

# FCC Test Report

Product Name : DK1S  
Trade name : BMW  
Model No. : DK1S  
FCC ID. : 2ADB4DK1S

Applicant : Foxconn Interconnect Technology Limited Taiwan Branch  
Address : No.66-1, Zhongshan Rd., Tucheng Dist., New Taipei City 23680,  
Taiwan (R.O.C.)

Date of Receipt : Jul. 11, 2017  
Issued Date : Aug. 08, 2017  
Report No. : 1770108R-RFUSP14V00-A  
Report Version : V1.0



The declaration results relate only to the samples calculated.

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# Test Report Certification

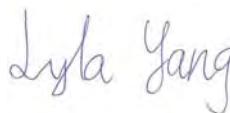
Issued Date : Aug. 08, 2017

Report No. : 1770108R-RFUSP14V00-A




Product Name : DK1S  
Applicant : Foxconn Interconnect Technology Limited Taiwan Branch  
Address : No.66-1, Zhongshan Rd., Tucheng Dist., New Taipei City  
23680, Taiwan (R.O.C.)  
Manufacturer : Foxconn Interconnect Technology Limited Taiwan Branch  
Model No. : DK1S  
FCC ID. : 2ADB4DK1S  
EUT Voltage : Mode 1: DC 5V (Power by PC)  
Mode 2: DC 4.2V (Power by Battery)  
Testing Voltage : Mode 1: DC 5V (Power by PC)  
Mode 2: DC 4.2V (Power by Battery)  
Trade Name : BMW  
Applicable Standard : FCC 15 Subpart C Section 15.231(b): 2015  
Laboratory Name : Hsin Chu Laboratory  
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TEL: +886-3-582-8001 / FAX: +886-3-582-8958  
Test Result : Complied

Documented By :



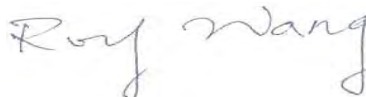
( Lyla Yang / Engineering Adm. Specialist )

Tested By :



( Elwin Lin / Assistant Engineer )

Approved By :



( Roy Wang / Director )

### Revision History

Report No.	Version	Description	Issued Date
1770108R-RFUSP14V00-A	V1.0	Initial issue of report.	Aug. 08, 2017

## Laboratory Information

We, **DEKRA Testing and Certification Co., Ltd.**, are an independent RF consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025 specified testing scopes:

<b>Taiwan R.O.C.</b>	<b>:</b>	<b>TAF, Accreditation Number: 3024</b>
<b>USA</b>	<b>:</b>	<b>FCC, Registration Number: 0007939127</b>
<b>Canada</b>	<b>:</b>	<b>IC, Submission No: 181665 / IC Registration Number: 22397-1 / 22397-2 / 22397-3</b>

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site :

<http://www.dekra.com.tw/english/about/certificates.aspx?bval=5>

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site : [http://www.dekra.com.tw/index\\_en.aspx](http://www.dekra.com.tw/index_en.aspx)

If you have any comments, Please don't hesitate to contact us. Our test sites as below:

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## 1. General Information

### 1.1. EUT Description

Product Name	DK1S
Trade Name	BMW
Model No.	DK1S
Frequency Range	433.2 MHz / 434.64 MHz
Channel Number	2
Type of Modulation	FSK

Antenna Information	
MFR. / Model	Pulse, W3132
Antenna Type	Printed Antenna
Antenna Gain	-12 dBi

Accessories Information	
USB Cable	Shielded, 1m

Working Frequency of Each Channel	
Channel	Frequency
01	433.2 MHz
02	434.64 MHz

#### Note:

1. This device is a DK1S including 433.2 MHz / 434.64 MHz transmitting and receiving function.
2. These tests are conducted on a sample for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.231.
3. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

## 1.2. Test Mode

DEKRA verified the construction and function in typical operation. All the test modes are performed in normal operation and are defined as:

Test Mode	Mode 1: Transmit (Power by PC)
	Mode 2: Transmit (Power by Battery)

Performed Item	Mode 1	Mode 2
Conducted Emission	Yes	No
Radiated Emission	Yes	Yes
Occupied Bandwidth	Yes	No
Duty cycle	Yes	No
Transmitter time	Yes	No



