

# TEST REPORT

of

## FCC Part 15 Subpart C

New Application;  Class I PC;  Class II PC

**Product :** Dashcam  
**Brand:** Transcend  
**Model:** DrivePro 130, DrivePro 150  
**Model Difference:** The viewable angle is differed.  
**FCC ID:** A4Z-A0082  
**FCC Rule Part:** §15.247, Cat: DTS  
**Applicant:** Transcend Information Inc.  
**Address:** No.70, Xing Zhong Rd., NeiHu Dist., Taipei, Taiwan

**Test Performed by:**  
**International Standards Laboratory**

<Lung-Tan LAB>

\*Site Registration No.

BSMI: SL2-IN-E-0013; MRA TW1036; TAF: 0997; IC: IC4067B-3;

\*Address:

No. 120, Lane 180, Hsin Ho Rd.

Lung-Tan Dist., Tao Yuan City 325, Taiwan

\*Tel : 886-3-407-1718; Fax: 886-3-407-1738

**Report No.: ISL-17LR104FC**

**Issue Date : 2017/05/19**

Test results given in this report apply only to the specific sample(s) tested and are traceable to national or international standard through calibration of the equipment and evaluating measurement uncertainty herein.

This report MUST not be used to claim product endorsement by TAF, NVLAP or any agency of the Government.

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## VERIFICATION OF COMPLIANCE

**Applicant:** Transcend Information Inc.  
**Product Description:** Dashcam  
**Brand Name:** Transcend  
**Model No.:** DrivePro 130, DrivePro 150  
**Model Difference:** The viewable angle is differed.  
**FCC ID:** A4Z-A0082  
**Date of test:** 2017/04/29 ~ 2017/05/17  
**Date of EUT Received:** 2017/04/29

### We hereby certify that:

All the tests in this report have been performed and recorded in accordance with the standards described above and performed by an independent electromagnetic compatibility consultant, International Standards Laboratory.

The test results contained in this report accurately represent the measurements of the characteristics and the energy generated by sample equipment under test at the time of the test. The sample equipment tested as described in this report is in compliance with the limits of above standards.

<b>Test By:</b>	 _____ <i>Dion Chang / Engineer</i>	<b>Date:</b>	2017/05/19 _____
<b>Prepared By:</b>	 _____ <i>Gigi Yeh / Engineer</i>	<b>Date:</b>	2017/05/19 _____
<b>Approved By:</b>	 _____ <i>Vincent Su / Technical Manager</i>	<b>Date:</b>	2017/05/19 _____

## Version

Version No.	Date	Description
00	2017/05/19	Initial creation of document

## Uncertainty of Measurement

Description Of Test	Uncertainty
Conducted Emission (AC power line)	2.586 dB
Field Strength of Spurious Radiation	<=30MHz: 2.96dB 30-1GHz: 4.22 dB 1-40 GHz: 4.08 dB
Conducted Power	2.412 GHz: 1.30 dB 5.805 GHz: 1.55 dB
Power Density	2.412 GHz:1.30 dB 5.805 GHz: 1.67 dB
Frequency	0.0032%
Time	0.01%
DC Voltage	1%

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## 1 GENERAL INFORMATION

General:

Product Name:	Dashcam	
Brand Name:	Transcend	
Model Name:	DrivePro 130, DrivePro 150	
Model Difference:	The viewable angle is differed.	
Micro USB	One provided for data link / charging function	
Micro SD Slot	One provided	
Power Supply	3.7Vdc from rechargeable battery or 5 Vdc from car charger	
	Car charger	Common ID CLA 5V1A INPUT:DC10-30V, 1A(Max) OUTPUT:DC4.6-5.25V,1A
	Li-on battery	552535 DC3.7V, 1.59Wh

WLAN: 1TX/1RX

Frequency Range:	802.11b/g/n HT20: 2412 – 2462MHz 802.11n HT40: 2422 – 2452MHz
Channel number:	802.11b/g/n HT20: 11 channels 802.11n HT40: 7 channels
Transmit Power:	802.11b: 15.86dBm Peak 802.11g: 23.35dBm Peak 802.11n HT20: 22.67dBm Peak 802.11n HT40: 22.65dBm Peak
Modulation Technology	11b: DSSS 11g/n: OFDM
Power Tolerance	+/- 1 dB
Modulation type:	CCK, DQPSK, DBPSK for DSSS 256QAM.64QAM. 16QAM, QPSK, BPSK for OFDM
Antenna Designation:	Fixed Chip antenna -1.98 dBi

The EUT is compliance with IEEE 802.11 b/g/n Standard.

### 1.1 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: A4Z-A0082 filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

### 1.2 Test Methodology

Both conducted and radiated testing were performed according to the procedures in, ANSI C63.10: 2013. Radiated testing was performed at an antenna to EUT distance 3 meters.

KDB Document: 558074 D01 DTS Meas Guidance v03r05

### 1.3 Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of **International Standards Laboratory** <Lung-Tan LAB> No. 120, Lane 180, Hsin Ho Rd., Lung-Tan Dist., Tao Yuan City 325, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.10: 2013. FCC Registration Number is: 872200; Designation Number is: TW1036, Canada Registration Number: 4067B-3.

### 1.4 Special Accessories

Not available for this EUT intended for grant.

### 1.5 Equipment Modifications

Not available for this EUT intended for grant.



## **2 SYSTEM TEST CONFIGURATION**

### **2.1 EUT Configuration**

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

### **2.2 EUT Exercise**

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.

### **2.3 Test Procedure**

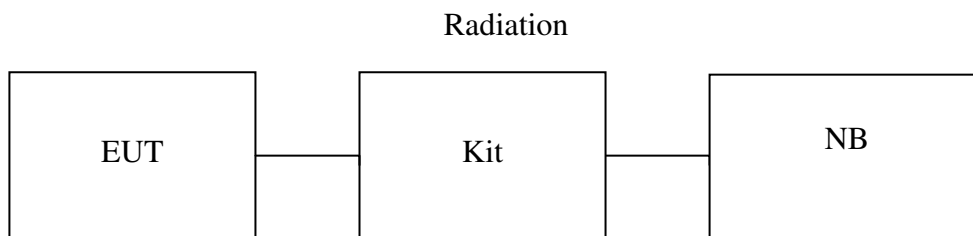
#### **2.3.1 Conducted Emissions**

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 6 of ANSI C63.10: 2013. Con-ducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR 16-1-1 Quasi-Peak and Average detector mode.

#### **2.3.2 Radiated Emissions**

The EUT is a placed on as turn table which is 0.8 m/1.5m(Frequency above 1GHz) above ground plane. The turn table shall rotate 360 degrees to determine the position of maxi-mum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 6 and 11 of ANSI C63.10: 2013.

## 2.4 Configuration of Tested System



**Table 1 Equipment Used in Tested System**

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1	Kit	NA	NA	NA	NA	NA
2	NB	HP	440i	NA	Non-shielding	Non-shielding

### 3 SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
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## 5 CONDUCTED EMISSION TEST

### 5.1 Standard Applicable:

According to §15.207, frequency range within 150KHz to 30MHz shall not exceed the Limit table as below.

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Note

- The lower limit shall apply at the transition frequencies
- The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

### 5.2 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Conduction 04-3 Cable	WOKEN	CFD 300-NL	Conduction 04-3	09/12/2016	09/11/2017
EMI Receiver 16	Rohde & Schwarz	ESCI	101221	10/24/2016	10/23/2017
LISN 18	ROHDE & SCHWARZ	ENV216	101424	02/05/2017	02/04/2018
LISN 19	ROHDE & SCHWARZ	ENV216	101425	03/07/2017	03/06/2018
Test Software	Farad	EZEMC Ver:ISL-03A2	N/A	N/A	N/A

### 5.3 EUT Setup:

- The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10: 2013.
- The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
- The LISN was connected with 120Vac/60Hz power source.

#### **5.4 Measurement Procedure:**

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

#### **5.5 Measurement Result:**

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Note: Refer to next page for measurement data and plots.

## AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Normal Operation	Test Date:	2017/05/16
Test By:	Lake		

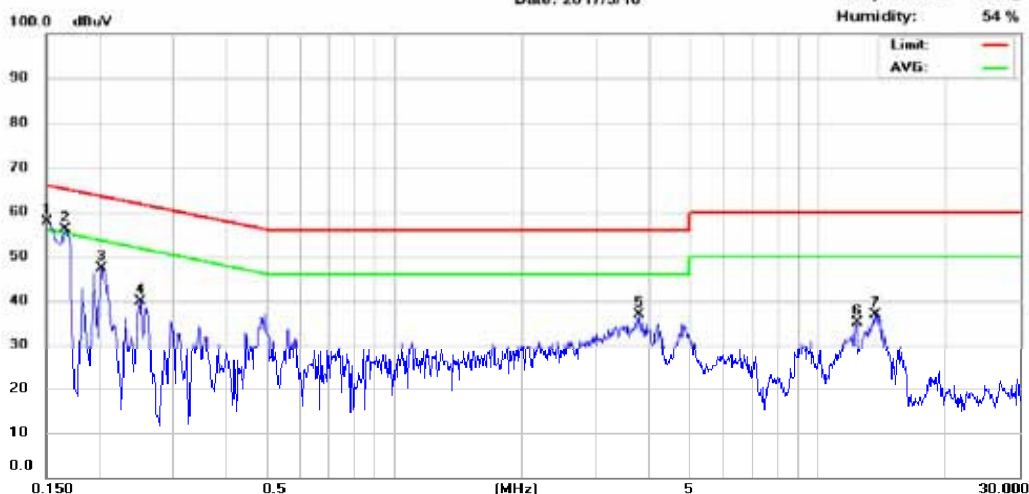


Address: No. 120, Lane 180, Hsin Ho Rd., Lung-Tan Dist.,  
Tao Yuan City 325, Taiwan.  
Tel: 03-4071718

