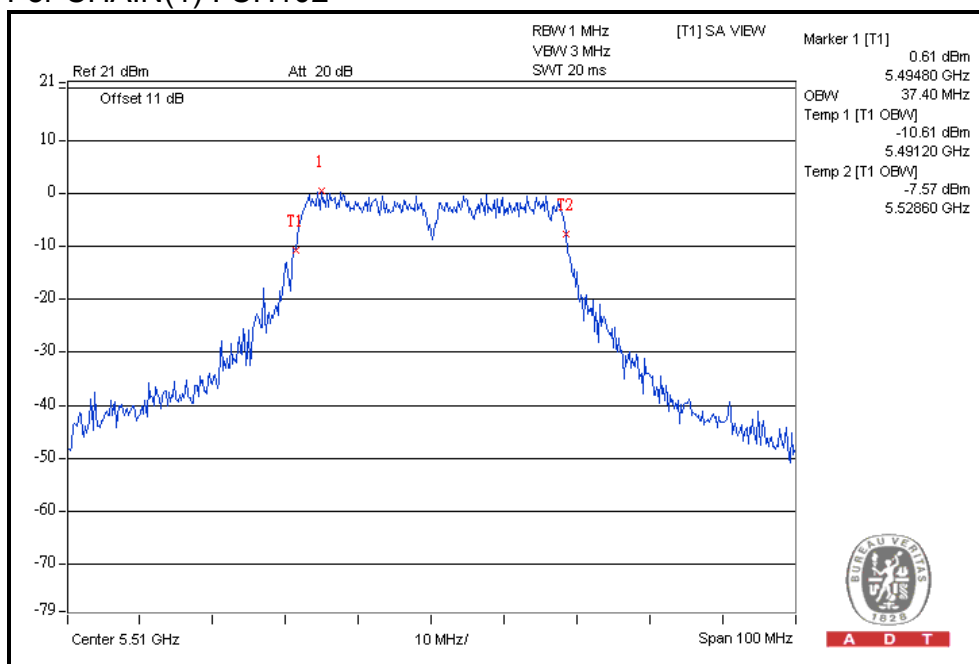
For CHAIN(1) : CH54



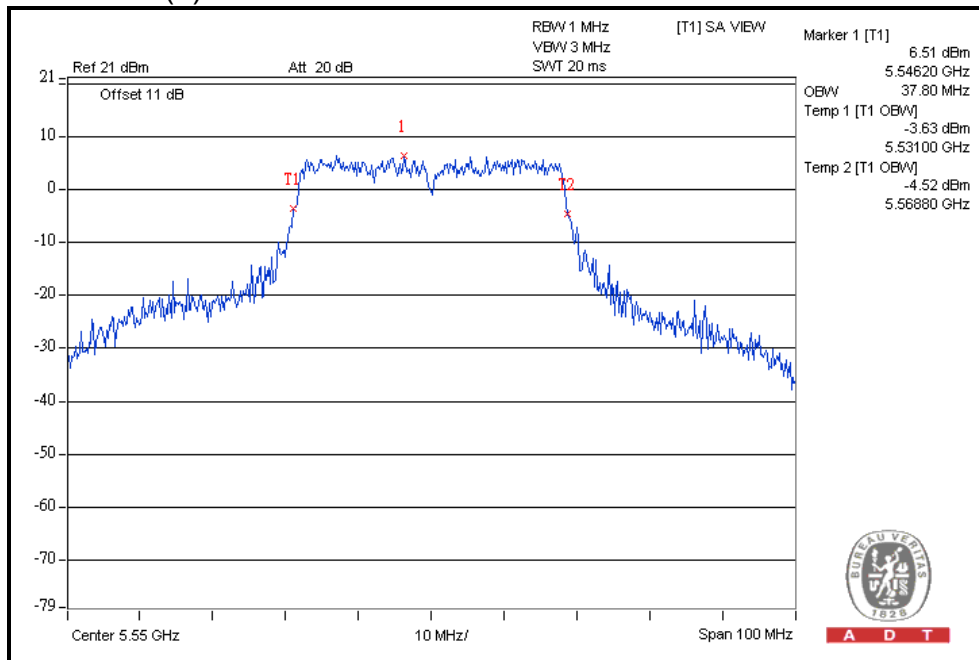
For CHAIN(1) : CH62



For CHAIN(1) : CH102



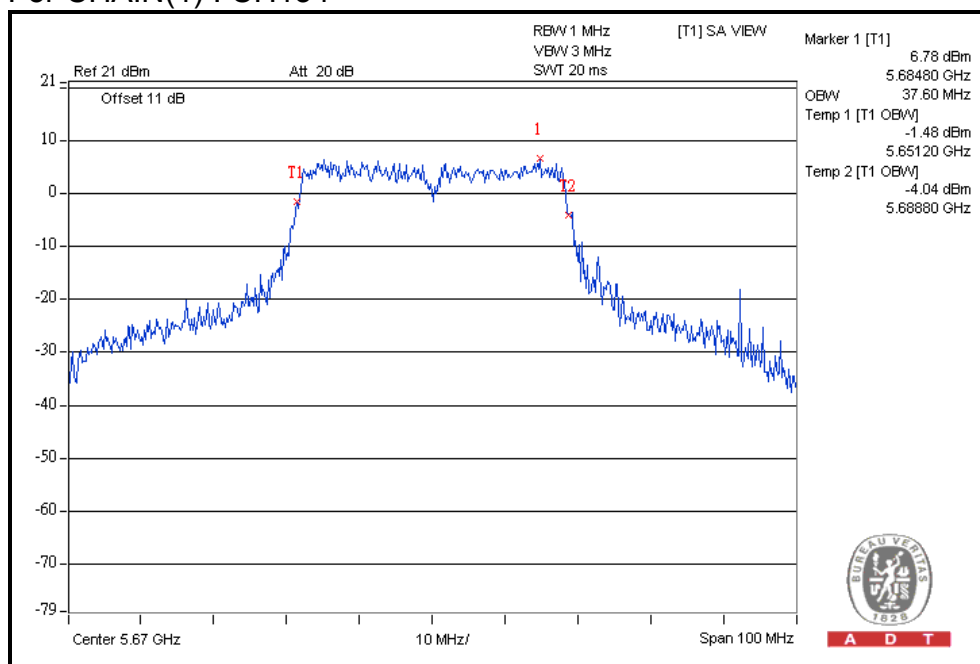
For CHAIN(1) : CH110





A D T

For CHAIN(1) : CH134



4.7 FREQUENCY STABILITY

4.7.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency of the carrier signal shall be maintained within band of operation

4.7.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP 40	100060	May 11, 2011	May 10, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Apr. 12, 2012

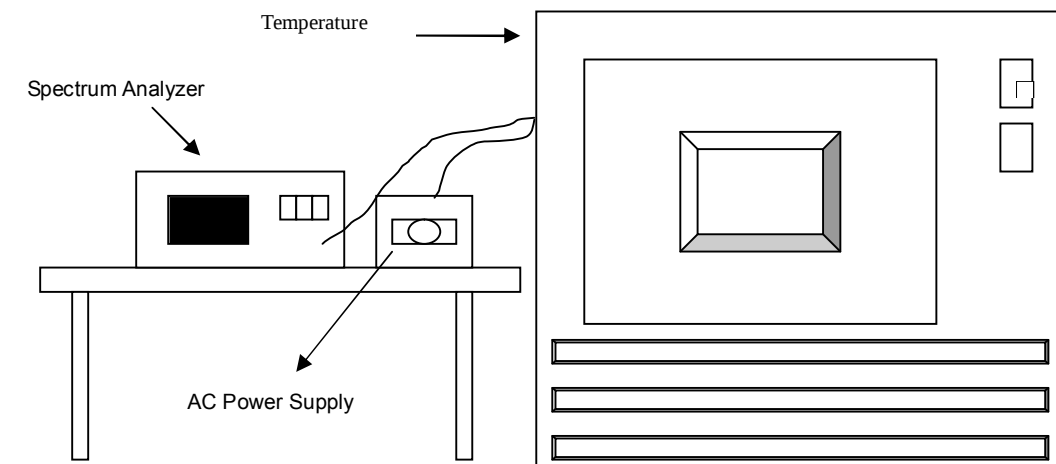
4.7.3 TEST PROCEDURE

1. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.7.4 DEVIATION FROM TEST STANDARD

No deviation

4.7.5 TEST SETUP



4.7.6 EUT OPERATING CONDITION

Set the EUT transmit at un-modulation mode to test frequency stability.

4.7.7 TEST RESULTS

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5320MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	ppm	(MHz)	ppm	(MHz)	ppm	(MHz)	ppm
50	120	5319.9931	-1.2970	5319.9902	-1.8421	5319.9923	-1.4474	5319.9943	-1.0714
40	120	5320.0086	1.6165	5320.0117	2.1992	5320.0155	2.9135	5320.0106	1.9925
30	120	5320.019	3.5714	5320.0166	3.1203	5320.0165	3.1015	5320.0177	3.3271
