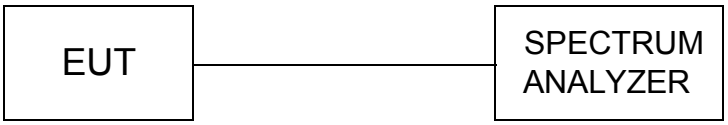
4.6. Power Spectral Density Measurement

TEST CONFIGURATION



TEST PROCEDURE

1. The testing follows the FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The transmitter output (antenna port) was connected to the spectrum analyser.
3. Set RBW of spectrum analyzer to 3kHz and VBW to 10kHz. Set Detector to Peak, Trace to Max Hold.
4. Mark the frequency with maximum peak power as the center of the display of the spectrum.
5. Set the span to 1.5MHz and the sweep time to 100s and record the maximum peak value.

LIMIT

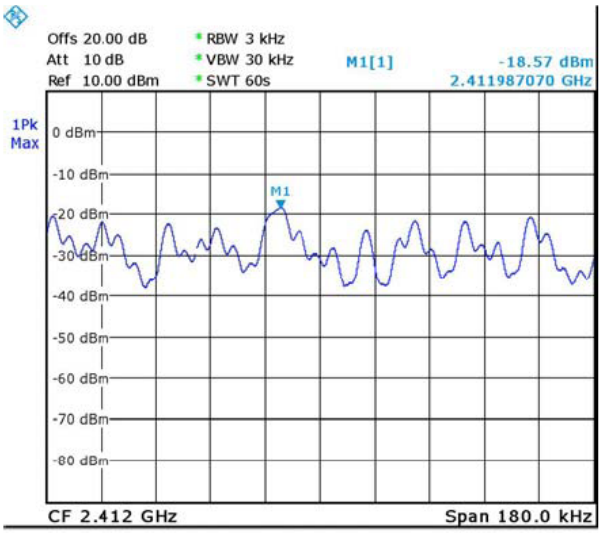
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST RESULTS

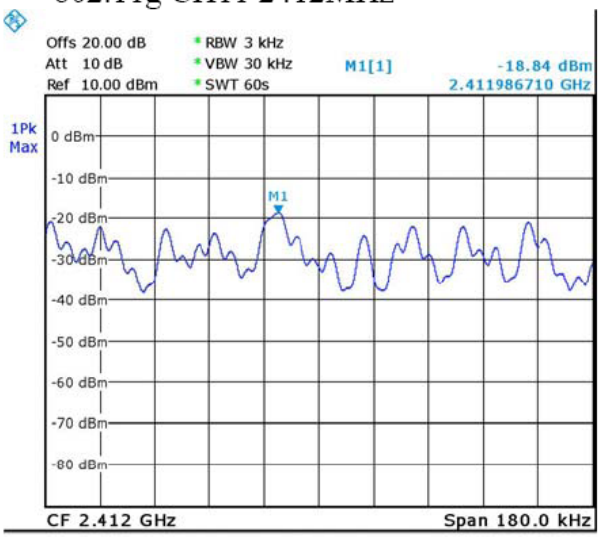
(Result=Read+cable loss)

Channel	Read (dBm)	Cable Loss (dB)	RF power level in 3 KHz BW (dBm)	Maximum limit (dBm)	PASS / FAIL
802.11b CH1	-18.57	3	-15.57	8	PASS
802.11b CH 6	-20.07	3	-17.07	8	PASS
802.11b CH 11	-14.90	3	-11.90	8	PASS
802.11g CH1	-18.84	3	-15.84	8	PASS
802.11g CH6	-20.22	3	-17.22	8	PASS
802.11g CH11	-15.01	3	-12.01	8	PASS
HT20 CH1	-18.94	3	-15.94	8	PASS
HT20 CH 6	-20.32	3	-17.32	8	PASS
HT20 CH 11	-15.12	3	-12.12	8	PASS