### Conducted Emission Measurement

Date: 2017/5/16

operator: Lawrence  
Temperature: 26 °C  
Humidity: 54 %



Site: Conduction 04

Phase: L1

Limit: CISPR22 Class B Conduction(QP)

No.	Frequency (MHz)	QP_R (dBuV)	AVG_R (dBuV)	Correct Factor (dB)	QP Emission (dBuV)	QP Limit (dBuV)	QP Margin (dB)	AVG Emission (dBuV)	AVG Limit (dBuV)	AVG Margin (dB)
1	0.150	44.39	28.39	9.69	54.08	66.00	-11.92	38.08	56.00	-17.92
2	0.166	37.10	11.67	9.69	46.79	65.16	-18.37	21.36	55.16	-33.80
3	0.202	32.04	11.59	9.69	41.73	63.53	-21.80	21.28	53.53	-32.25
4	0.250	25.37	6.22	9.69	35.06	61.76	-26.70	15.91	51.76	-35.85
5	3.786	20.07	13.05	9.81	29.88	56.00	-26.12	22.86	46.00	-23.14
6	12.362	14.34	8.15	9.97	24.31	60.00	-35.69	18.12	50.00	-31.88
7	13.694	22.18	15.74	9.99	32.17	60.00	-27.83	25.73	50.00	-24.27



## **6 PEAK OUTPUT POWER/ERIP MEASUREMENT**

### **6.1 Standard Applicable:**

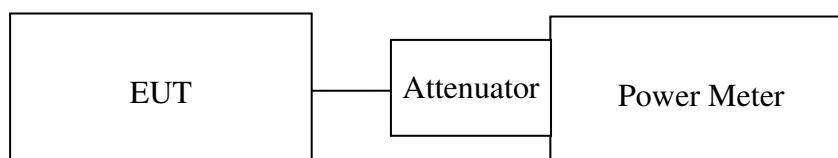
According to



**6.2 Measurement Equipment Used:**

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Power Meter 05	Anritsu	ML2495A	1116010	07/28/2016	07/27/2017
Power Sensor 05	Anritsu	MA2411B	34NKF50	07/28/2016	07/27/2017
Power Sensor 06	DARE	RPR3006W	13I00030SNO3 3	11/03/2016	11/02/2017
Power Sensor 07	DARE	RPR3006W	13I00030SNO3 4	11/03/2016	11/02/2017
Temperature Chamber	KSON	THS-B4H100	2287	06/28/2016	06/27/2017
DC Power supply	ABM	8185D	N/A	10/06/2016	10/05/2017
AC Power supply	EXTECH	CFC105W	NA	12/25/2016	12/24/2017
Attenuator	Woken	Watt-65m3502	11051601	NA	NA
Splitter	MCLI	PS4-199	12465	12/26/2015	12/25/2017
Spectrum analyzer	keysight	N9010A	MY56070257	05/31/2016	05/30/2017
Spectrum analyzer	R&S	FSP40	100143	08/07/2016	08/06/2017
Test Software	DARE	Radimation Ver:2013.1.23	NA	NA	NA

**6.3 Test Set-up:**



**6.4 Measurement Procedure:**

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter
3. Record the max. reading.
4. Repeat above procedures until all frequency measured were complete.

**6.5 Measurement Result:**

802.11b

Cable loss = 0	Output Power Detector		Limit
CH	PK	AV	(dBm)
	(dBm)	(dBm)	

## **7 6dB Bandwidth**

### **7.1 Standard Applicable:**

According to

7.5 Measurement Result:

802.11b

CH	Bandwidth (MHz)	Bandwidth (KHz)	Result
Low	10.08	> 500	PASS
Mid	10.08	> 500	PASS
High	10.02	> 500	PASS

802.11g

CH	Bandwidth (MHz)	Bandwidth (KHz)	Result
Low	16.56	> 500	PASS
Mid	16.62	> 500	PASS
High	16.62	> 500	PASS

802.11n HT20

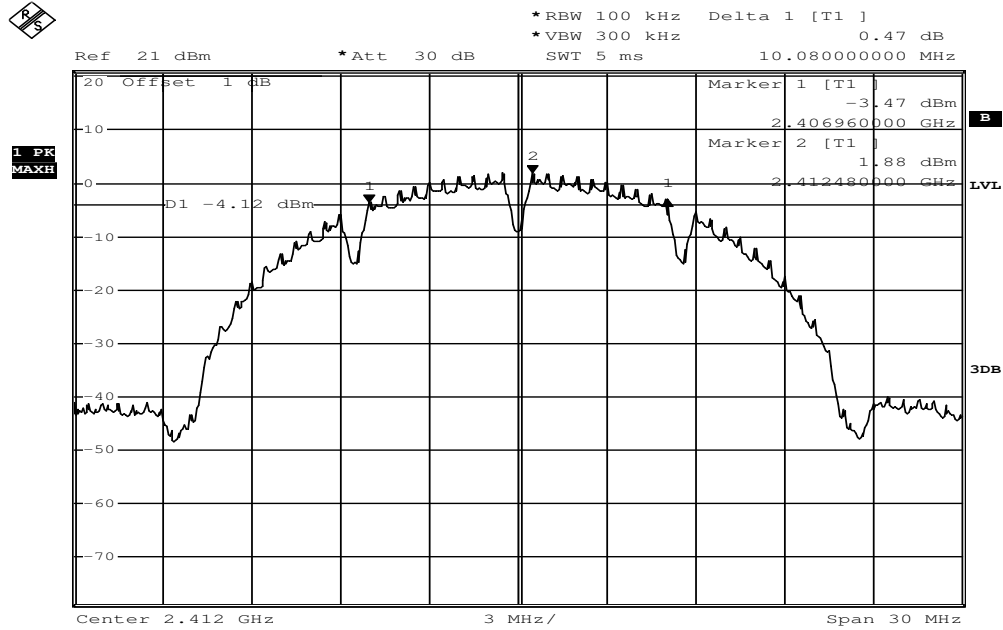
CH	Bandwidth (MHz)	Bandwidth (KHz)	Result
Low	17.76	> 500	PASS
Mid	17.76	> 500	PASS
High	17.76	> 500	PASS

802.11n HT40

CH	Bandwidth (MHz)	Bandwidth (KHz)	Result
Low	36.5	> 500	PASS
Mid	36.4	> 500	PASS
High	36.4	> 500	PASS