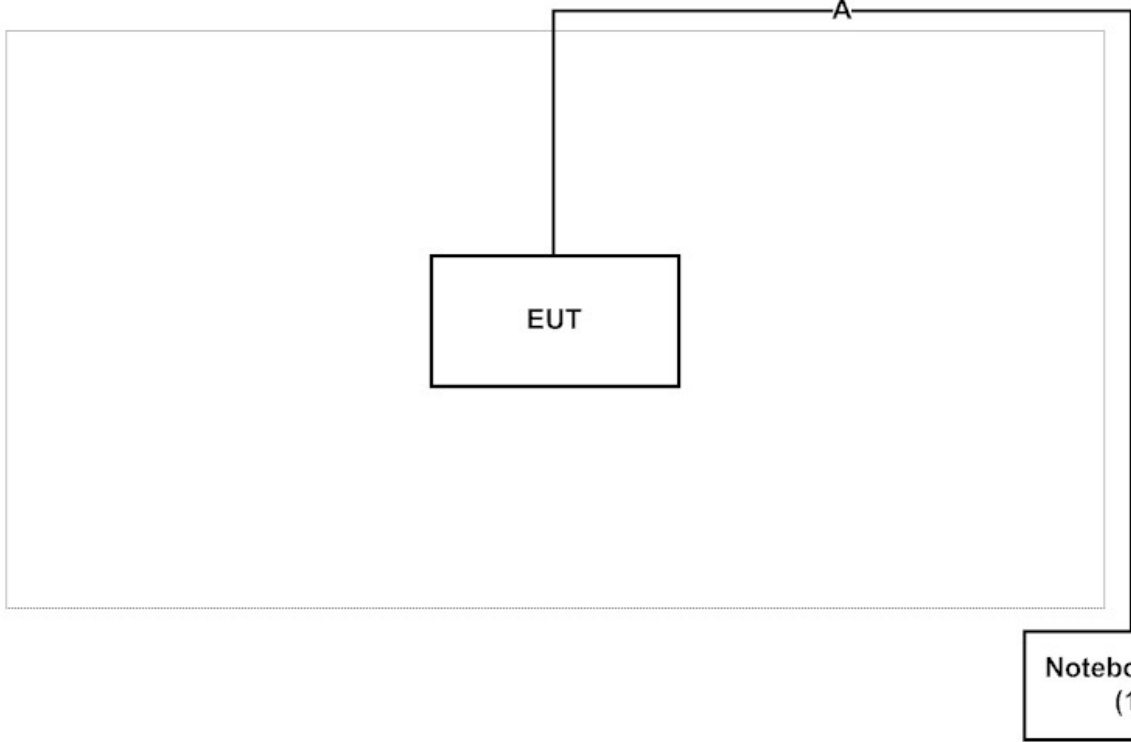
### 1.3. Tested System Details

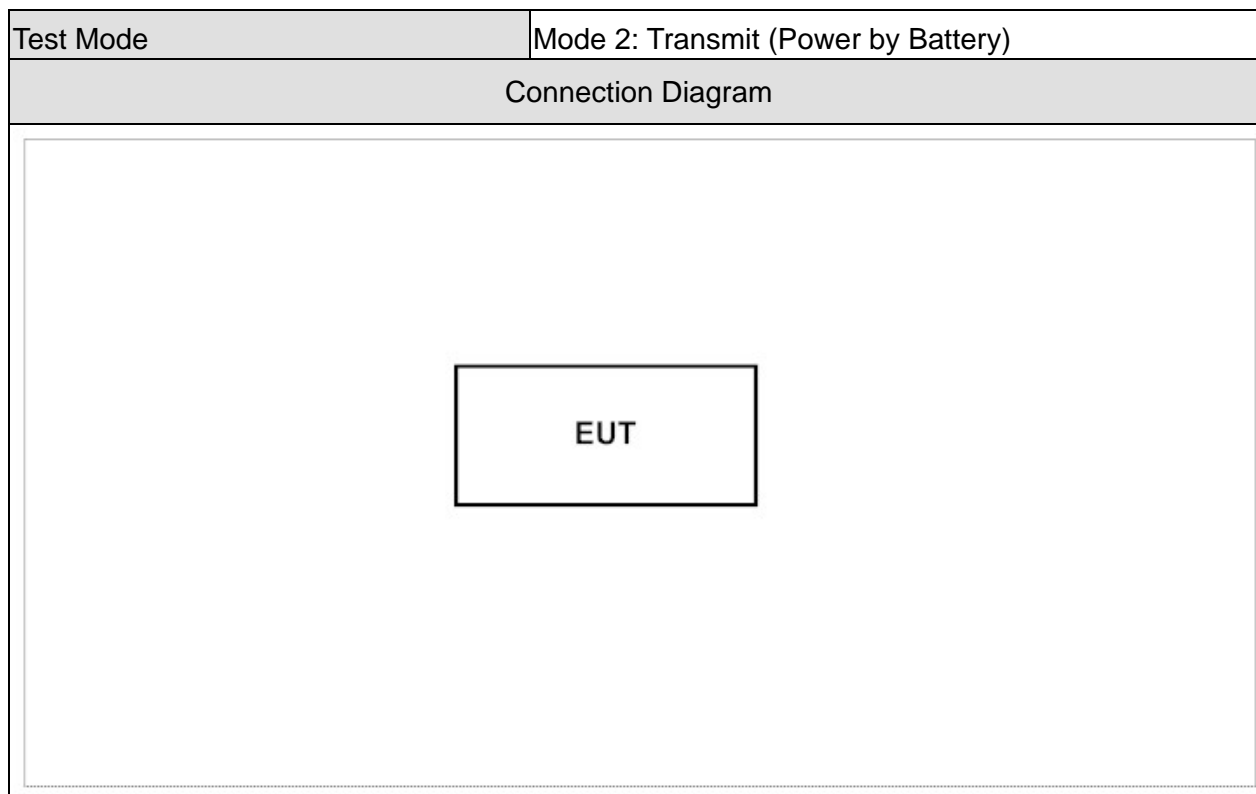
The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Test Mode		Mode 1: Transmit (Power by PC)			
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	ACER	Aspire V3-372	NXG7ATA0065470 14826600	Non-Shielded, 1.5m, one ferrite core bonded

Test Mode		Mode 2: Transmit (Power by Battery)			
Product		Manufacturer	Model No.	Serial No.	Power Cord
N/A					

### 1.4. Configuration of tested System

Test Mode		Mode 1: Transmit (Power by PC)	
Connection Diagram			
 <p>The diagram shows a central box labeled 'EUT'. A line extends from the top of the EUT box, goes up, then right, then down to a box labeled 'Notebook PC (1)'. The top horizontal segment of this line is labeled 'A'.</p>			
Signal Cable Type		Signal cable Description	
A	USB CCD Cable	Shielded, 1.5m	



### 1.5. EUT Exercise Software

1	Setup the EUT as shown in Section 1.4.
2	Press Button to start the continuous transmitting.
3	Verify that the EUT works properly.

## 1.6. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual	Test Site
Temperature (°C)	FCC PART 15 C 15.231(b) Conducted Emission	15 - 35	20°C	3
Humidity (%RH)		25 - 75	50%RH	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.231(b) Radiated Emission	15 - 35	25°C	2
Humidity (%RH)		25 - 75	45%RH	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.231(b) Occupied Bandwidth	15 - 35	25°C	3
Humidity (%RH)		25 - 75	65%RH	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.231(b) Duty cycle	15 - 35	25°C	3
Humidity (%RH)		25 - 75	45%RH	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.231(b) Transmitter time	15 - 35	25°C	3
Humidity (%RH)		25 - 75	48%RH	
Barometric pressure (mbar)		860 - 1060	950-1000	

Note: Test Site information refers to Laboratory Information.

## 2. Conducted Emission

### 2.1. Test Equipment

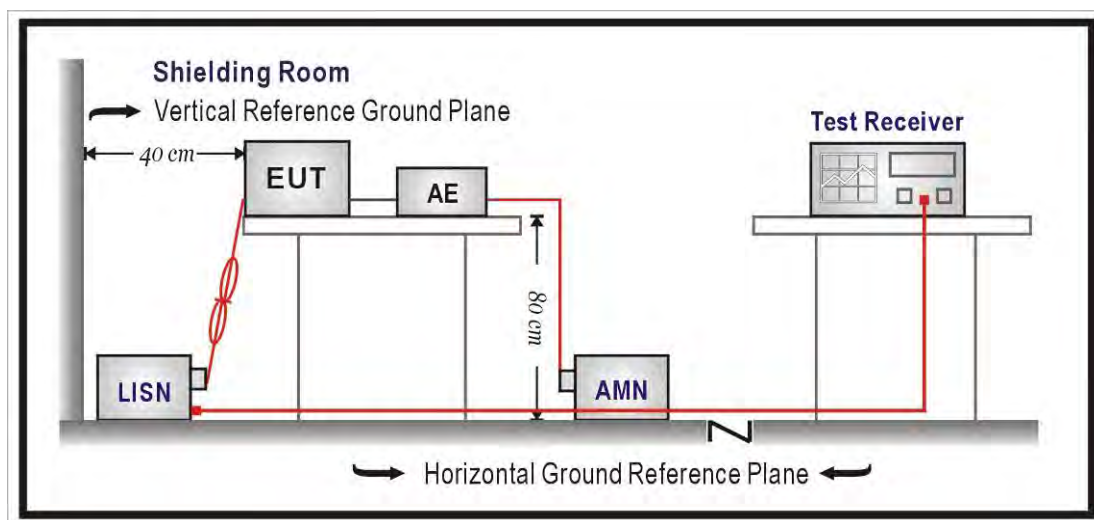
The following test equipment are used during the test:

Conducted Emission / SR2-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Artificial Mains Network	R&S	ENV4200	848411/010	2018/02/05
LISN	R&S	ENV216	100092	2017/08/16
Test Receiver	R&S	ESCS 30	836858/022	2018/04/11

Note: All equipment that need to calibrate are with calibration period of 1 year.

### 2.2. Test Setup



### 2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency MHz	QP	AV
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

### 2.4. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs.)

Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

### 2.5. Test Specification

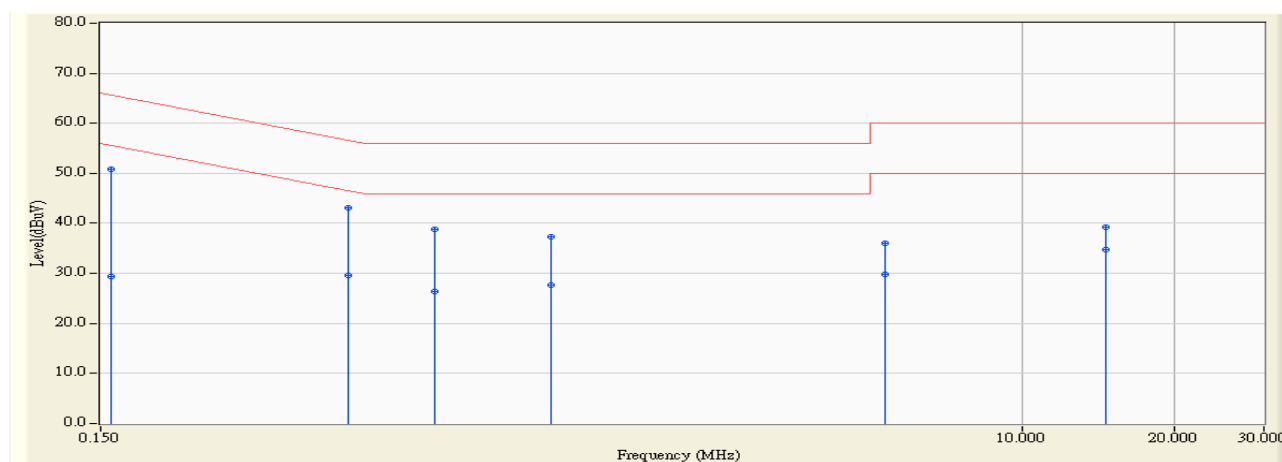
According to FCC Part 15 Subpart C Paragraph 15.207: 2014

### 2.6. Uncertainty

The measurement uncertainty is defined as  $\pm 2.26$  dB.

## 2.7. Test Result

Site : SR2-H	Time : 2017/07/27
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2-H_LISN(16A)-6_0712 - Line1	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_433.2MHz

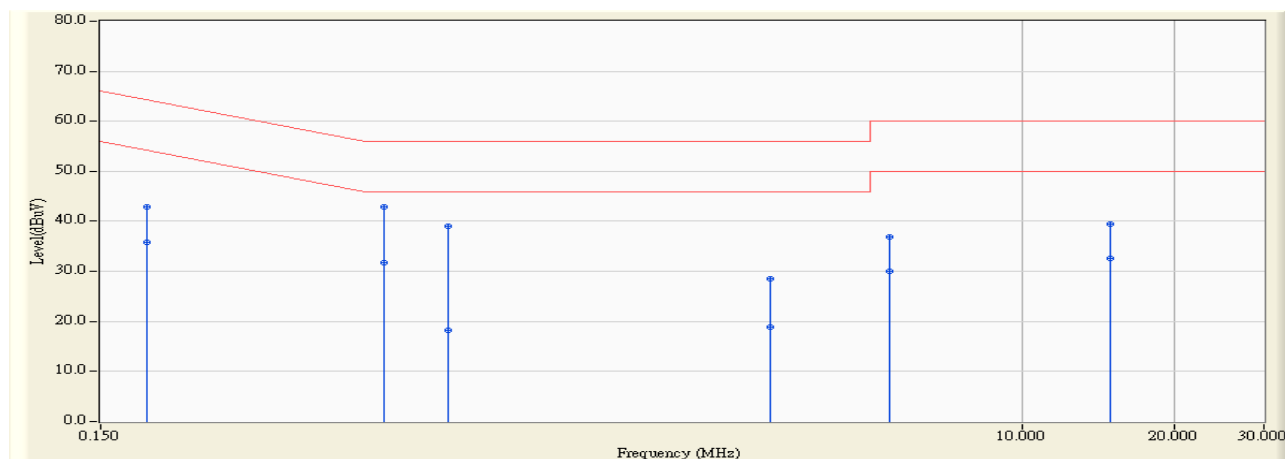


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.158	9.751	41.180	50.931	-14.647	65.578	QUASIPeAK
2		0.158	9.751	19.560	29.311	-26.267	55.578	AVERAGE
3	*	0.463	9.729	33.440	43.169	-13.479	56.648	QUASIPeAK
4		0.463	9.729	19.890	29.619	-17.029	46.648	AVERAGE
5		0.689	9.763	28.960	38.723	-17.277	56.000	QUASIPeAK
6		0.689	9.763	16.610	26.373	-19.627	46.000	AVERAGE
7		1.166	9.827	27.520	37.347	-18.653	56.000	QUASIPeAK
8		1.166	9.827	17.930	27.757	-18.243	46.000	AVERAGE
9		5.338	9.935	26.110	36.046	-23.954	60.000	QUASIPeAK
10		5.338	9.935	19.940	29.876	-20.124	50.000	AVERAGE
11		14.568	10.212	28.930	39.142	-20.858	60.000	QUASIPeAK
12		14.568	10.212	24.510	34.722	-15.278	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR2-H	Time : 2017/07/27
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2-H_LISN(16A)-6_0712 - Line2	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_433.2MHz