20	120	5319.9957	-0.8083	5319.9971	-0.5451	5319.9948	-0.9774	5319.9926	-1.3910
10	120	5320.0159	2.9887	5320.0167	3.1391	5320.0151	2.8383	5320.013	2.4436
0	120	5320.0054	1.0150	5320.0029	0.5451	5320.0003	0.0564	5319.9976	-0.4511
-10	120	5320.0143	2.6880	5320.0173	3.2519	5320.0175	3.2895	5320.0179	3.3647
-20	120	5319.9905	-1.7857	5319.9931	-1.2970	5319.996	-0.7519	5320.0023	0.4323
-30	120	5319.9887	-2.1241	5319.9847	-2.8759	5319.9826	-3.2707	5319.9869	-2.4624

FREQUENCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5240MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	ppm	(MHz)	ppm	(MHz)	ppm	(MHz)	ppm
20	138	5319.9956	-0.8271	5319.9971	-0.5451	5319.9937	-1.1842	5319.994	-1.1278
	120	5319.9957	-0.8083	5319.9971	-0.5451	5319.9948	-0.9774	5319.9926	-1.3910
	102	5319.9947	-0.9962	5319.9964	-0.6767	5319.9948	-0.9774	5319.9939	-1.1466

5. PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

6. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

Copies of accreditation and authorization certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

www.adt.com.tw/index.5.phtml.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.



A D T

7.APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No modifications were made to the EUT by the lab during the test.

--- END ---