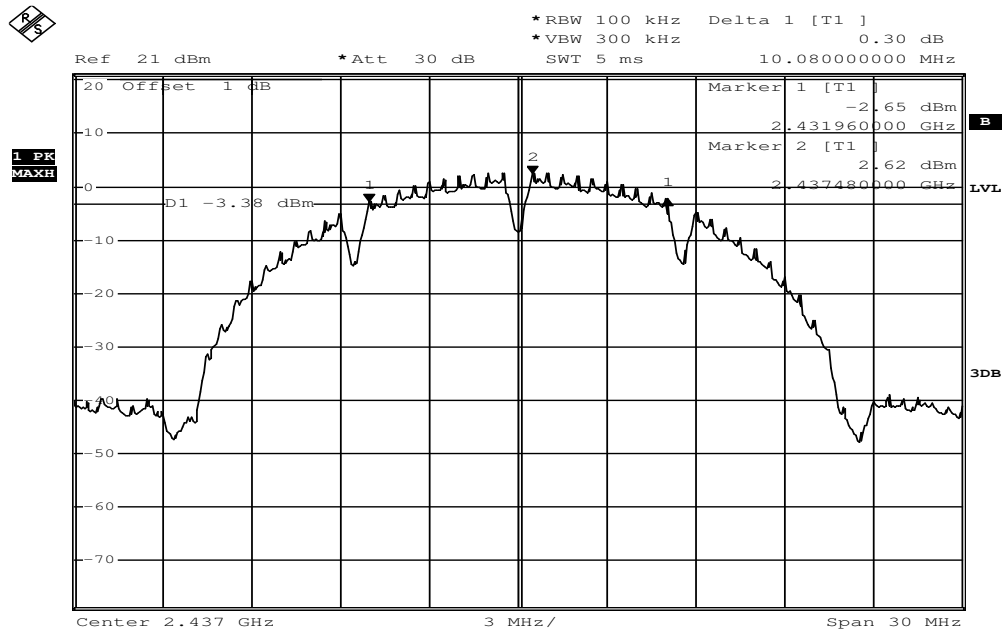
### 802.11b

### 6dB Band Width Test Data CH-Low



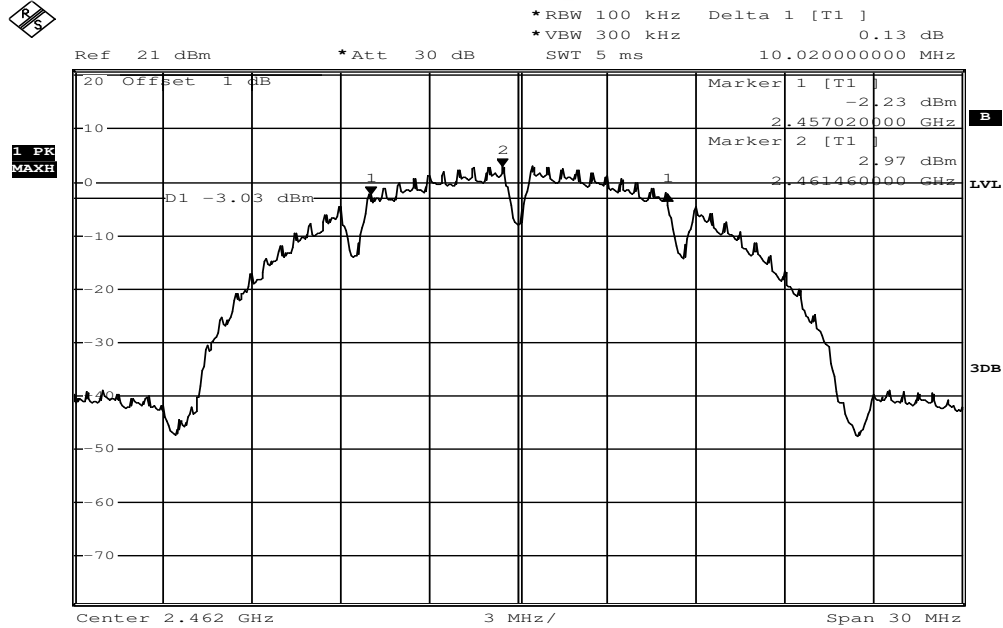
Date: 3.MAY.2017 15:36:37

### 6dB Band Width Test Data CH-Mid



Date: 3.MAY.2017 15:38:27

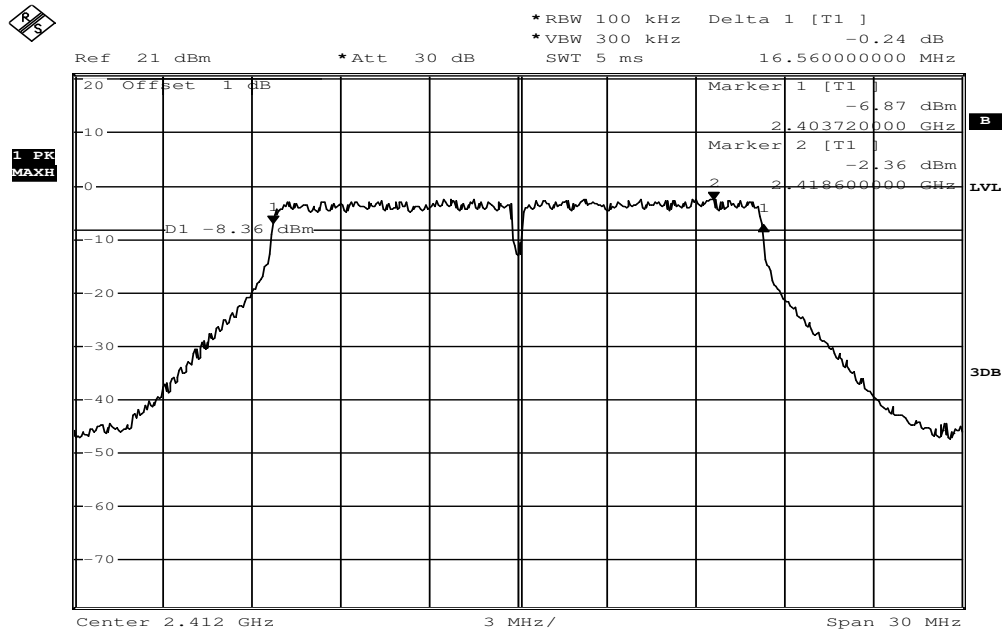
### 6dB Band Width Test Data CH-High



Date: 3.MAY.2017 15:41:25

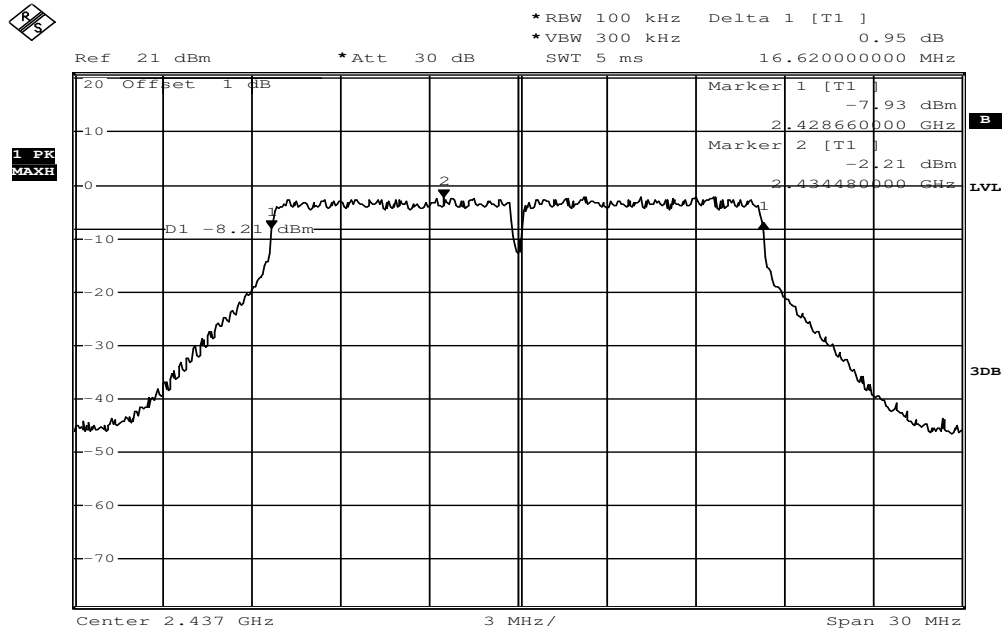
### 802.11g

### 6dB Band Width Test Data CH-Low



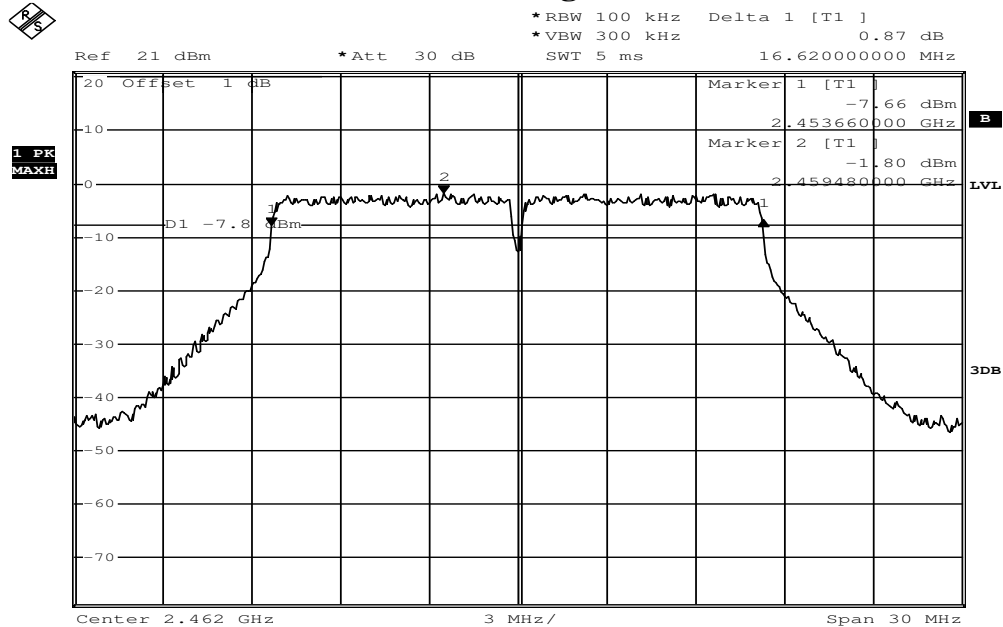
Date: 3.MAY.2017 15:44:01

### 6dB Band Width Test Data CH-Mid



Date: 3.MAY.2017 15:46:58

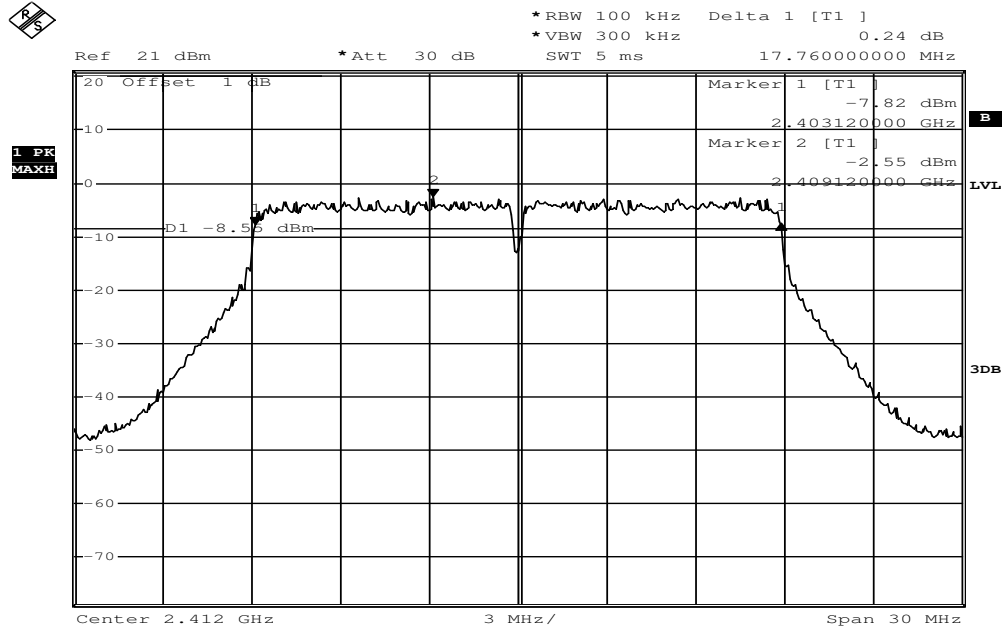
### 6dB Band Width Test Data CH-High



Date: 3.MAY.2017 15:49:06

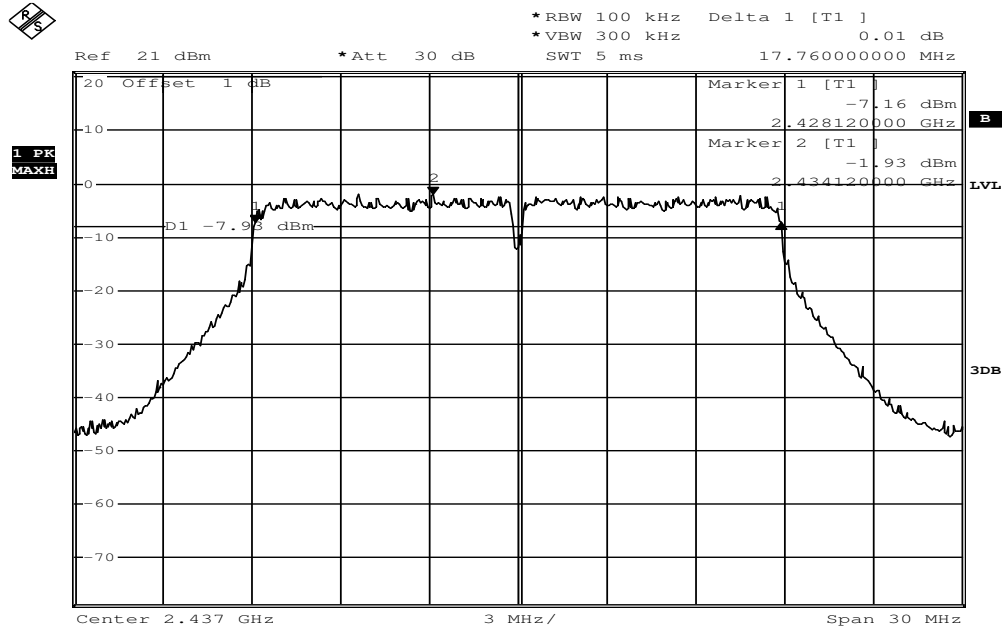
### 802.11n\_20M

### 6dB Band Width Test Data CH-Low



Date: 3.MAY.2017 15:51:05

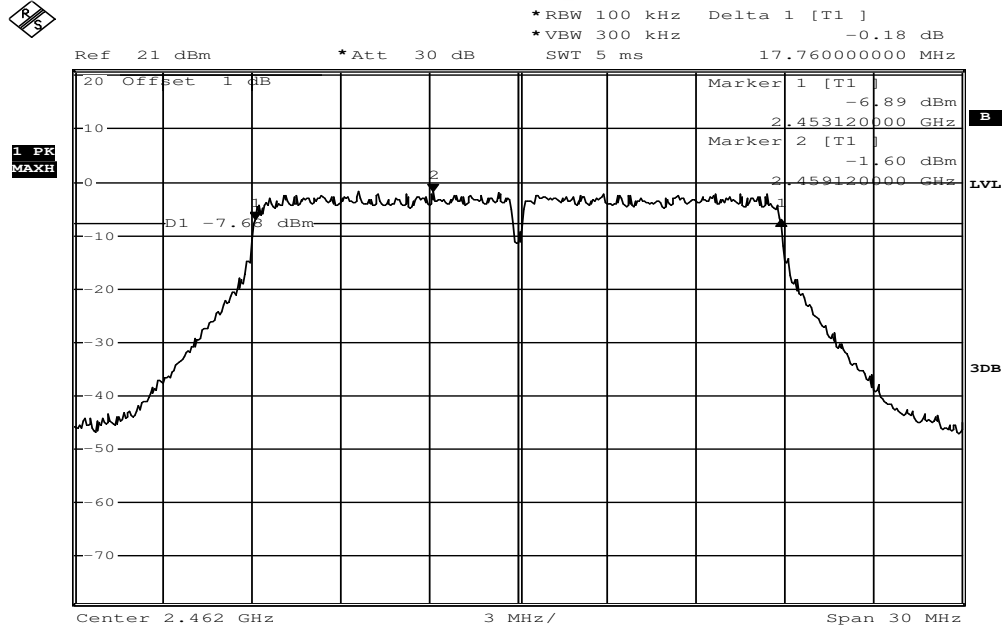
### 6dB Band Width Test Data CH-Mid



Date: 3.MAY.2017 15:53:13



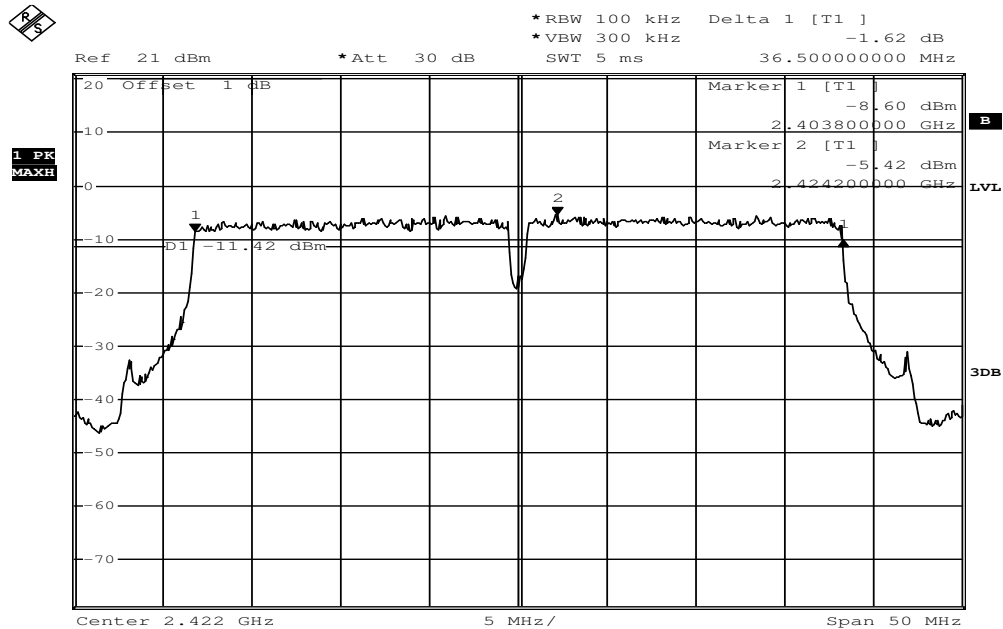
### 6dB Band Width Test Data CH-High



Date: 3.MAY.2017 15:54:52

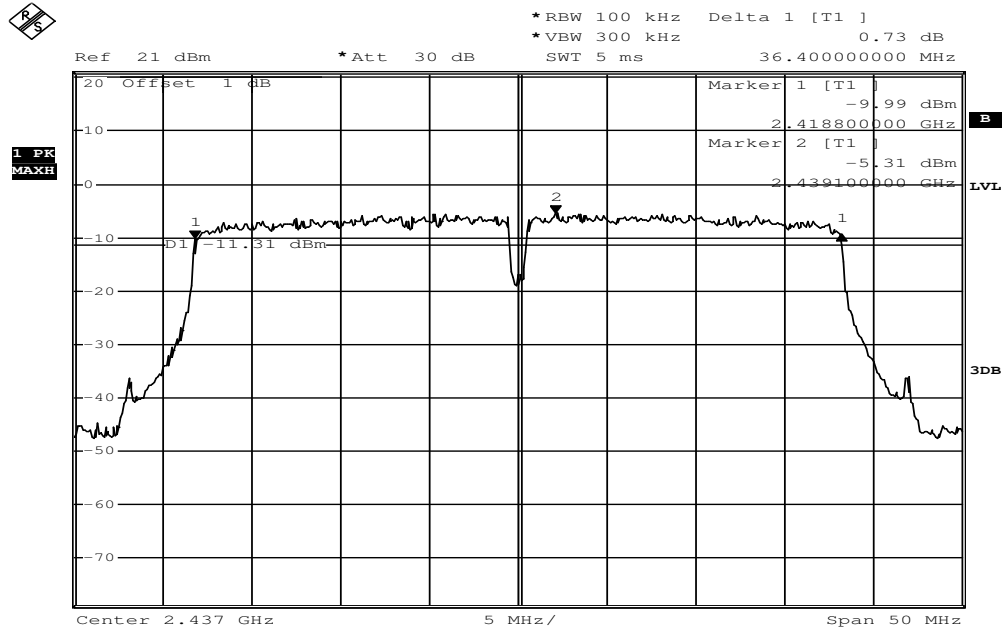
### 802.11n\_40M

### 6dB Band Width Test Data CH-Low



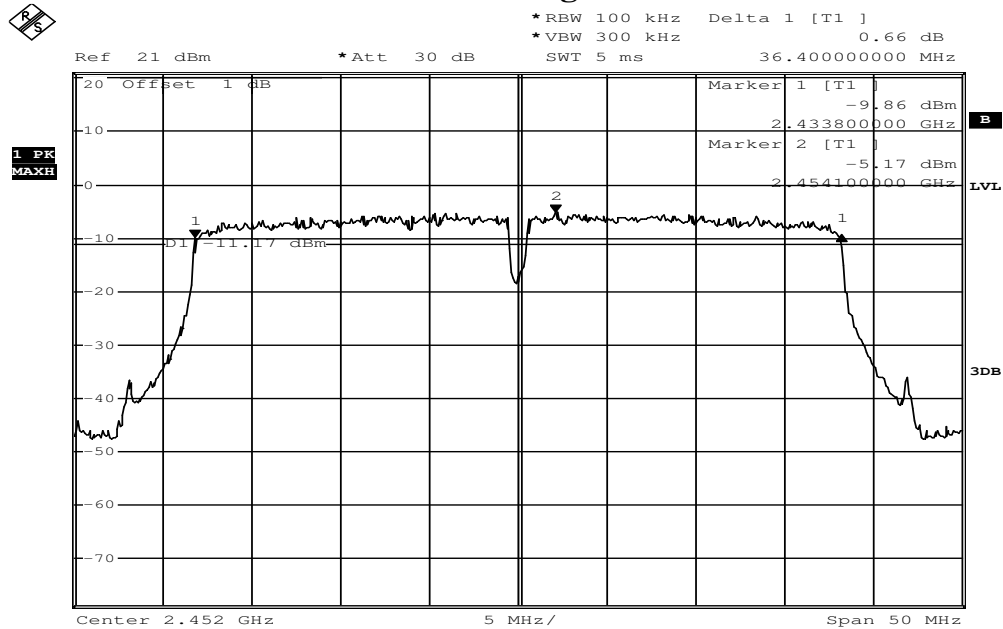
Date: 3.MAY.2017 15:57:09

### 6dB Band Width Test Data CH-Mid



Date: 3.MAY.2017 16:01:02

### 6dB Band Width Test Data CH-High



Date: 3.MAY.2017 16:01:51