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.185	9.751	33.220	42.971	-21.280	64.251	QUASIPeAK
2	0.185	9.751	26.150	35.901	-18.350	54.251	AVERAGE
3	*	0.545	33.210	42.962	-13.038	56.000	QUASIPeAK
4		0.545	21.970	31.722	-14.278	46.000	AVERAGE
5		0.732	29.290	39.070	-16.930	56.000	QUASIPeAK
6		0.732	8.440	18.220	-27.780	46.000	AVERAGE
7		3.162	18.660	28.504	-27.496	56.000	QUASIPeAK
8		3.162	8.990	18.834	-27.166	46.000	AVERAGE
9		5.443	27.020	36.904	-23.096	60.000	QUASIPeAK
10		5.443	20.210	30.094	-19.906	50.000	AVERAGE
11		14.884	29.070	39.376	-20.624	60.000	QUASIPeAK
12		14.884	22.190	32.496	-17.504	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : SR2-H	Time : 2017/07/27
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2-H_LISN(16A)-6_0712 - Line1	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_434.64MHz



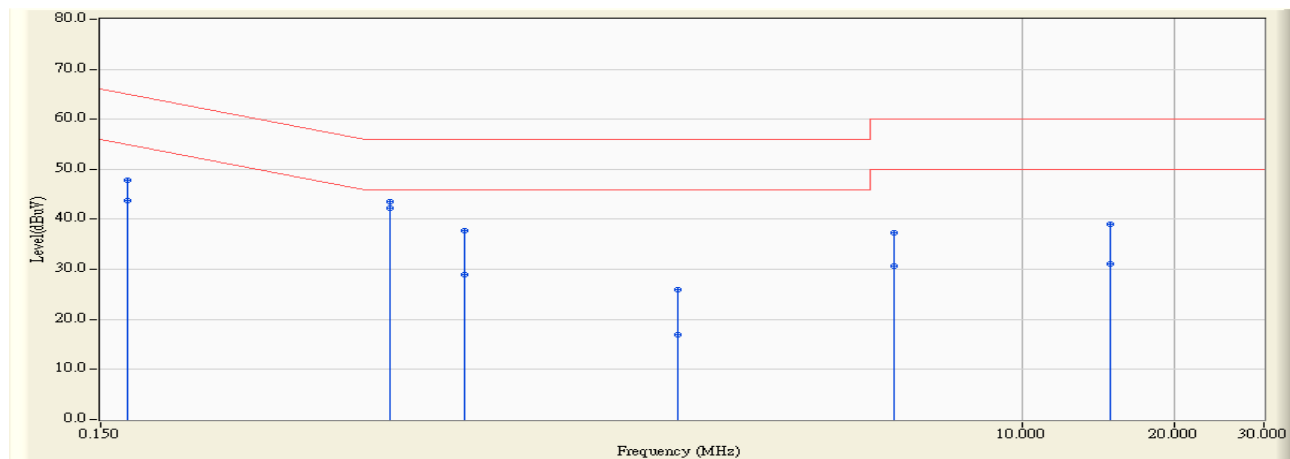
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.158	9.751	41.180	50.931	-14.647	65.578	QUASIPeAK
2		0.158	9.751	33.270	43.021	-12.557	55.578	AVERAGE
3		0.205	9.750	32.950	42.700	-20.719	63.418	QUASIPeAK
4		0.205	9.750	23.300	33.050	-20.369	53.418	AVERAGE
5	*	0.545	9.737	34.750	44.486	-11.514	56.000	QUASIPeAK
6		0.545	9.737	18.640	28.376	-17.624	46.000	AVERAGE
7		0.822	9.787	31.130	40.917	-15.083	56.000	QUASIPeAK
8		0.822	9.787	20.790	30.577	-15.423	46.000	AVERAGE
9		5.572	9.946	25.380	35.325	-24.675	60.000	QUASIPeAK
10		5.572	9.946	18.580	28.525	-21.475	50.000	AVERAGE
11		13.509	10.193	27.670	37.863	-22.137	60.000	QUASIPeAK
12		13.509	10.193	19.010	29.203	-20.797	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor



Site : SR2-H	Time : 2017/07/27
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2-H_LISN(16A)-6_0712 - Line2	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_434.64MHz



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.170	9.753	38.080	47.833	-17.150	64.983	QUASIPeAK
2		0.170	9.753	34.060	43.813	-11.170	54.983	AVERAGE
3		0.560	9.754	33.800	43.554	-12.446	56.000	QUASIPeAK
4	*	0.560	9.754	32.430	42.184	-3.816	46.000	AVERAGE
5		0.787	9.788	27.920	37.708	-18.292	56.000	QUASIPeAK
6		0.787	9.788	19.180	28.968	-17.032	46.000	AVERAGE
7		2.084	9.850	16.030	25.880	-30.120	56.000	QUASIPeAK
8		2.084	9.850	6.990	16.840	-29.160	46.000	AVERAGE
9		5.576	9.892	27.330	37.222	-22.778	60.000	QUASIPeAK
10		5.576	9.892	20.880	30.772	-19.228	50.000	AVERAGE
11		14.943	10.308	28.720	39.028	-20.972	60.000	QUASIPeAK
12		14.943	10.308	20.880	31.188	-18.812	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

### 3. Radiated Emission

#### 3.1. Test Equipment

The following test equipment are used during the test:

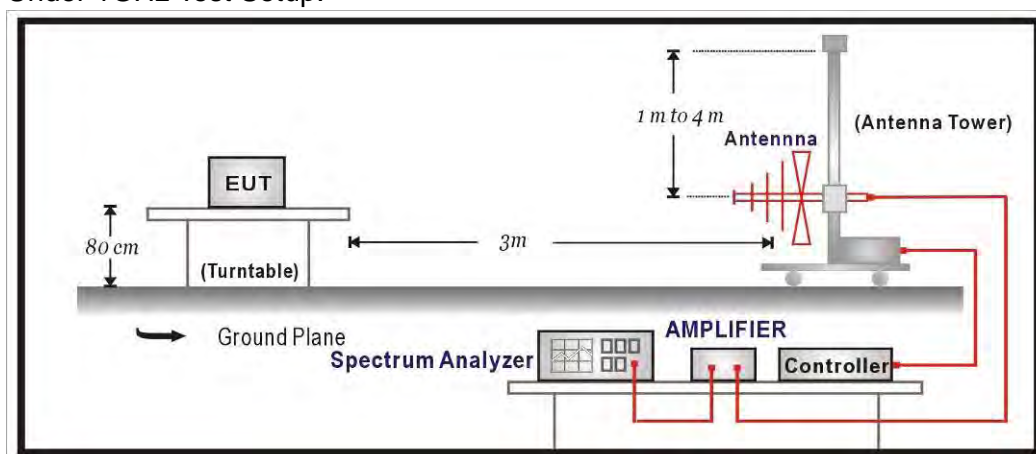
##### Radiated Emission / CB4-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum	Agilent	E4440A	MY46187335	2017/12/21
Bilog Antenna	Teseq	CBL6112D	23191	2018/06/27
Horn Antenna	Schwarzbeck	BBHA 9120 D	1640	2017/10/23
Pre-Amplifier	EMCI	EMC01820I	12143782	2018/03/08
Pre-Amplifier	EMCI	EMC01820I	980367	2018/02/09