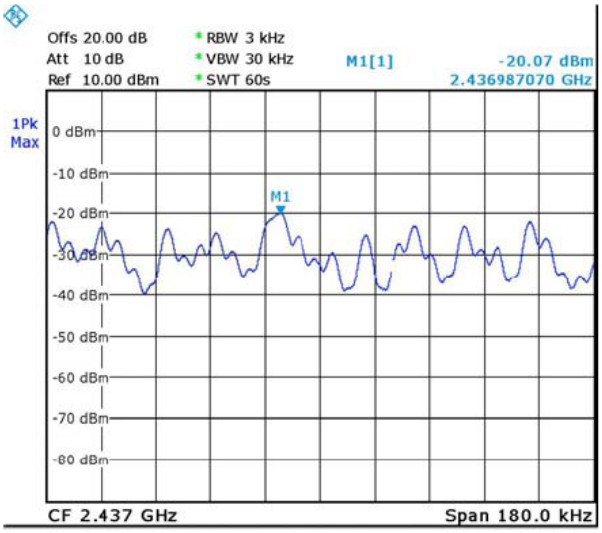
802.11b CH1 2412MHz



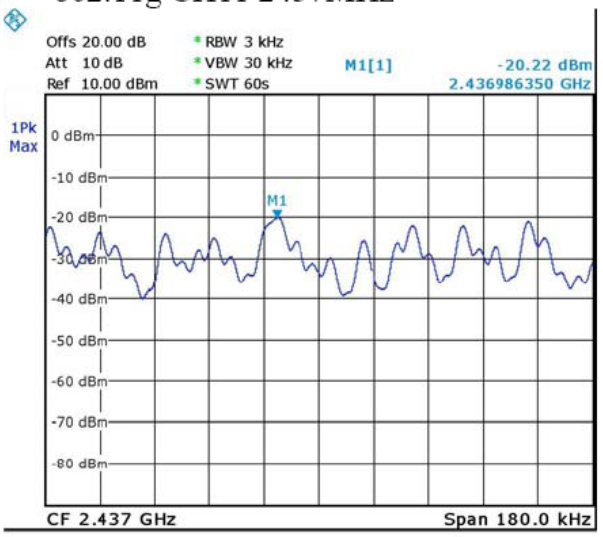
802.11g CH11 2412MHz



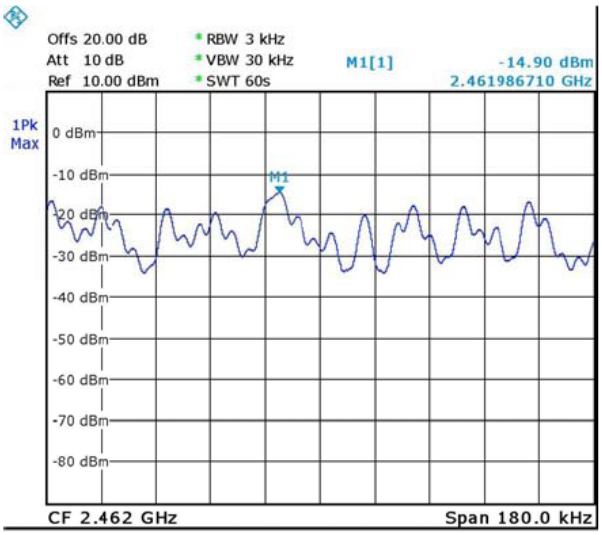
802.11b CH6 2437MHz



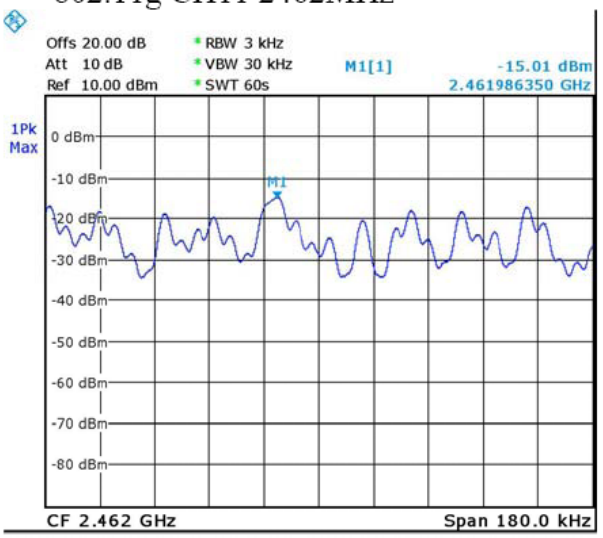
802.11g CH11 2437MHz



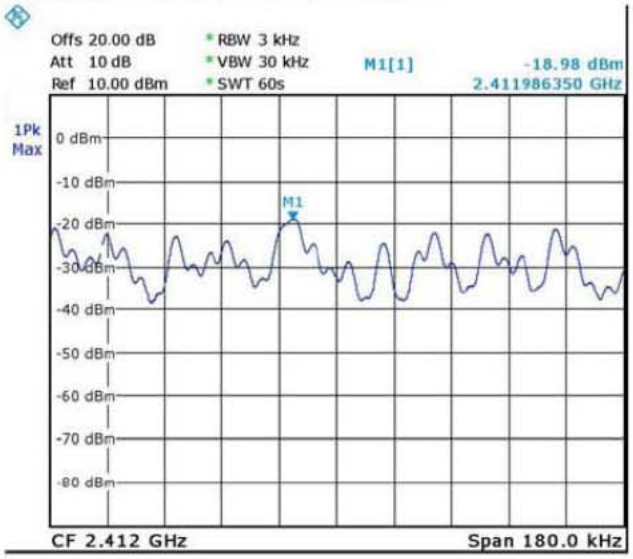
802.11b CH11 2462MHz



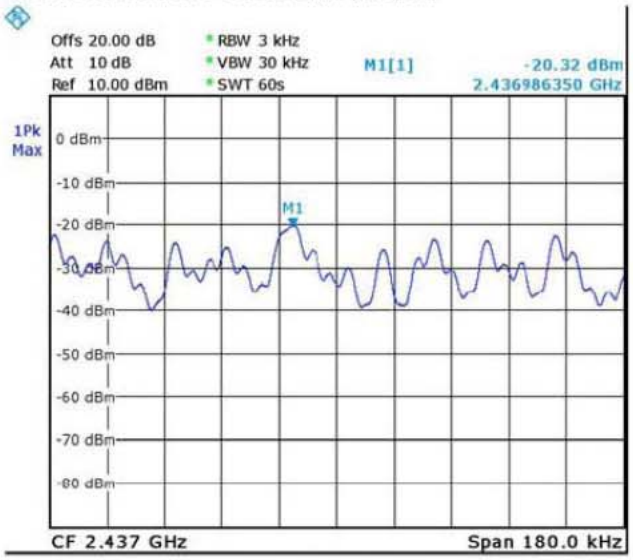
802.11g CH11 2462MHz



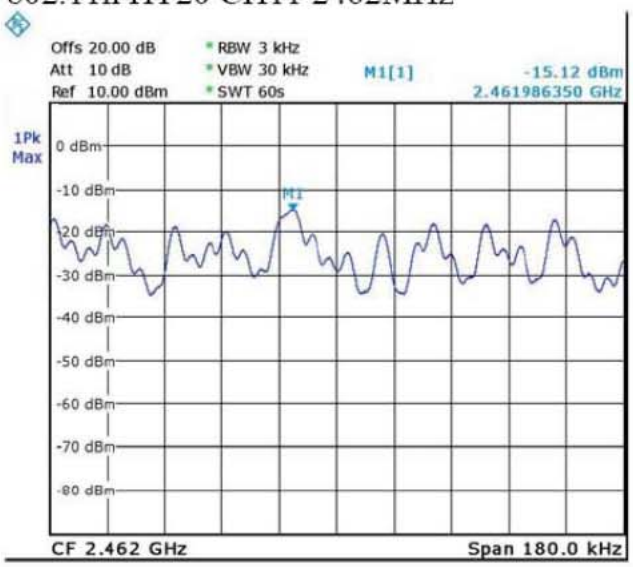
802.11n HT20 CH1 2412MHz



802.11n HT20 CH6 2437MHz

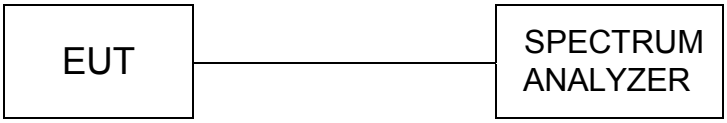


802.11n HT20 CH11 2462MHz



4.7. Spurious RF Conducted Emission

TEST CONFIGURATION



TEST PROCEDURE

The Spurious RF conducted emissions compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10-2009 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW=100kHz and VBM= 300KHz to measure the peak field strength , and measure frequeny range from 30MHz to 26.5GHz.

LIMIT

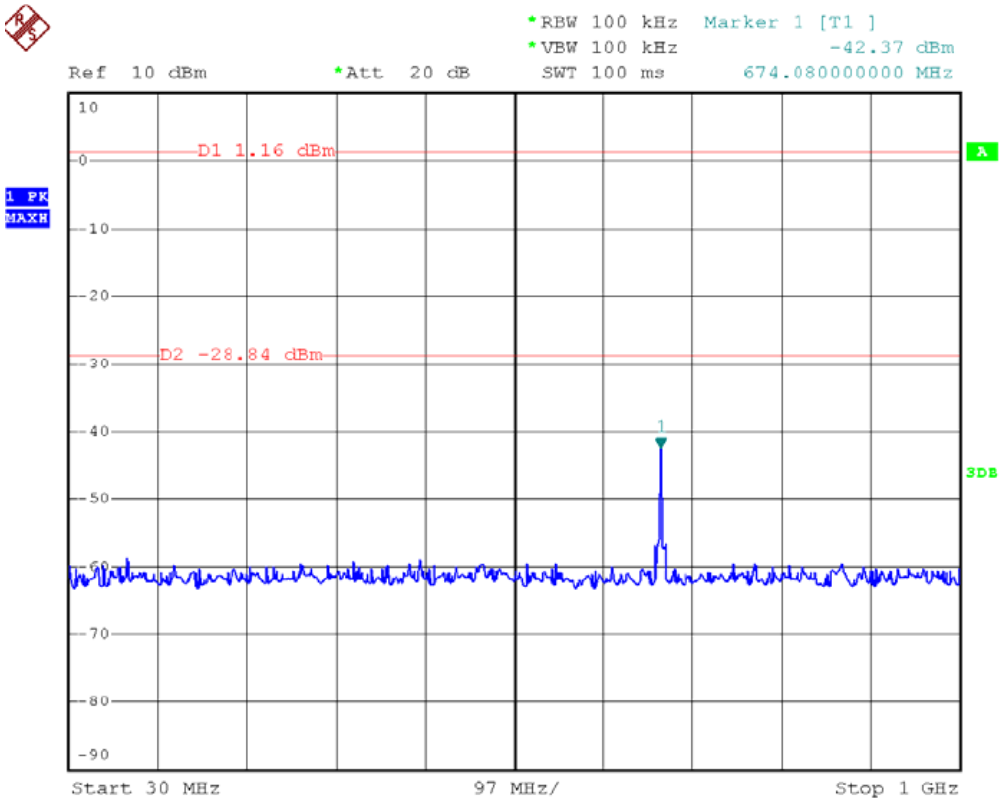
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

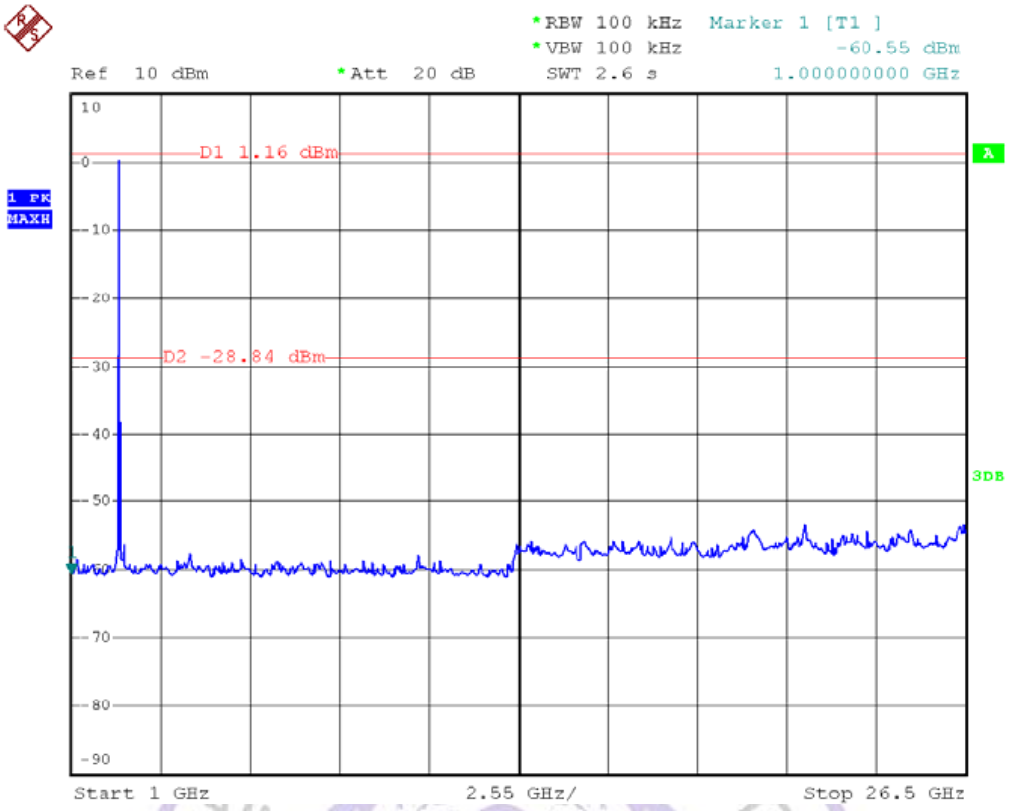
TEST RESULTS

Photos of Spurious RF Conducted Emission Measurement

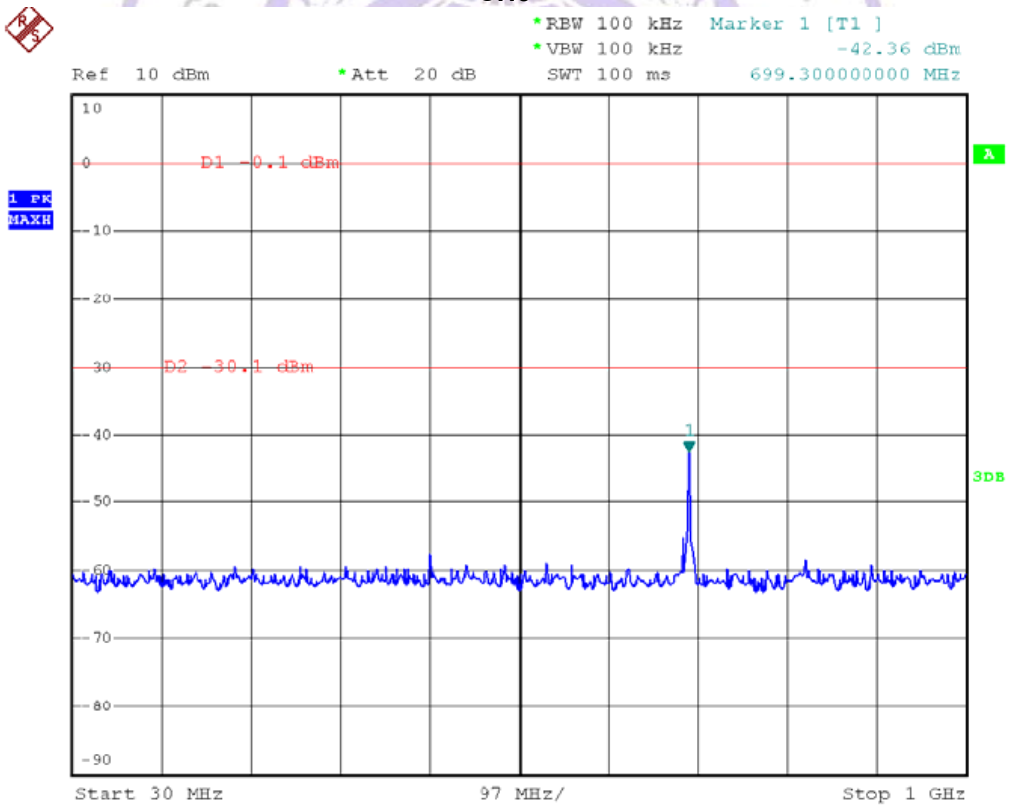
For 802.11b Mode:

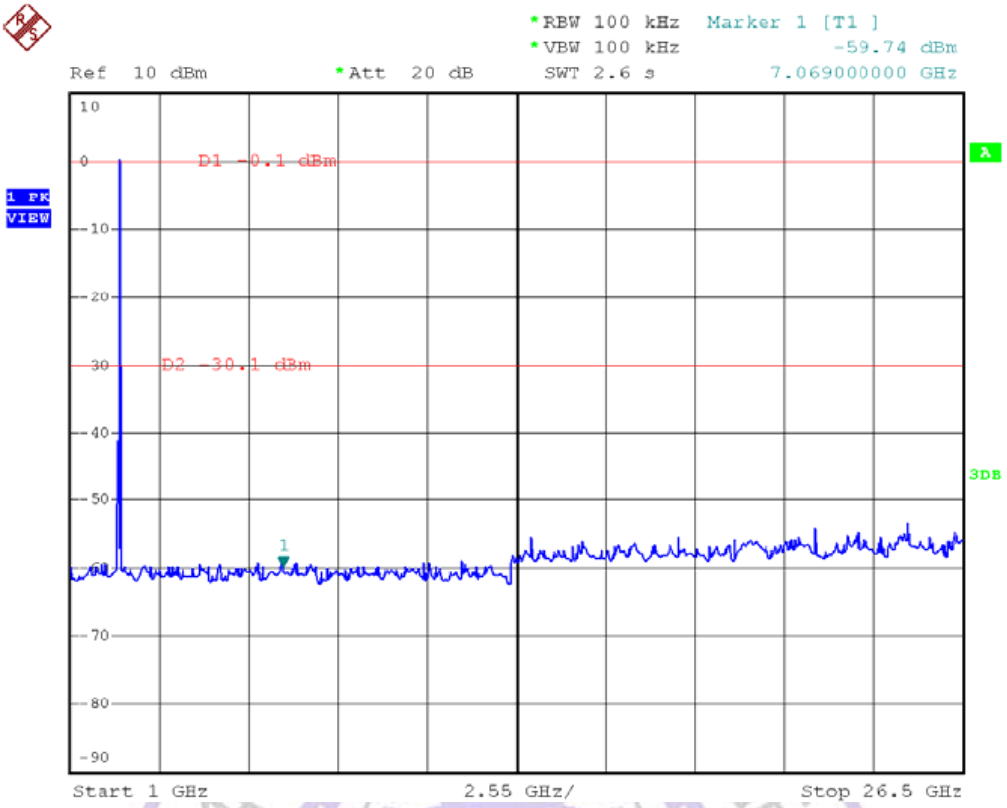
CH1



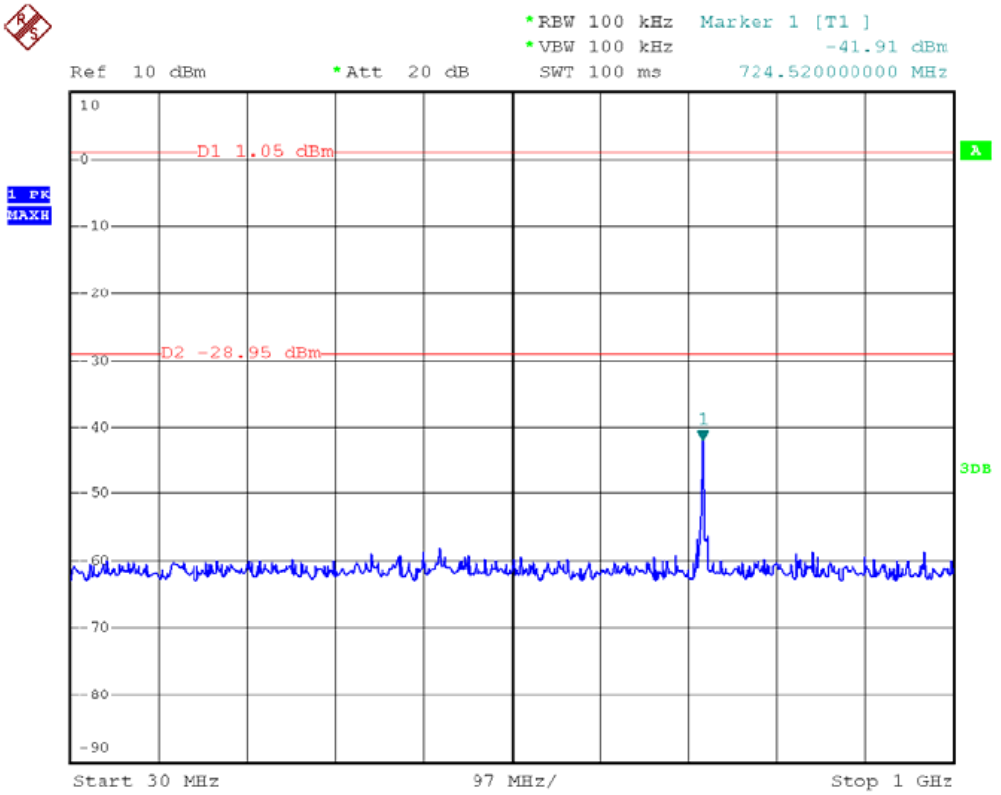

*RBW 100 kHz
Marker 1 [T1]
*VBW 100 kHz
-60.55 dBm
Ref 10 dBm
*Att 20 dB
SWT 2.6 s
1.000000000 GHz
D1 1.16 dBm
D2 -28.84 dBm
1 PK MAXH
A
3DB
Start 1 GHz
2.55 GHz/
Stop 26.5 GHz

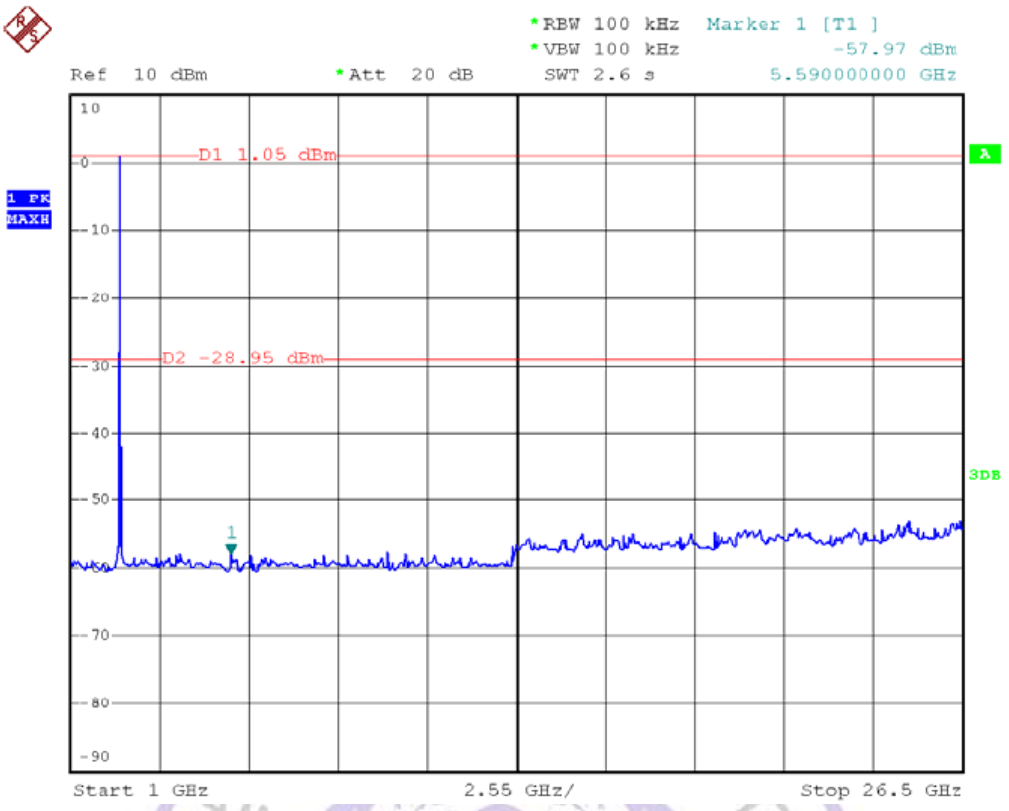
CH6


*RBW 100 kHz
Marker 1 [T1]
*VBW 100 kHz
-42.36 dBm
Ref 10 dBm
*Att 20 dB
SWT 100 ms
699.300000000 MHz
D1 -0.1 dBm
D2 -30.1 dBm
1 PK MAXH
A
3DB
Start 30 MHz
97 MHz/
Stop 1 GHz


*RBW 100 kHz
Marker 1 [T1]
*VBW 100 kHz
-59.74 dBm
Ref 10 dBm
*Att 20 dB
SWT 2.6 s
7.069000000 GHz
1 PK
VIEW
D1 -0.1 dBm
D2 -30.1 dBm
A
3DB
Start 1 GHz
2.55 GHz/
Stop 26.5 GHz