## **8 100KHz BANDWIDTH OF BAND EDGES MEASUREMENT**

### **8.1 Standard Applicable:**

According to

## 8.2 Measurement Equipment Used:

### 8.2.1 Conducted Emission at antenna port:

Refer to section 6.2 for details.

### 8.2.2 Radiated emission:

Chamber 19(966)					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
966 Chamber	Chance Most	Chamber 19	N/A	08/15/2016	08/14/2017
Spectrum Analyzer 21(3Hz-44GHz)	Agilent	N9030A	MY51360021	11/14/2016	11/13/2017
EMI Receiver	SCHWARZBECK	FCVU1534	1534149	11/30/2016	11/29/2017
Loop Antenna(9K-30M)	EM	EM-6879	271	11/01/2016	10/31/2018
Loop Antenna (9K-30M)	A.H.SYSTEM	SAS-564	294	06/17/2015	06/16/2017
Bilog Antenna (30M-1G)	SCHWARZBECK	VULB9168 w 5dB Att	736	07/22/2016	07/21/2017
Horn antenna (1G-18G)	SCHWARZBECK	9120D	9120D-1627	07/22/2016	07/21/2017
Horn antenna (18G-26G)	Com-power	AH-826	081001	07/24/2015	07/23/2017
Horn antenna (26G-40G)	Com-power	AH-640	100A	02/22/2017	02/21/2019
Preamplifier (9k-1000M)	HP	8447F	3113A06362	11/13/2016	11/12/2017
Preamplifier(1G-26G)	Agilent	8449B	3008A02471	08/25/2016	08/24/2017
Preamplifier (26G-40G)	MITEQ	JS4-26004000- 27-5A	818471	07/23/2015	07/22/2017
RF Cable (9k-18G)	HUBER SUHNER	SUCOFLEX 104A	MY1397/4A	08/25/2016	08/24/2017