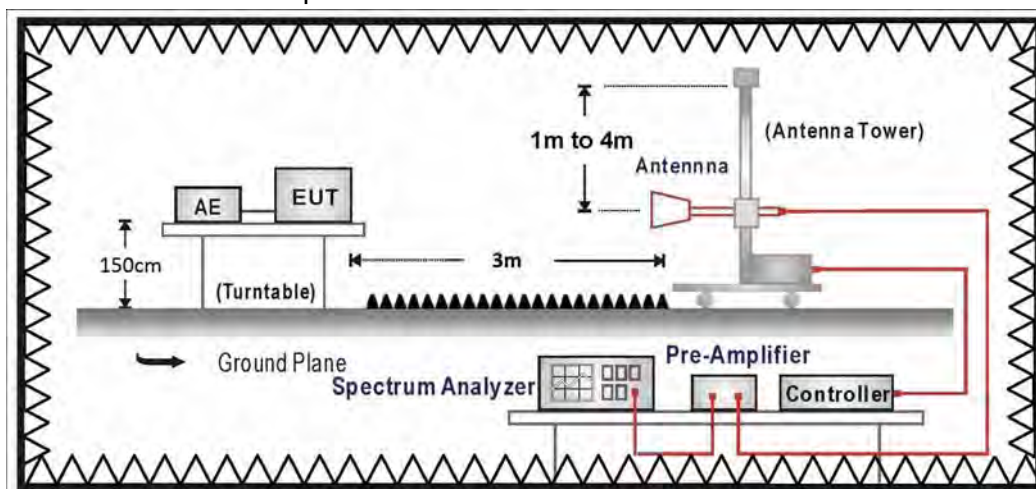
Note: All equipment that need to calibrate are with calibration period of 1 year.

#### 3.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



### 3.3. Limits

#### ➤ Fundamental and Harmonics Emission Limits

FCC Part 15 Subpart C Paragraph 15.231(b) Limits				
Fundamental Frequency MHz	Field Strength of Fundamental		Field Strength of Harmonics	
	uV/m	dBuV/m	uV/m	dBuV/m
40.66 - 40.70	2250	67.04	225	47.04
70 - 130	1250	61.94	125	41.94
130 - 174	1250 - 3750	61.94 - 71.48	125 - 375	41.94 - 51.48
174 - 260	3750	71.48	375	51.48
260 - 470	3750 - 12500	71.48 - 81.94	375 - 1250	51.48 - 61.94
above 470	12500	81.94	1250	61.94

Remarks: 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

#### ➤ Spurious electric field strength limits

FCC Part 15 Subpart C Paragraph 15.209 Limits			
Frequency MHz	uV/m	dBuV/m	Measurement distance (meter)
0.009 - 0.490	2400/F(kHz)	See Remark <sup>1</sup>	300
0.490 - 1.705	24000/F(kHz)	See Remark <sup>1</sup>	30
1.705 - 30	30	29.5	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

Remarks : 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

### **3.4. Test Procedure**

The EUT and its simulators are placed on a turn table which is 0.8 and 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB beamwidth of the antenna.

The worst radiated emission is measured on the Final Measurement.

The frequency range from 30MHz to 10th harmonics is checked.

### **3.5. Test Specification**

According to FCC Part 15 Subpart C Paragraph 15.231(b): 2015

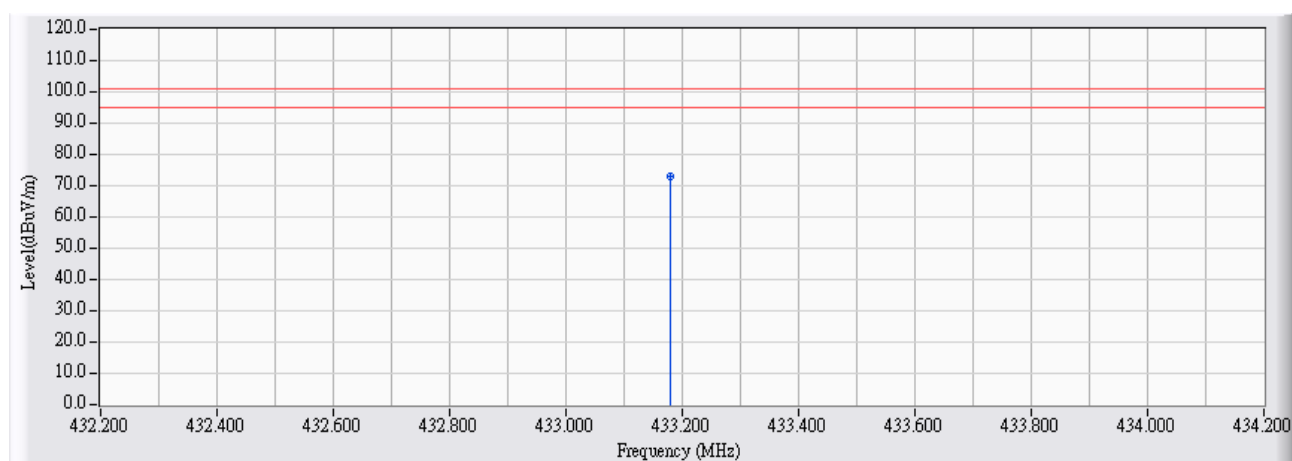
### **3.6. Uncertainty**

± 3.8 dB below 1GHz

± 3.9 dB above 1GHz

### 3.7. Test Result

Site : CB4-H	Time : 2017/07/19
Limit : FCC_SPARTC_15.231(b)_F_433.92_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_433.2MHz X axis