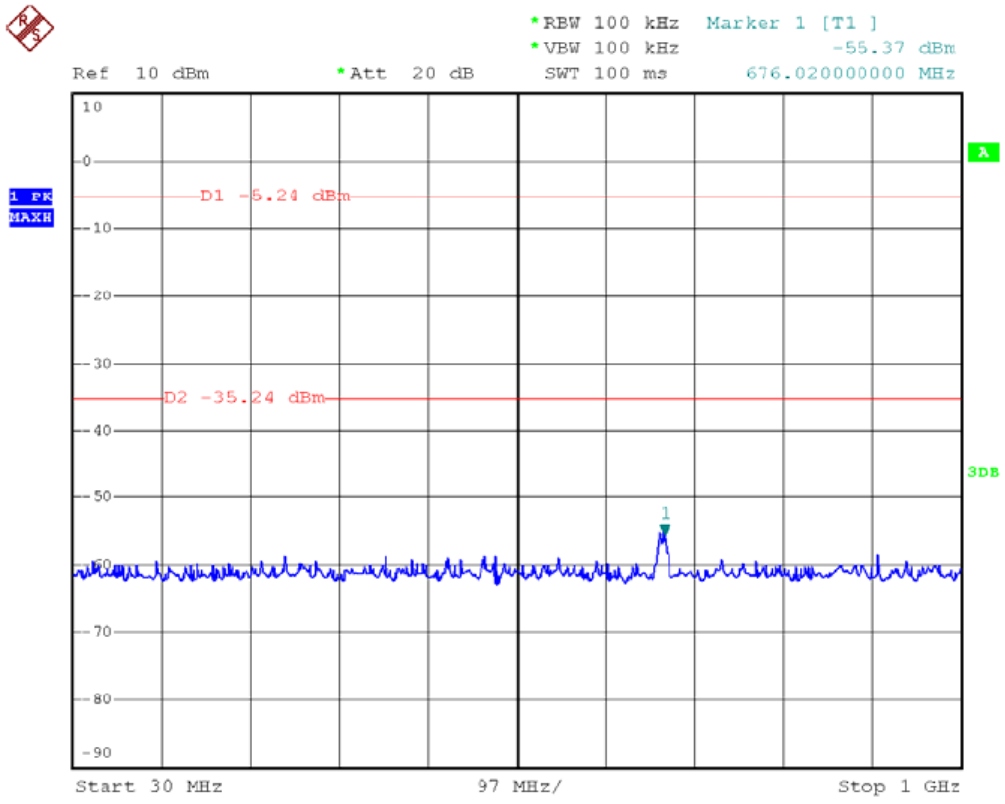
CH11

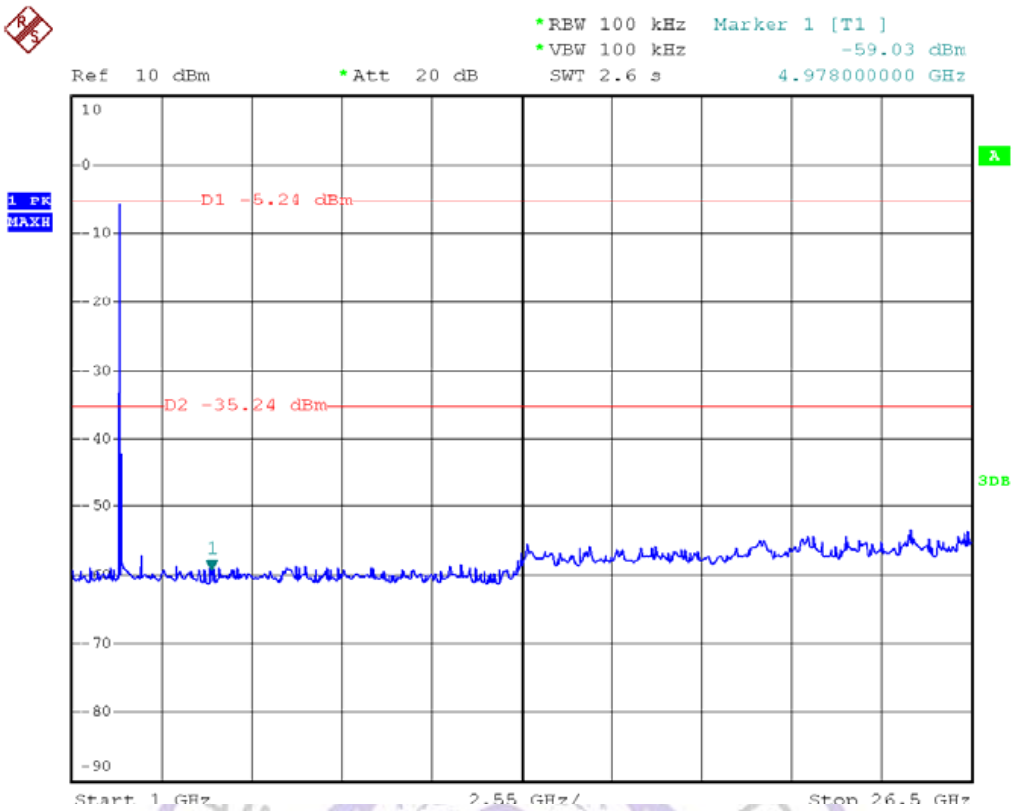

*RBW 100 kHz
Marker 1 [T1]
*VBW 100 kHz
-41.91 dBm
Ref 10 dBm
*Att 20 dB
SWT 100 ms
724.520000000 MHz
1 PK
MAXH
D1 1.05 dBm
D2 -28.95 dBm
A
3DB
Start 30 MHz
97 MHz/
Stop 1 GHz



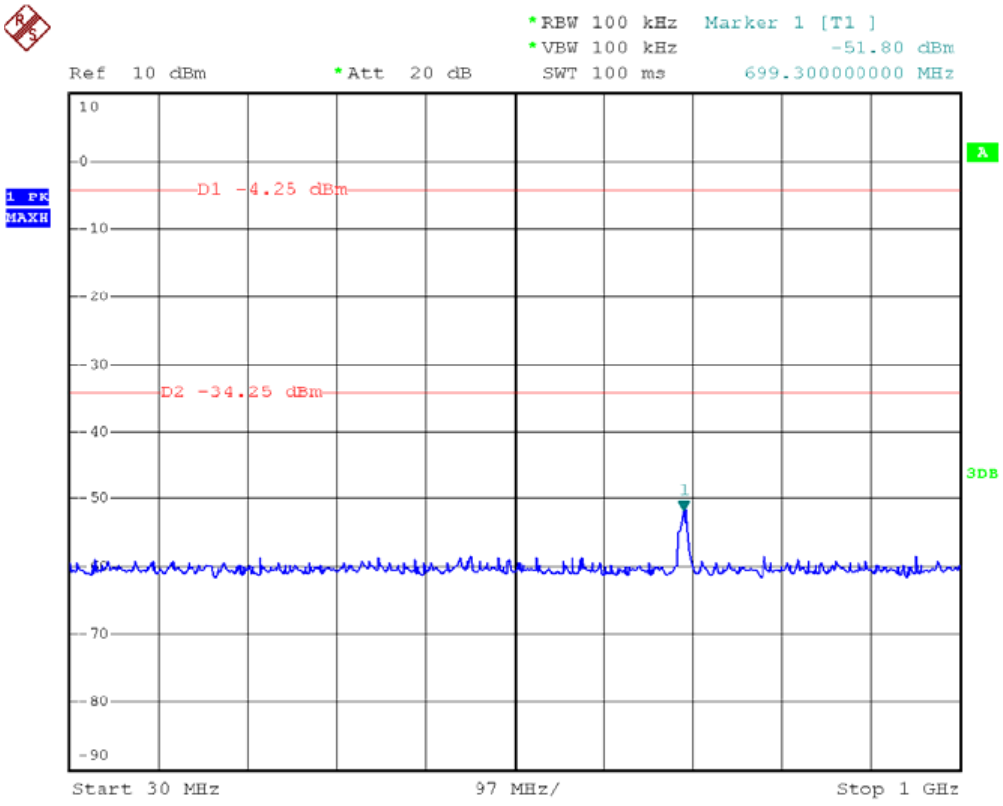
For 802.11g Mode:

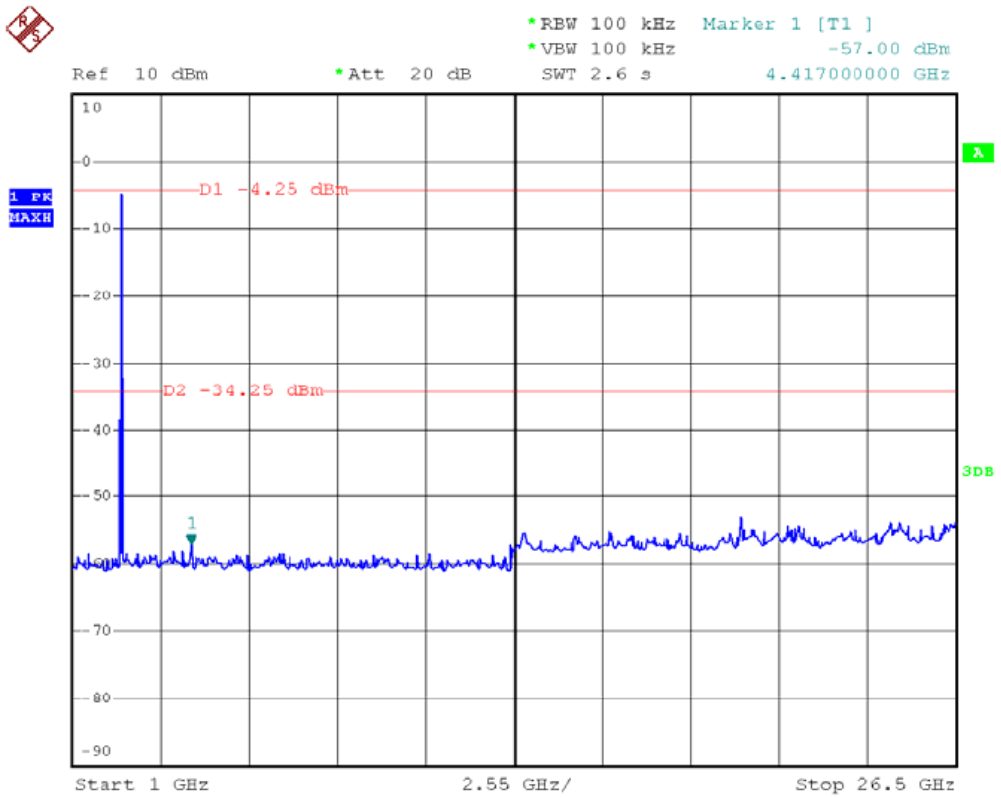
CH1



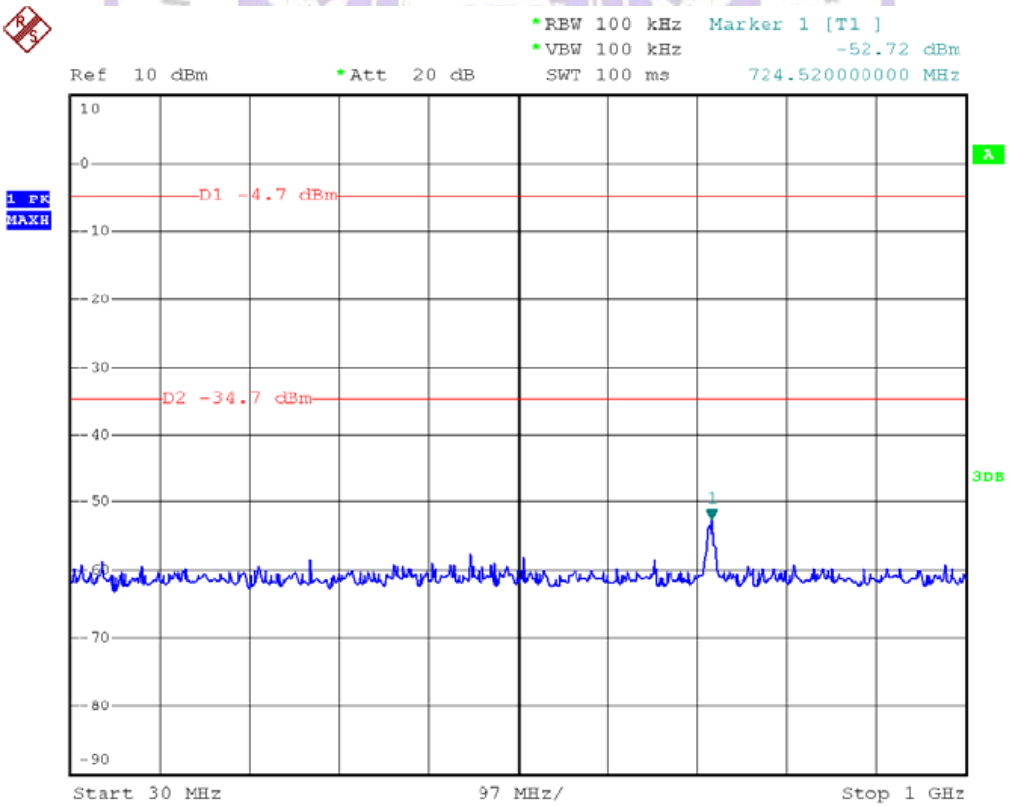

*RBW 100 kHz
Marker 1 [T1]
*VBW 100 kHz
-59.03 dBm
Ref 10 dBm
*Att 20 dB
SWT 2.6 s
4.978000000 GHz
1 PK MAXH
D1 -5.24 dBm
D2 -35.24 dBm
A
3DB
Start 1 GHz
2.55 GHz/
Stop 26.5 GHz