RF cable (18G~40G)	HUBER SUHNER	Sucoflex 102	27963/2&37421/2	11/03/2015	11/02/2017
Turn Table	MF	Turn Table-19	Turn Table-19	N/A	N/A
Mast Tower	MF	JSDES-15A	1308283	N/A	N/A
Controller	MF	MF-7802BS	MF780208460	N/A	N/A
AC power source	T-Power	TFC-1005	40006471	N/A	N/A
Signal Generator	R&S	SMU200A	102330	03/15/2017	03/14/2018
Signal Generator	Anritsu	MG3692A	20311	11/04/2016	11/03/2017
2.4G Filter	Micro-Tronics	Brm50702	76	12/25/2016	12/24/2017
Test Software	Audix	E3 Ver:6.12023	N/A	N/A	N/A

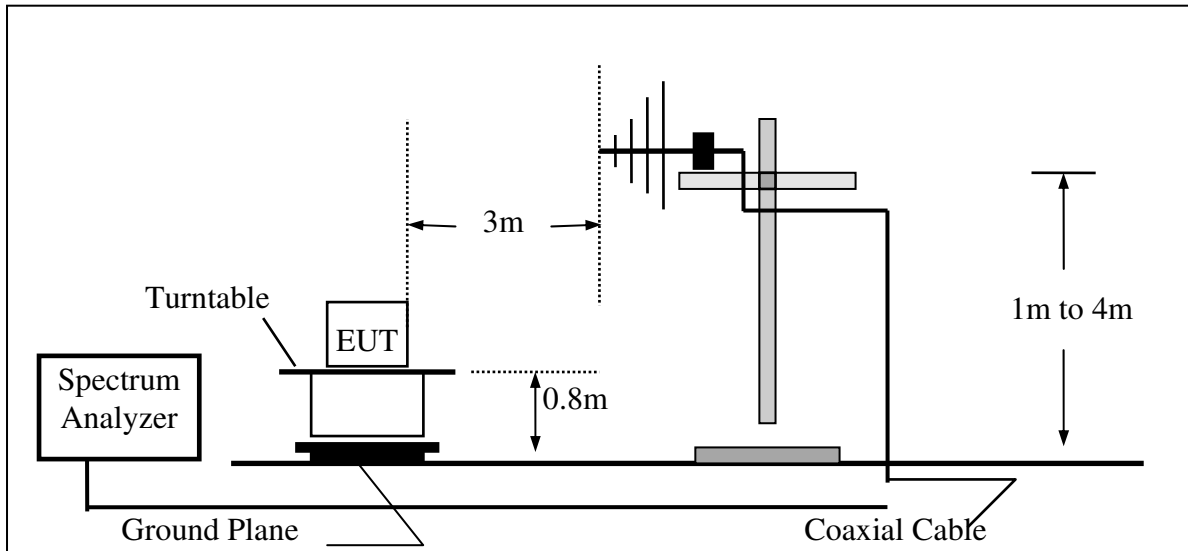
### 8.3 Test SET-UP:

#### 8.3.1 Conducted Emission at antenna port:

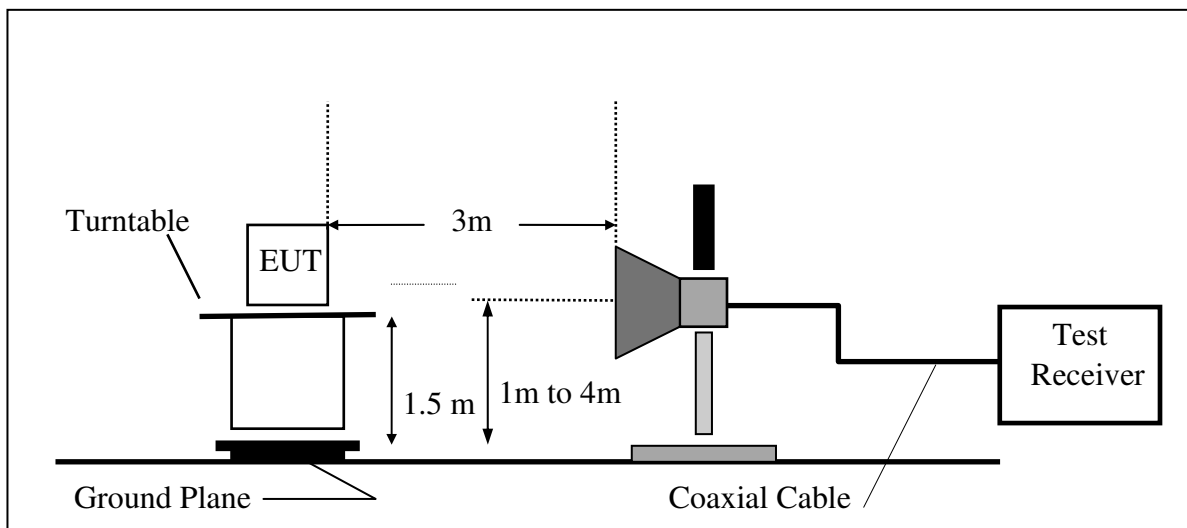
Refer to section 6.3 for details.

#### 8.3.2 Radiated emission:

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



#### 8.4 Measurement Procedure:

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = operating frequency.
4. Set the spectrum analyzer as RBW, VBW=100KHz, Span=25MHz, Sweep = auto
5. Mark Peak, 2.390GHz and 2.4835GHz and record the max. level.
6. Repeat above procedures until all frequency measured were complete.

#### 8.5 Field Strength Calculation:

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

#### 8.6 Measurement Result:

Note: Refer to next page spectrum analyzer data chart and tabular data sheets.