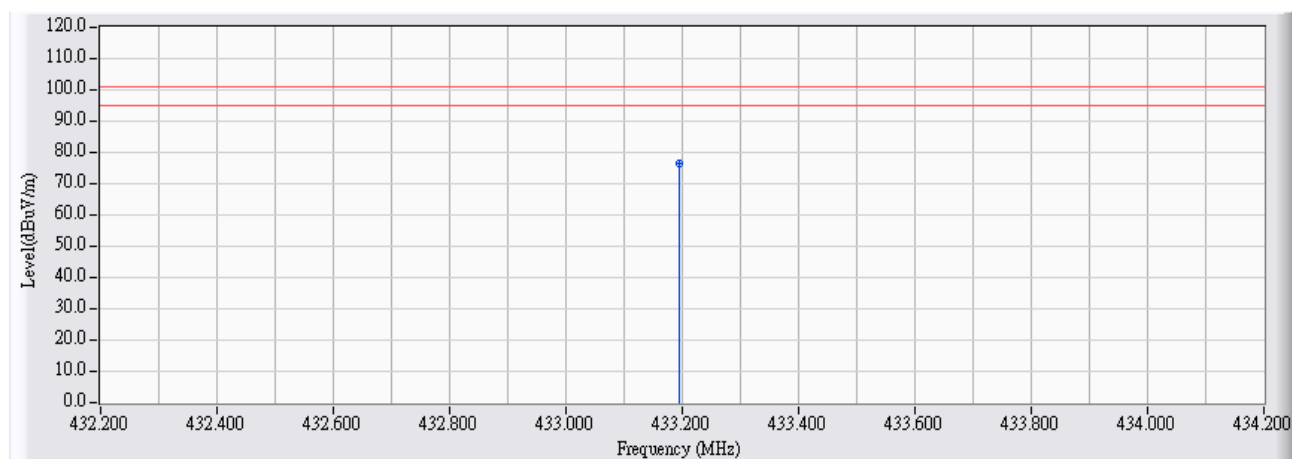


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	433.179	25.906	47.090	72.996	-27.834	100.830	PEAK

Note:

1. All Reading Levels are Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB4-H	Time : 2017/07/19
Limit : FCC_SPARTC_15.231(b)_F_433.92_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - VERTICAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_433.2MHz X axis

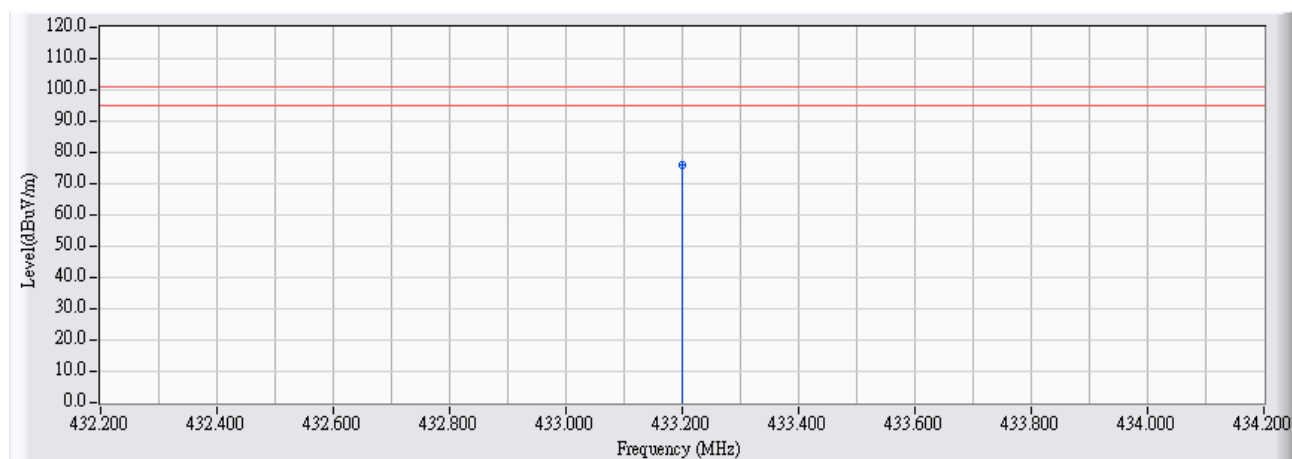


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	433.194	25.906	50.400	76.306	-24.524	100.830	PEAK

Note:

1. All Reading Levels are Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB4-H	Time : 2017/07/19
Limit : FCC_SPARTC_15.231(b)_F_433.92_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_433.2MHz Y axis

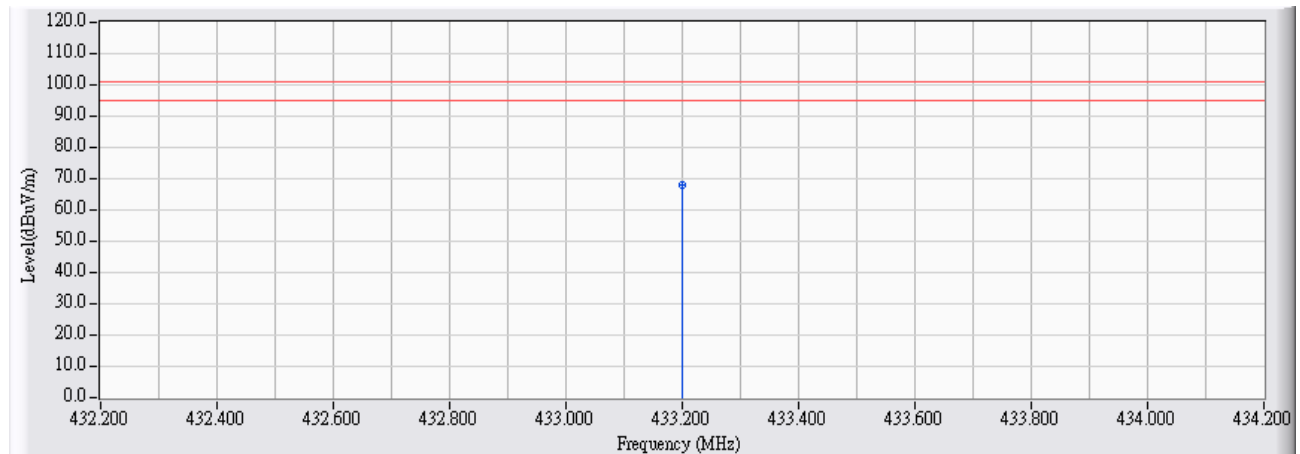


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	433.200	25.906	50.120	76.026	-24.804	100.830	PEAK

Note:

1. All Reading Levels are Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB4-H	Time : 2017/07/19
Limit : FCC_SPARTC_15.231(b)_F_433.92_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - VERTICAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_433.2MHz Y axis