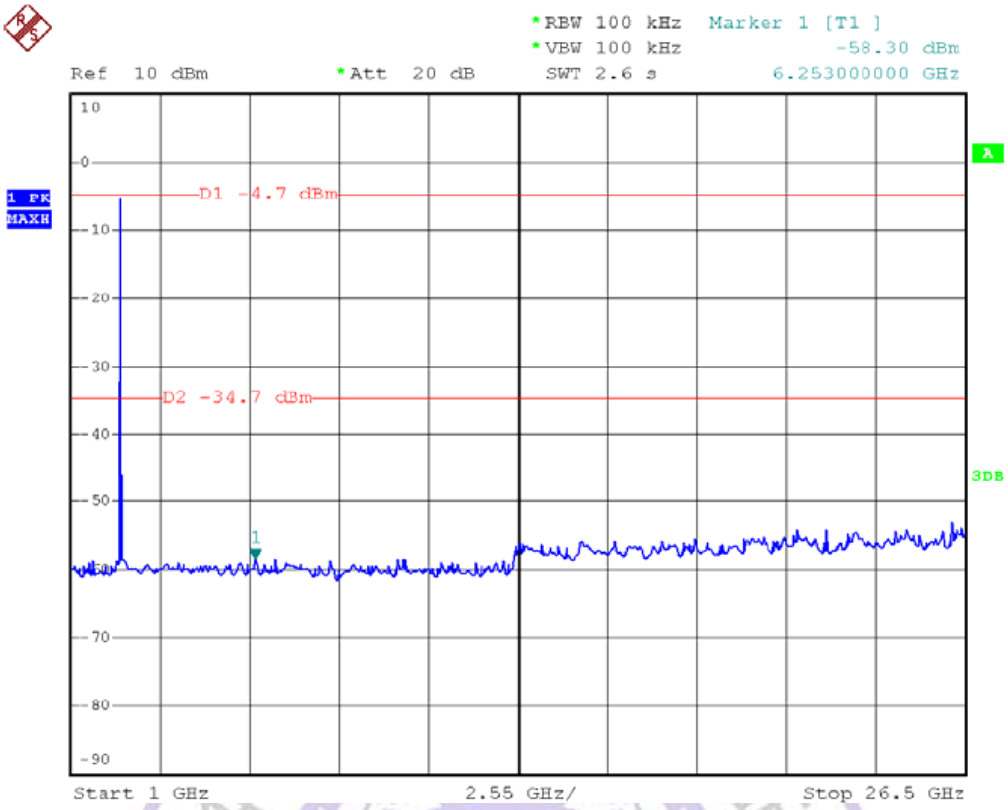
CH6


*RBW 100 kHz
Marker 1 [T1]
*VBW 100 kHz
-51.80 dBm
Ref 10 dBm
*Att 20 dB
SWT 100 ms
699.300000000 MHz
1 PK MAXH
D1 -4.25 dBm
D2 -34.25 dBm
A
3DB
Start 30 MHz
97 MHz/
Stop 1 GHz


*RBW 100 kHz
Marker 1 [T1]
*VBW 100 kHz
-57.00 dBm
Ref 10 dBm
*Att 20 dB
SWT 2.6 s
4.417000000 GHz
1 PK MAXH
D1 -4.25 dBm
D2 -34.25 dBm
A
3DB
Start 1 GHz
2.55 GHz/
Stop 26.5 GHz

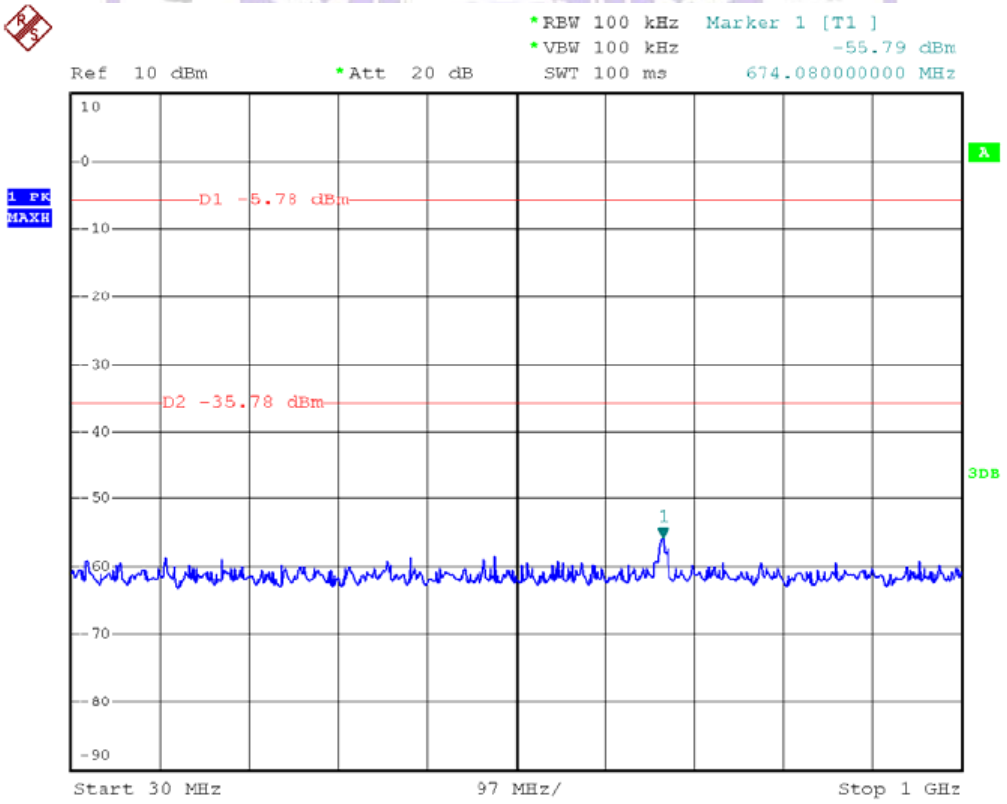
CH11

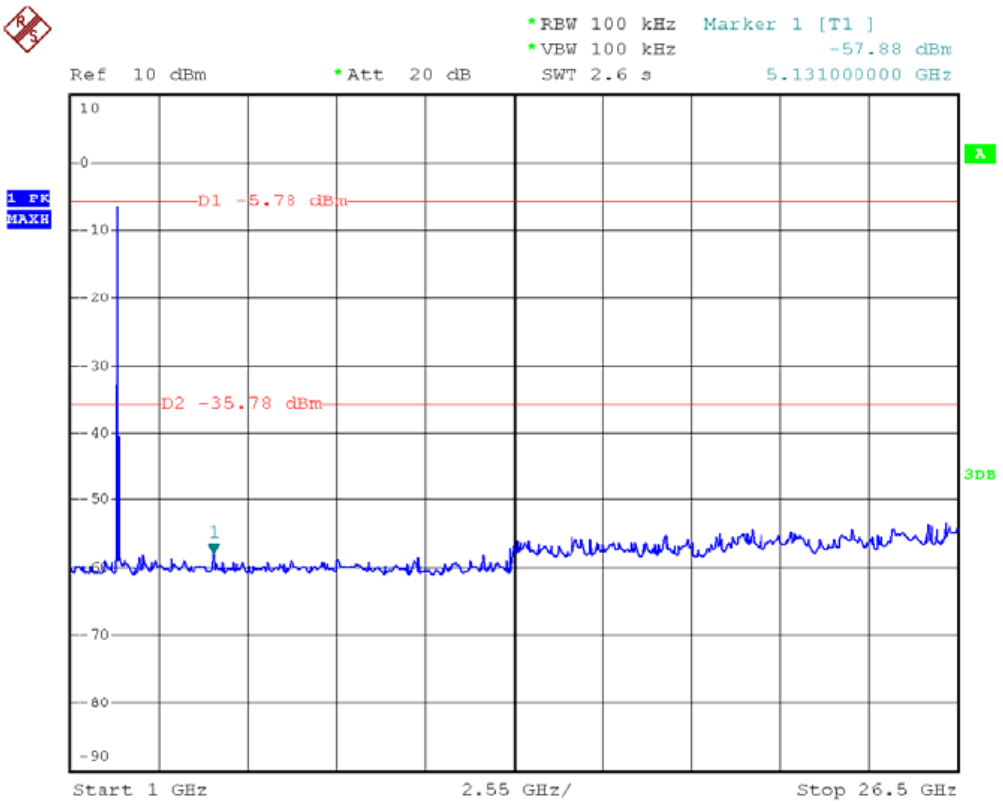

*RBW 100 kHz
Marker 1 [T1]
*VBW 100 kHz
-52.72 dBm
Ref 10 dBm
*Att 20 dB
SWT 100 ms
724.520000000 MHz
1 PK MAXH
D1 -4.7 dBm
D2 -34.7 dBm
A
3DB
Start 30 MHz
97 MHz/
Stop 1 GHz



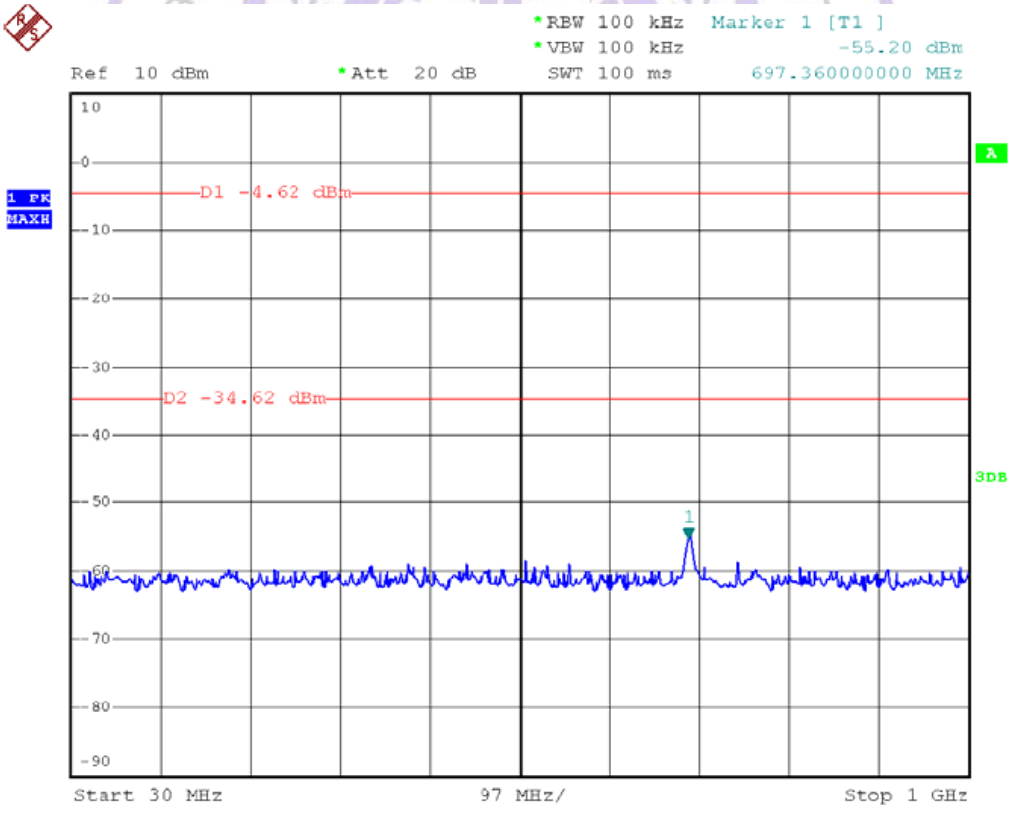
For 802.11n (20MHz) Mode:

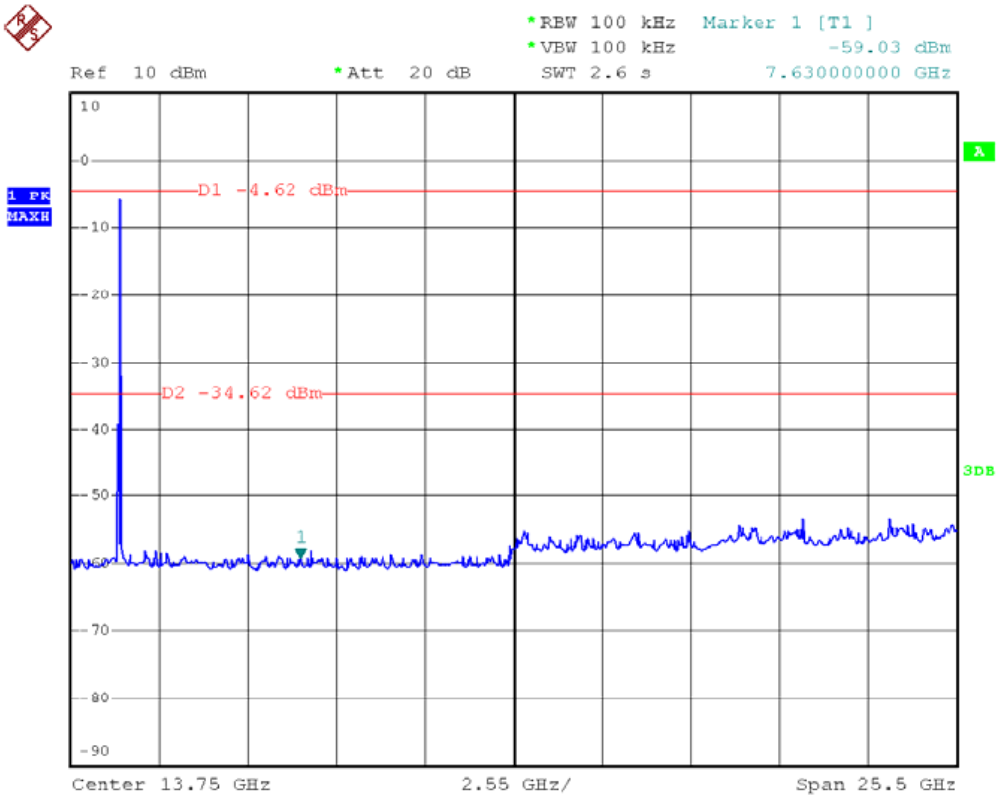
CH1



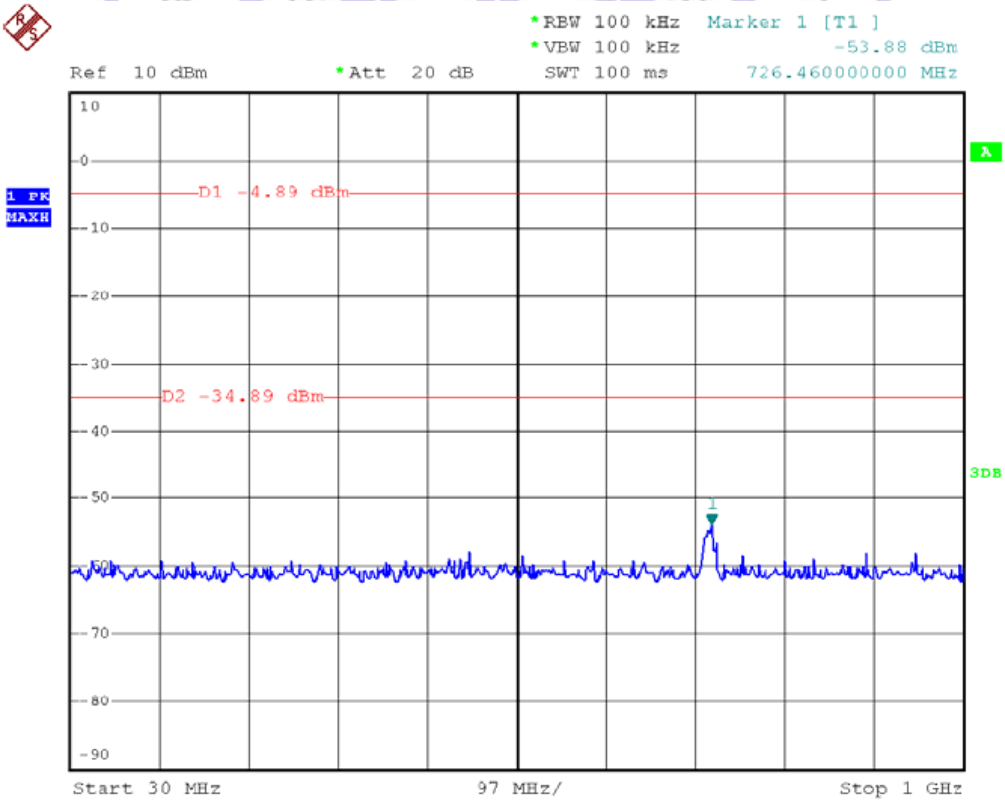

*RBW 100 kHz
Marker 1 [T1]
*VBW 100 kHz
-57.88 dBm
Ref 10 dBm
*Att 20 dB
SWT 2.6 s
5.131000000 GHz
1 PK MAXH
D1 -5.78 dBm
D2 -35.78 dBm
A
3DB
Start 1 GHz
2.55 GHz/
Stop 26.5 GHz

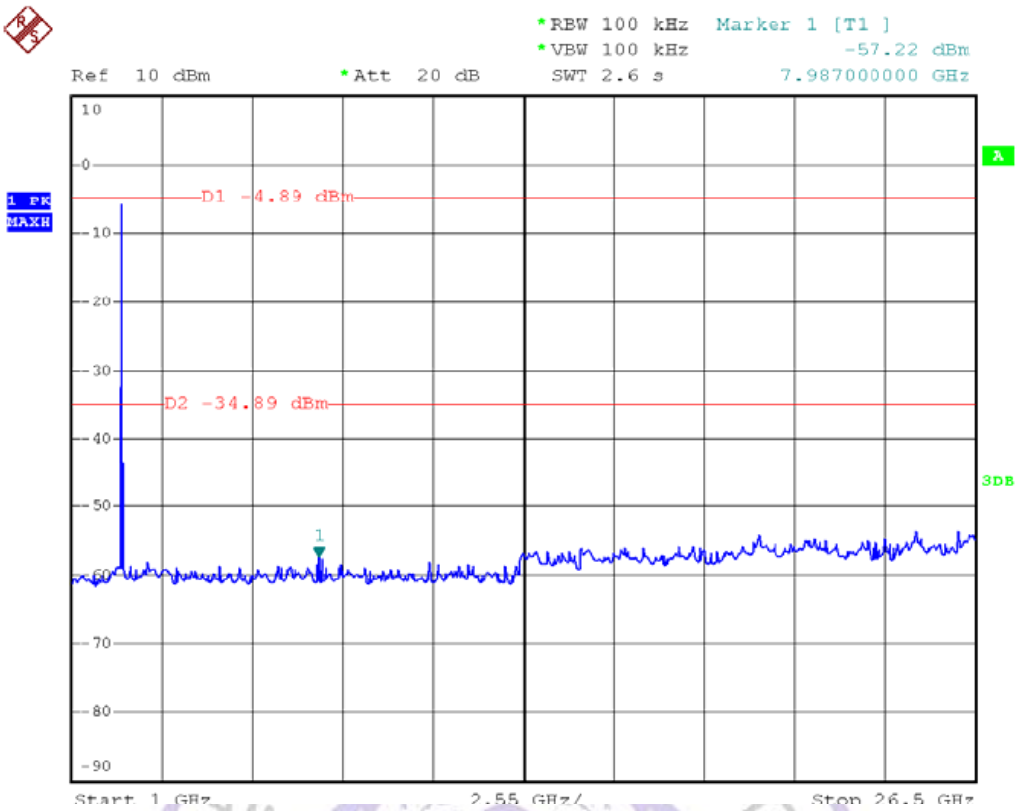
CH6


*RBW 100 kHz
Marker 1 [T1]
*VBW 100 kHz
-55.20 dBm
Ref 10 dBm
*Att 20 dB
SWT 100 ms
697.360000000 MHz
1 PK MAXH
D1 -4.62 dBm
D2 -34.62 dBm
A
3DB
Start 30 MHz
97 MHz/
Stop 1 GHz