**Radiated Emission: 802.11 g mode (worst case)**

Operation Mode TX CH Low  
Channel Number 2412 MHz  
Temperature 25

Test Date 2017/05/15  
Test By Lake



Operation Mode	TX CH High
Channel Number	2462 MHz
Temperature	25

Test Date	2017/05/15
Test By	Lake



## **9 SPURIOUS RADIATED EMISSION TEST**

### **9.1 Standard Applicable**

According to

#### 9.4 Measurement Procedure:

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
4. When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. Repeat above procedures until all frequency measured were complete.

#### 9.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

#### 9.6 Measurement Result:

Note: Refer to next page spectrum analyzer data chart and tabular data sheets.

**Radiated Spurious Emission Measurement Result (below 1GHz) (worst case: 802.11g mode)**

Operation Mode	TX CH Low	Test Date	2017/05/15
Channel Number	2412MHz	Test By	Lake
Temperature	25		

**Radiated Spurious Emission Measurement Result (below 1GHz)**

Operation Mode	TX CH Mid	Test Date	2017/05/15
Channel Number	2437MHz	Test By	Lake
Temperature	25		

**Radiated Spurious Emission Measurement Result (below 1GHz)**

Operation Mode	TX CH High	Test Date	2017/05/15
Channel Number	2462MHz	Test By	Lake
Temperature	25		

**Radiated Spurious Emission Measurement Result (above 1GHz) (worst case: 802.11g mode)**

Operation Mode	TX CH Low	Test Date	2017/05/15
Channel Number	2412MHz	Test By	Lake
Temperature	25		

**Radiated Spurious Emission Measurement Result (above 1GHz)**

Operation Mode	TX CH Mid	Test Date	2017/05/15
Channel Number	2437MHz	Test By	Lake
Temperature	25		

**Radiated Spurious Emission Measurement Result (above 1GHz)**

Operation Mode	TX CH High	Test Date	2017/05/15
Channel Number	2462MHz	Test By	Lake
Temperature	25		



## **10 Peak Power Spectral Density**

### **10.1 Standard Applicable:**

According to

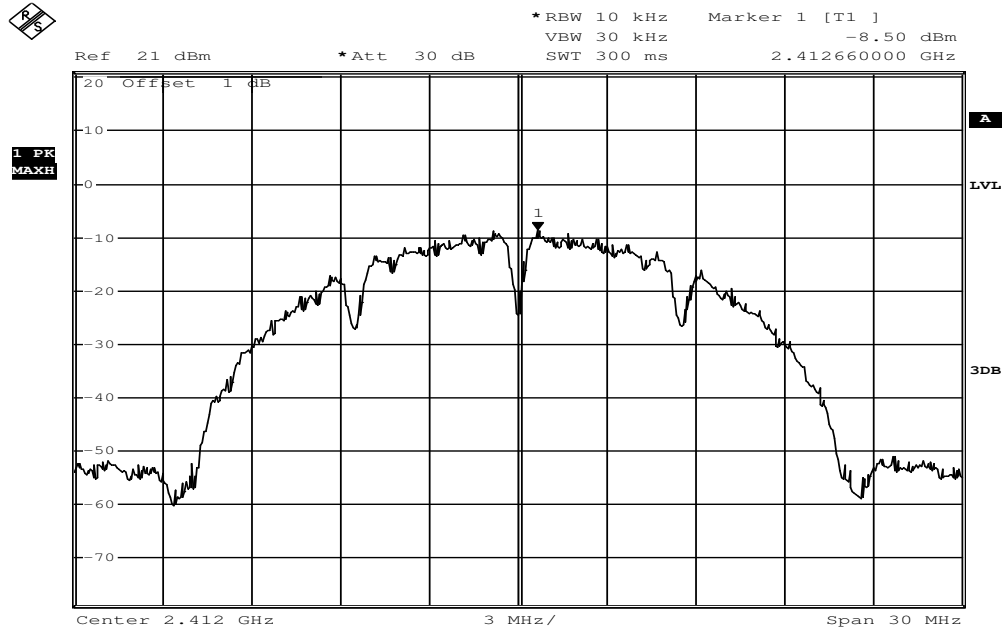
### 10.5 Measurement Result:

#### 802.11b Mode

<b>CH</b>	<b>Power Density Level (dBm)</b>	<b>Maximum Limit (dBm)</b>
Low	-8.50	8
Mid	-7.70	8
High	-7.34	8

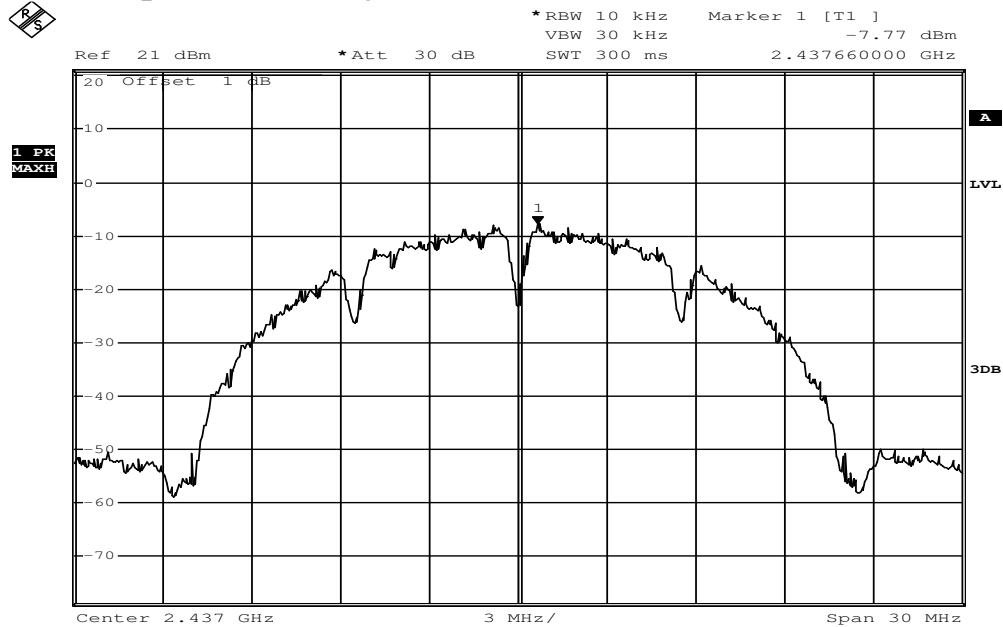
### 802.11b

### Power Spectral Density Test Plot (CH-Low)



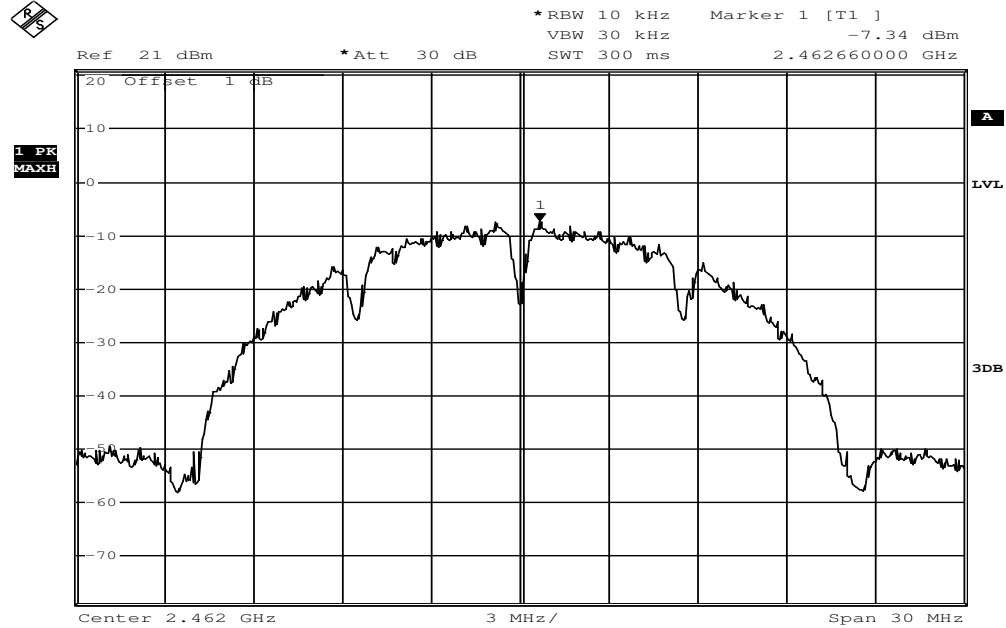
Date: 3.MAY.2017 15:34:13

### Power Spectral Density Test Plot (CH-Mid)



Date: 3.MAY.2017 15:39:02

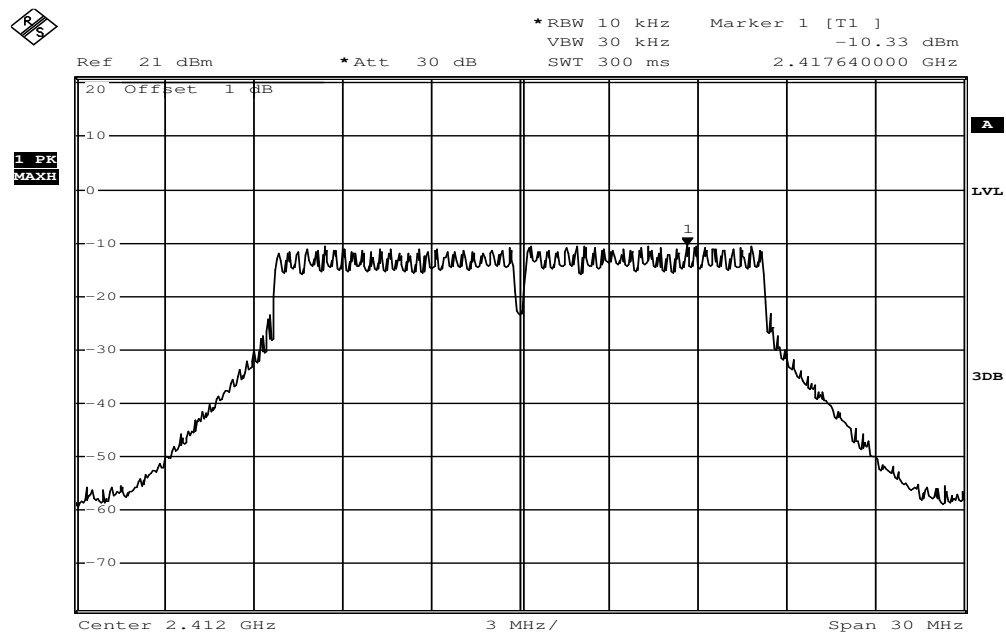
### Power Spectral Density Test Plot (CH-High)