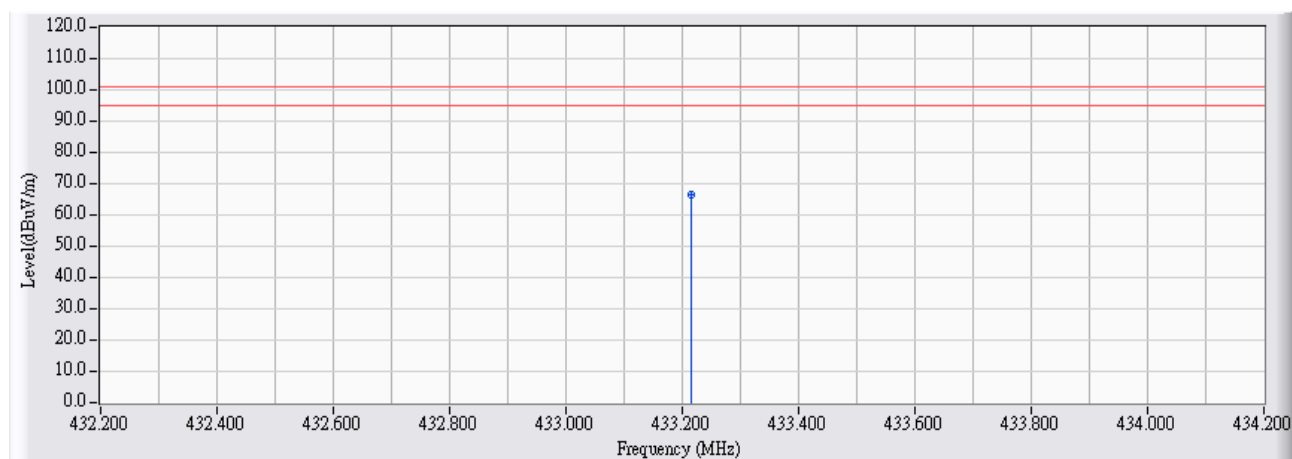
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	433.201	25.906	41.850	67.756	-33.074	100.830	PEAK

## Note:

1. All Reading Levels are Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.



Site : CB4-H	Time : 2017/07/19
Limit : FCC_SPARTC_15.231(b)_F_433.92_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_433.2MHz Z axis

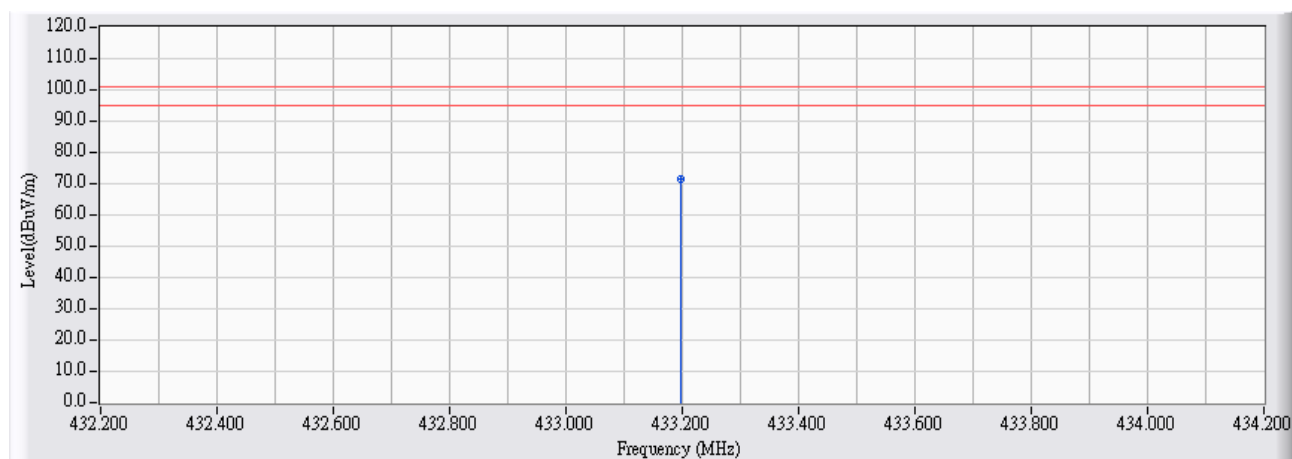


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	433.216	25.907	40.490	66.397	-34.433	100.830	PEAK

Note:

1. All Reading Levels are Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB4-H	Time : 2017/07/19
Limit : FCC_SPARTC_15.231(b)_F_433.92_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - VERTICAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_433.2MHz Z axis

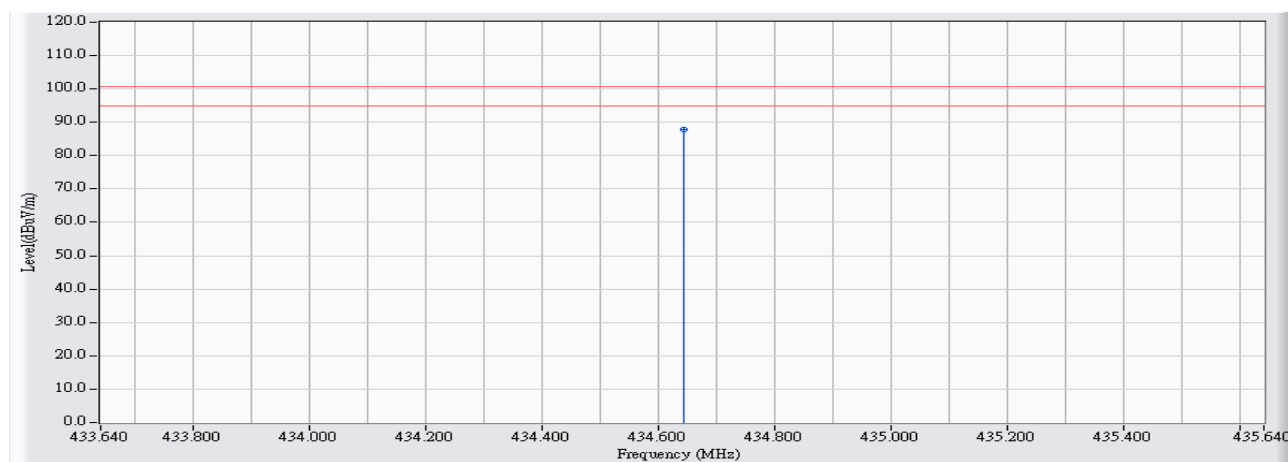


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	433.198	25.906	45.550	71.456	-29.374	100.830	PEAK

Note:

1. All Reading Levels are Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB4-H	Time : 2017/07/20
Limit : FCC_SPARTC_15.231(b)_F_433.92_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_434.64MHz X axis