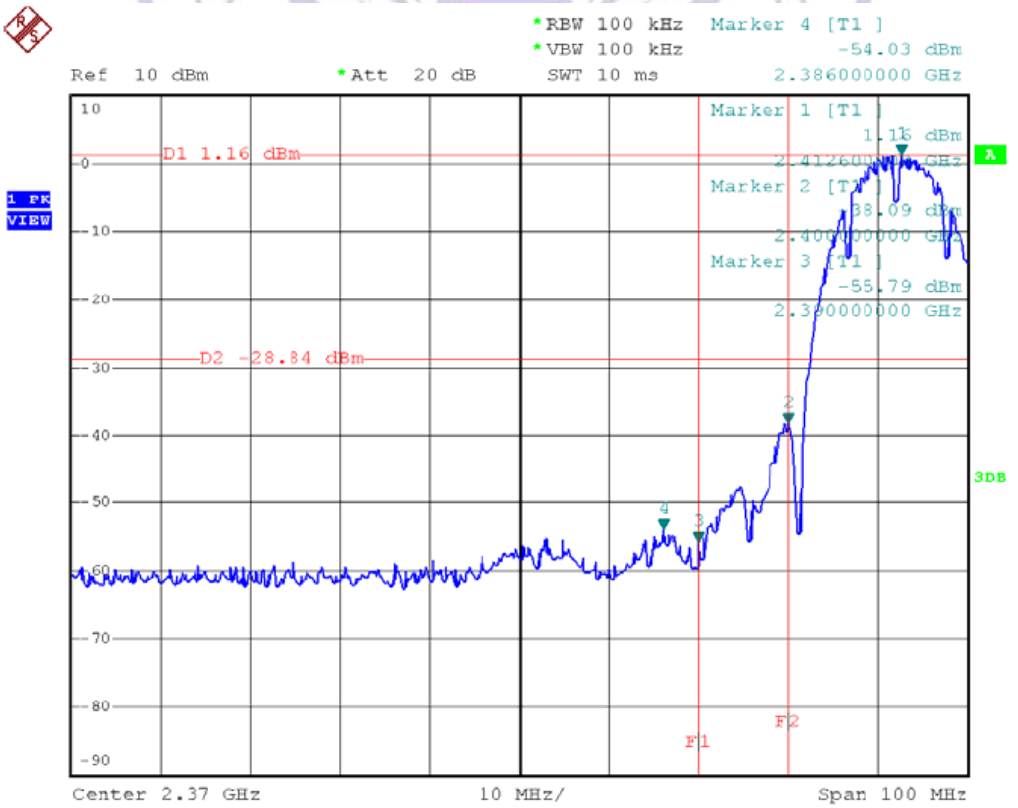

*RBW 100 kHz
Marker 1 [T1]
*VBW 100 kHz
-59.03 dBm
Ref 10 dBm
*Att 20 dB
SWT 2.6 s
7.630000000 GHz
1 PK MAXH
D1 -4.62 dBm
D2 -34.62 dBm
A
3DB
Center 13.75 GHz
2.55 GHz/
Span 25.5 GHz

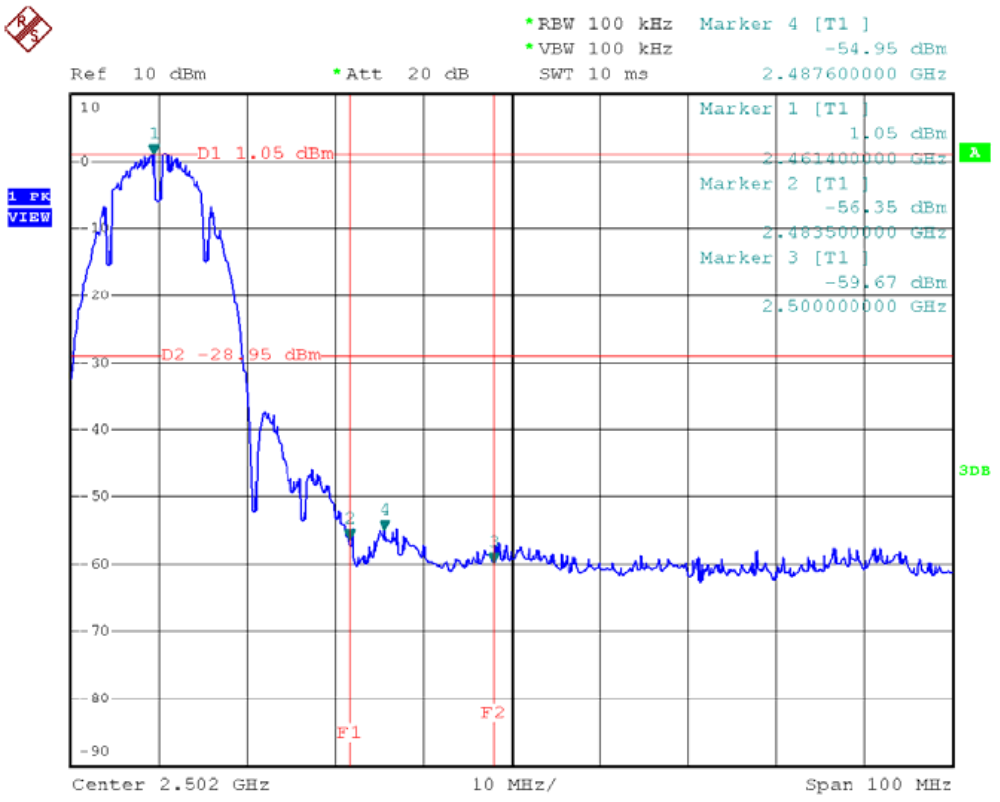
CH11


*RBW 100 kHz
Marker 1 [T1]
*VBW 100 kHz
-53.88 dBm
Ref 10 dBm
*Att 20 dB
SWT 100 ms
726.460000000 MHz
1 PK MAXH
D1 -4.89 dBm
D2 -34.89 dBm
A
3DB
Start 30 MHz
97 MHz/
Stop 1 GHz

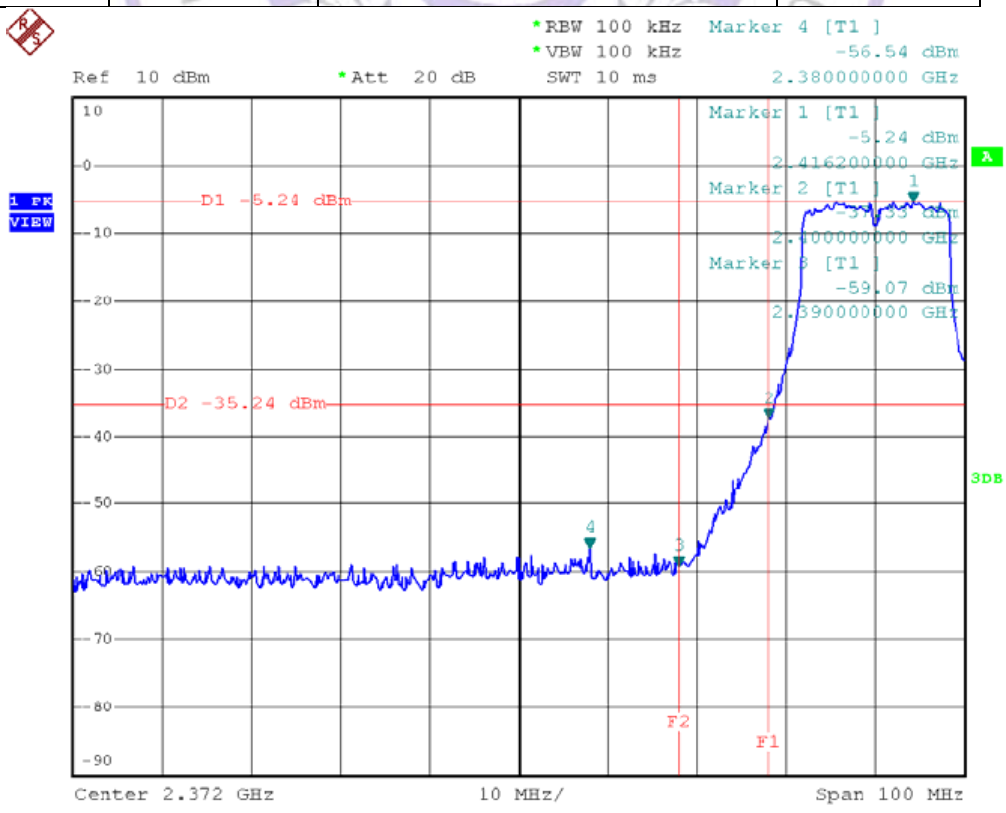


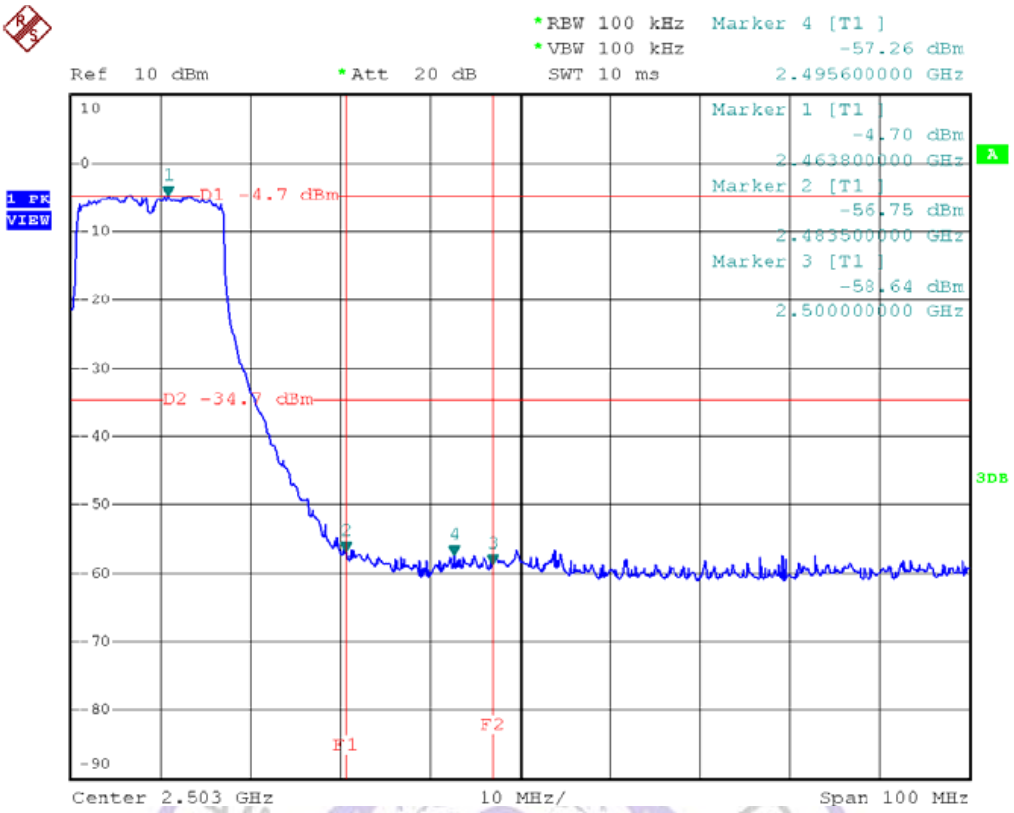
Test mode	Frequency	Delta peak to band emission	Limit(dBc)
802.11b	2400MHz	38.09	20
	2483.5MHz	56.35	20