Date: 3.MAY.2017 15:40:25

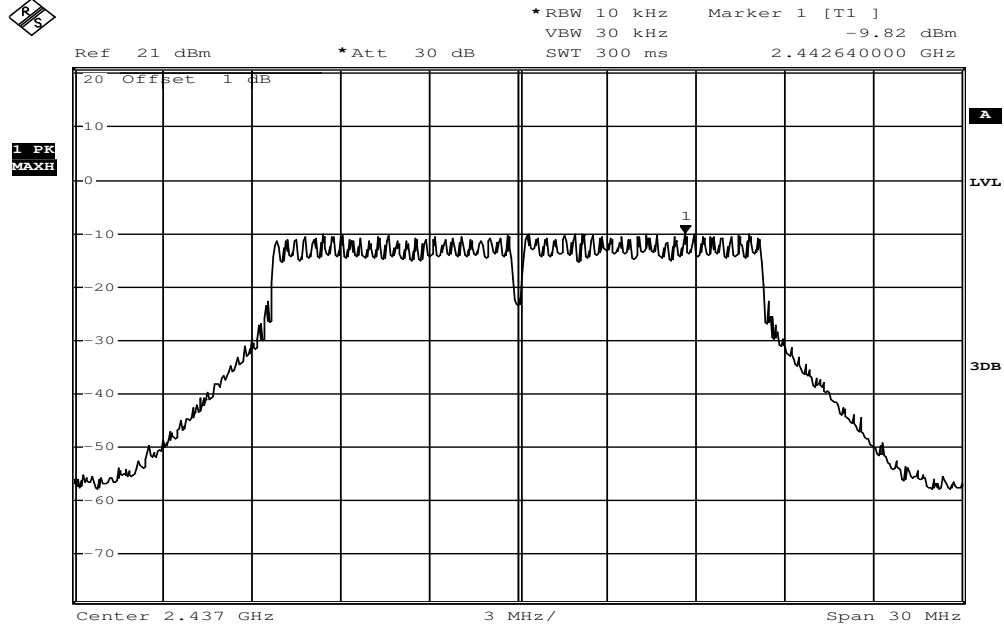
### 802.11g

### Power Spectral Density Test Plot (CH-Low)



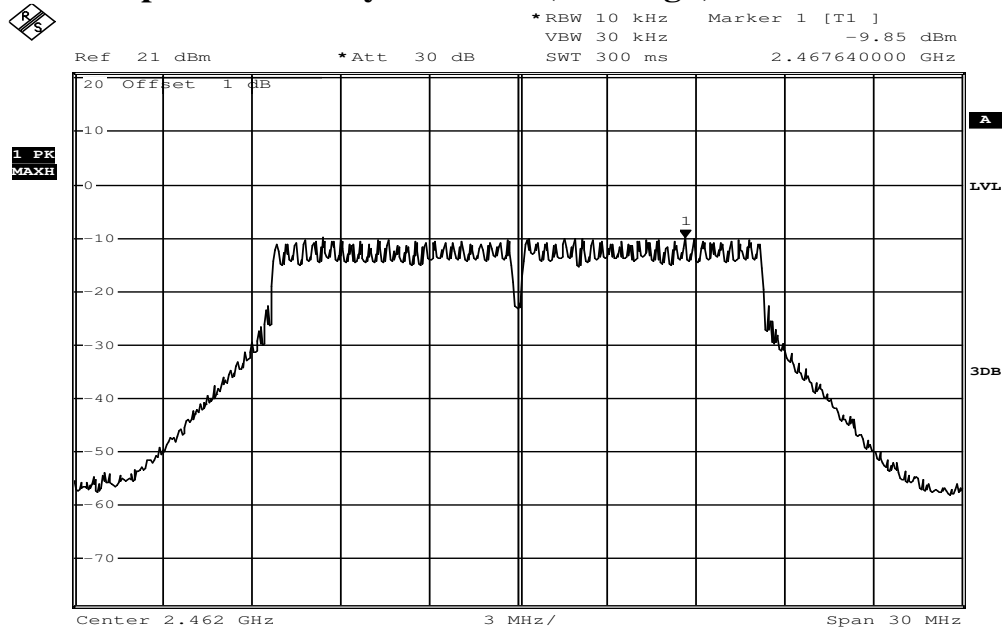
Date: 3.MAY.2017 15:44:24

### Power Spectral Density Test Plot (CH-Mid)



Date: 3.MAY.2017 15:45:36

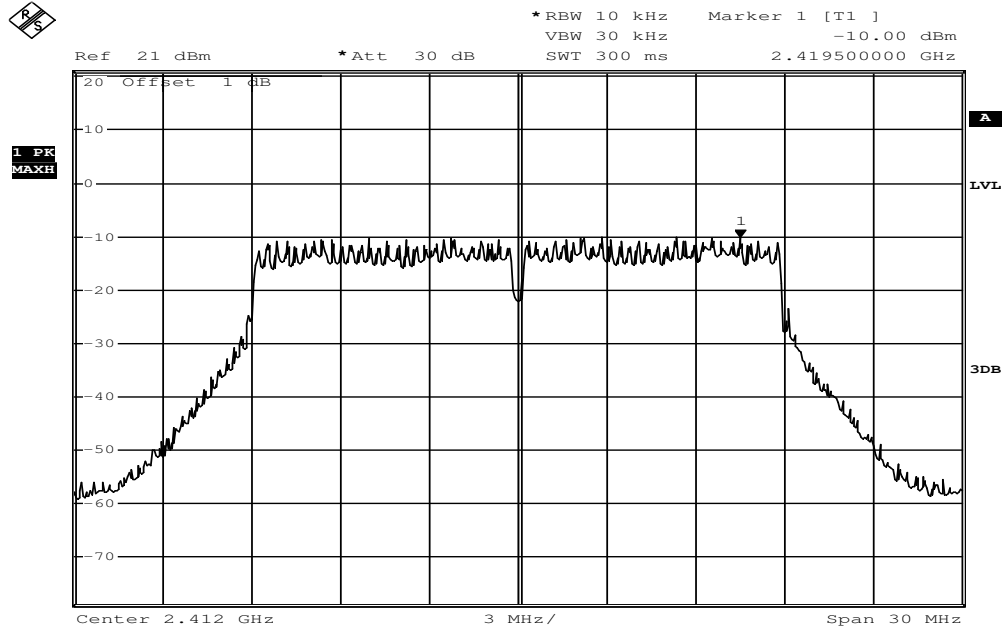
### Power Spectral Density Test Plot (CH-High)