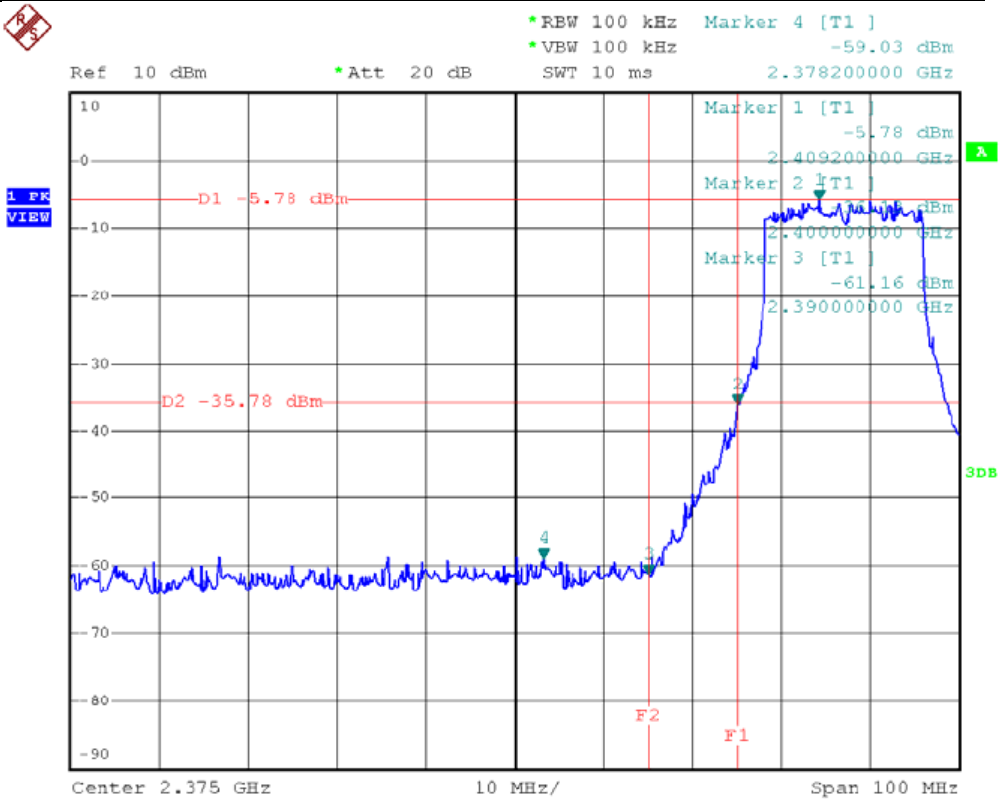


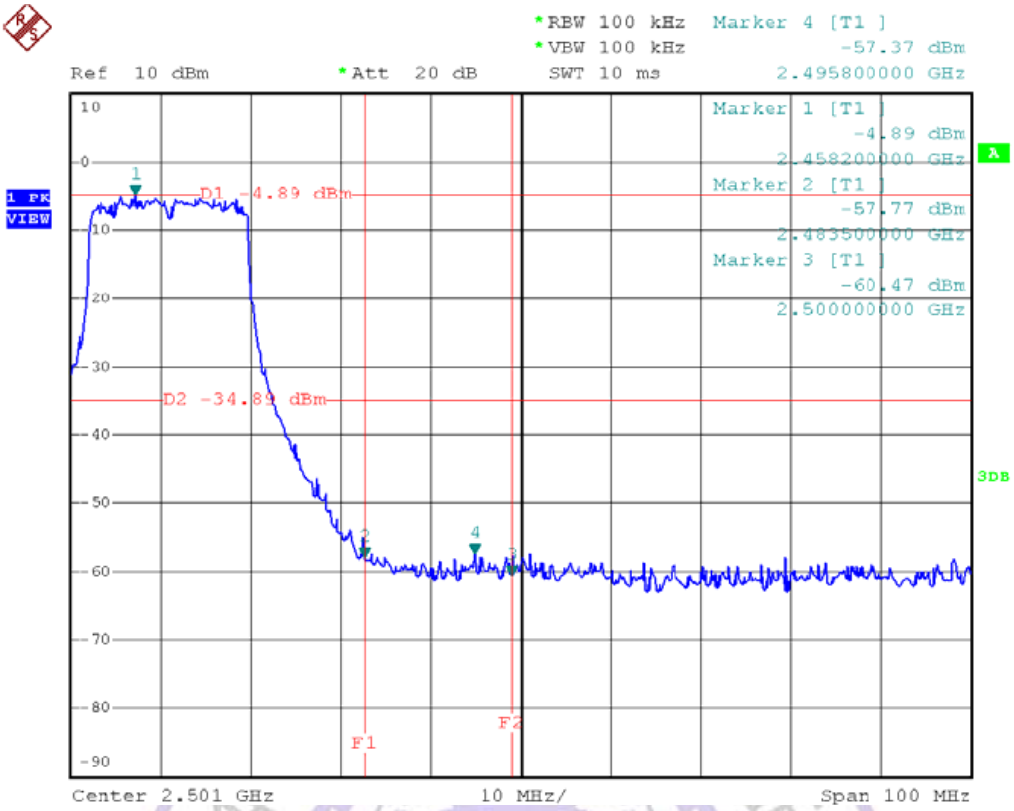
Test mode	Frequency	Delta peak to band emission	Limit(dBc)
802.11g	2400MHz	37.33	20
	2483.5MHz	56.75	20





Test mode	Frequency	Delta peak to band emission	Limit(dBc)
802.11N HT20M	2400MHz	36.18	20
	2483.5MHz	57.77	20





4.8. Antenna Requirement

STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (c), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

ANTENNA CONNECTED CONSTRUCTION

The directional gains of antenna used for transmitting is -1.0 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Please see EUT photo for details.

4.9. RF Exposure

STANDARD APPLICABLE

According to §1.1307 (b)(1), system operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a Portable device.

MEASUREMENT RESULTS

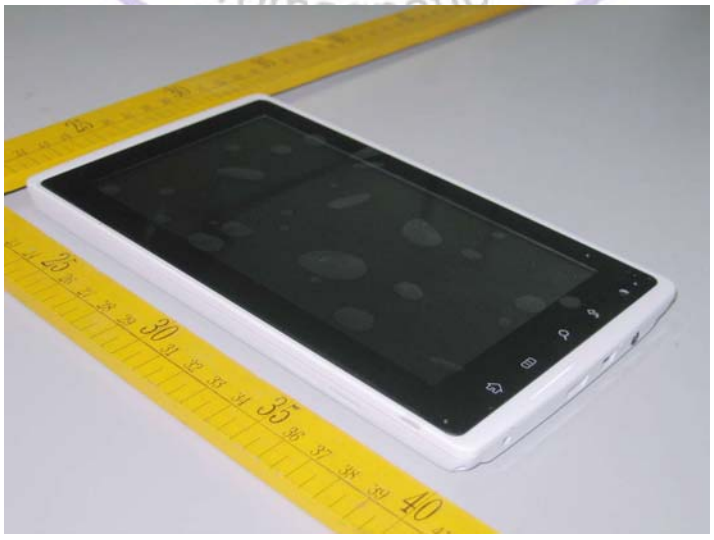
This is a portable device and the Max peak output power is 12.35dBm (17.18 mW) lower than low threshold 60/fGHz mW (24.48 mW), d＜2.5cm in general population category.

The SAR measurement is not necessary.

5. Test Setup Photos of the EUT

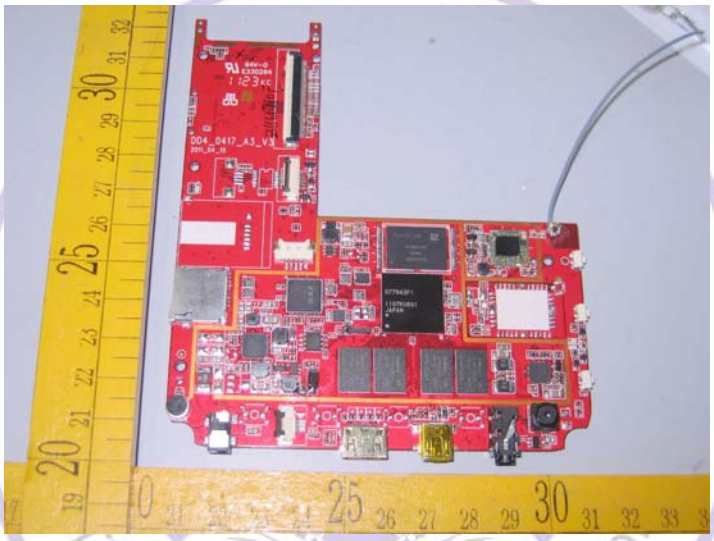
6. External and Internal Photos of the EUT

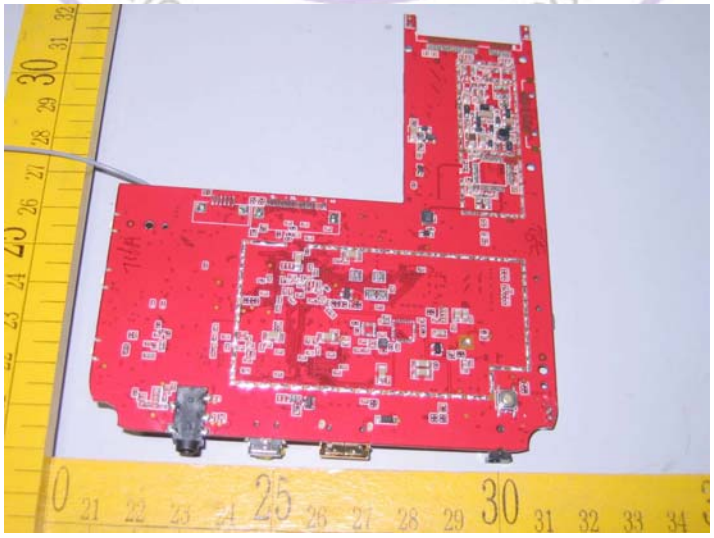
External Photos

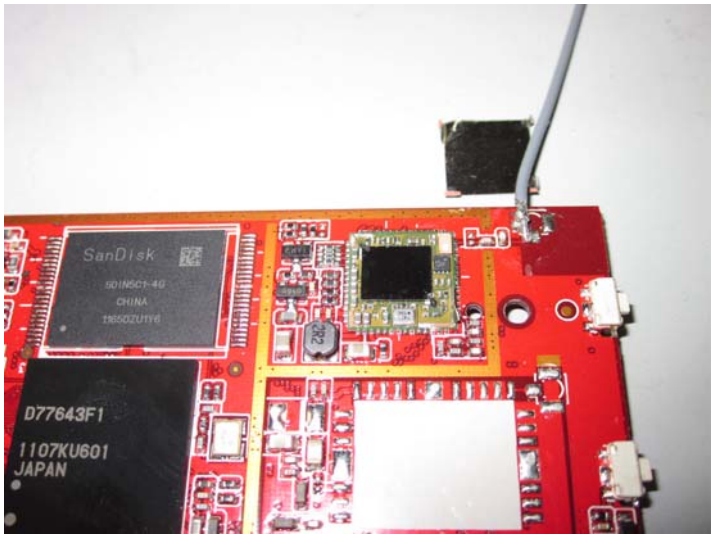



20
25
30
35
40

Internal Photos







.....End of Report.....