Date: 3.MAY.2017 15:49:31

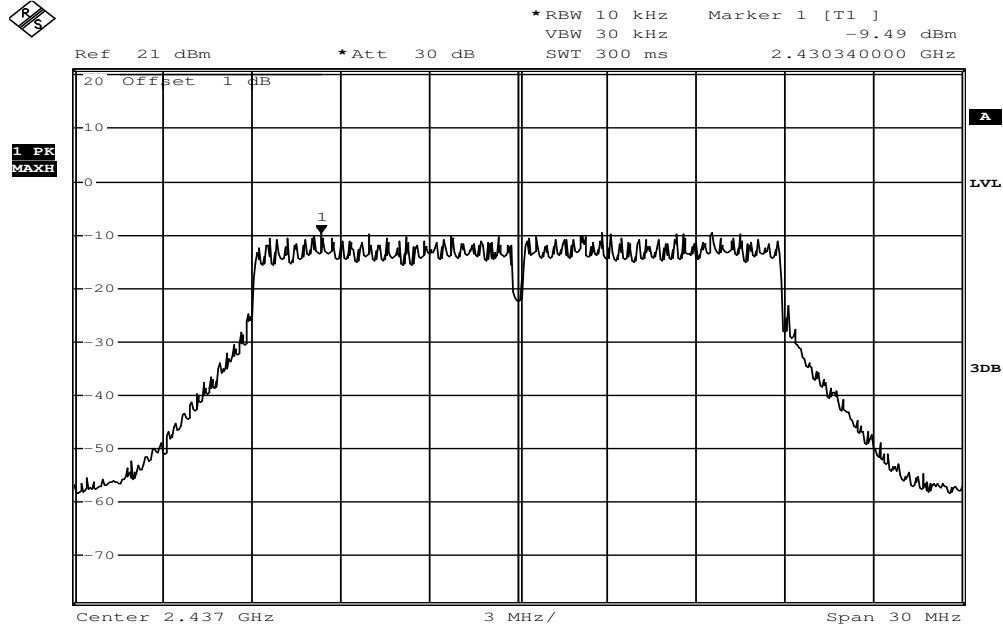
### 802.11n\_20M

### Power Spectral Density Test Plot (CH-Low)



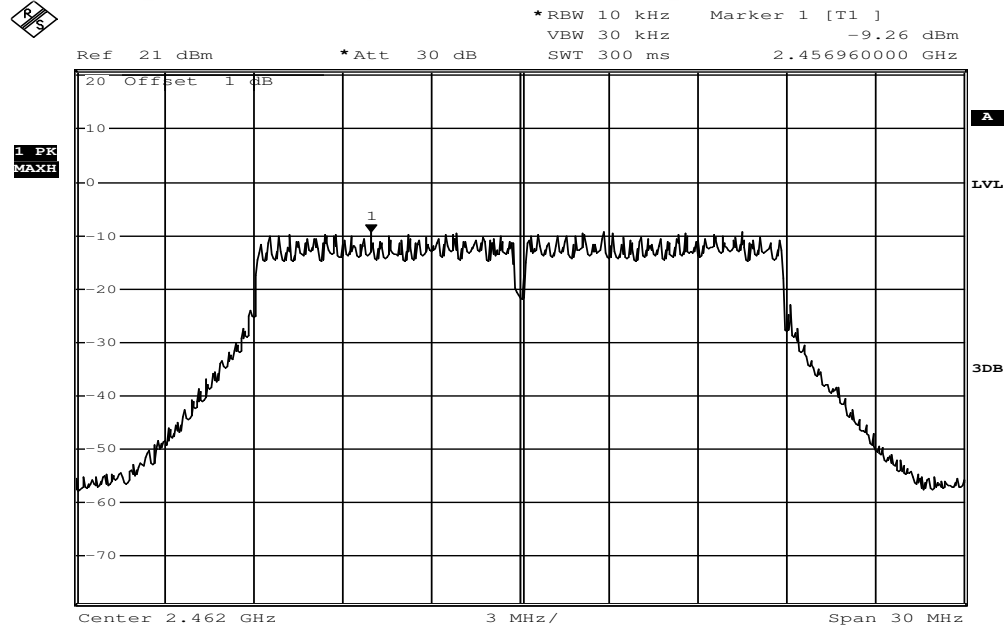
Date: 3.MAY.2017 15:50:29

### Power Spectral Density Test Plot (CH-Mid)



Date: 3.MAY.2017 15:53:33

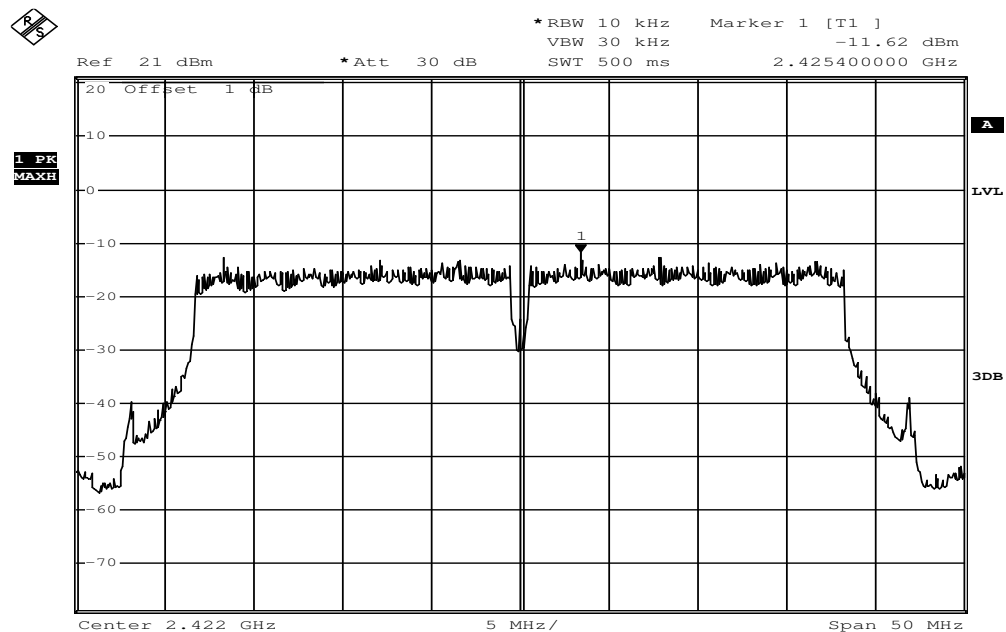
### Power Spectral Density Test Plot (CH-High)



Date: 3.MAY.2017 15:54:15

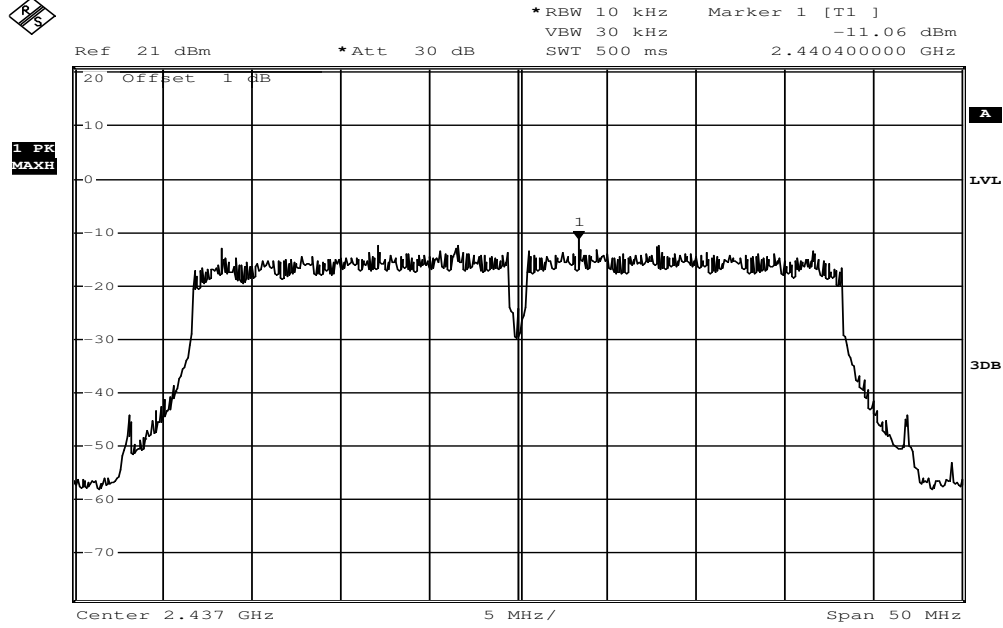
### 802.11n\_40M

### Power Spectral Density Test Plot (CH-Low)



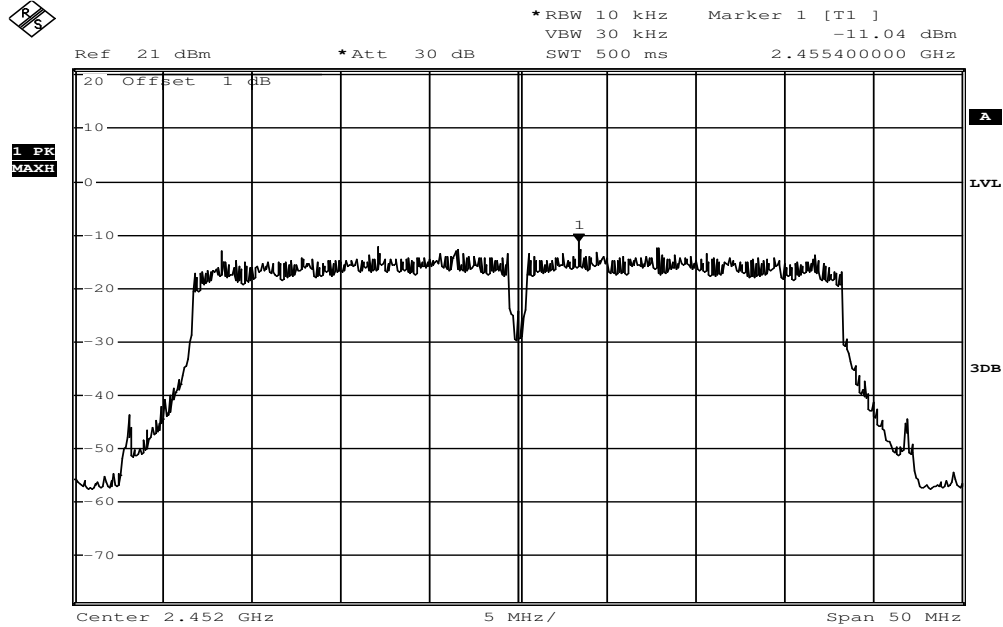
Date: 3.MAY.2017 15:58:04

### Power Spectral Density Test Plot (CH-Mid)



Date: 3.MAY.2017 15:59:43

### Power Spectral Density Test Plot (CH-High)



Date: 3.MAY.2017 16:02:45



## **11 ANTENNA REQUIREMENT**

### **11.1 Standard Applicable:**

According to