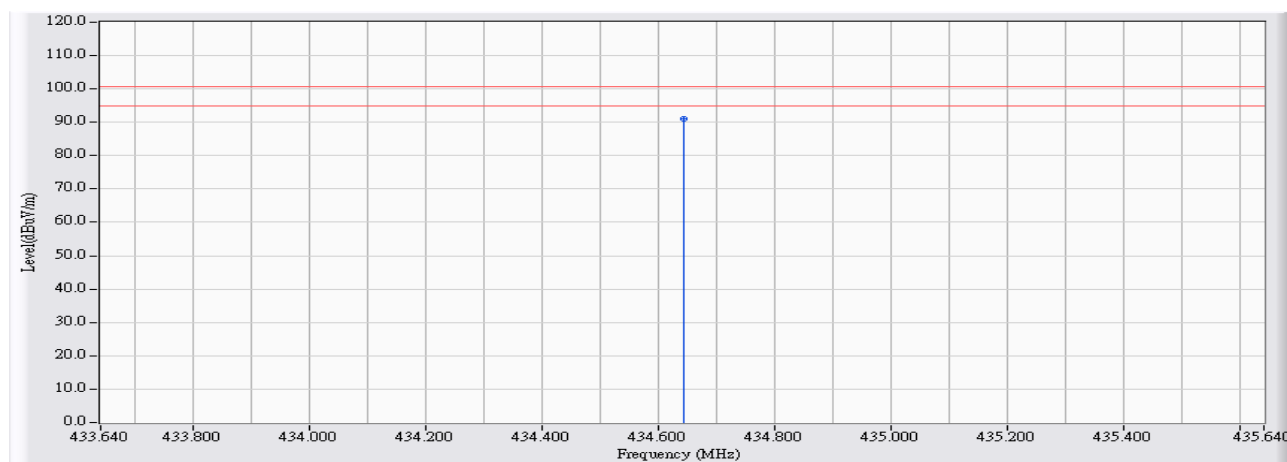


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	434.642	25.929	61.874	87.803	-13.027	100.830	PEAK

## Note:

1. All Reading Levels are Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB4-H	Time : 2017/07/20
Limit : FCC_SPARTC_15.231(b)_F_433.92_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - VERTICAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_434.64MHz X axis

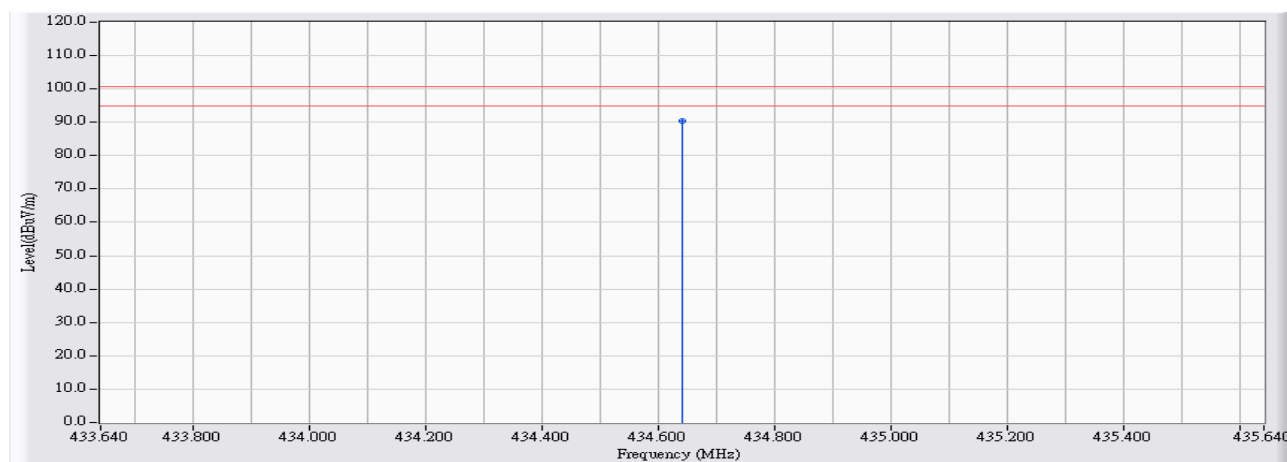


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	434.643	25.929	65.219	91.148	-9.682	100.830	PEAK

## Note:

1. All Reading Levels are Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB4-H	Time : 2017/07/20
Limit : FCC_SPARTC_15.231(b)_F_433.92_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_434.64MHz Y axis

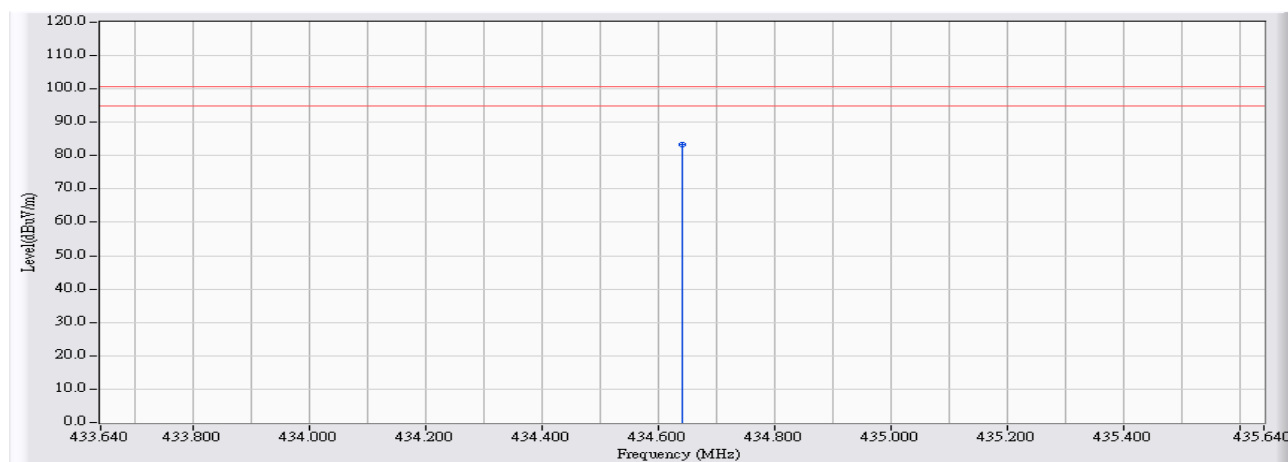


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	434.641	25.929	64.374	90.303	-10.527	100.830	PEAK

## Note:

1. All Reading Levels are Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB4-H	Time : 2017/07/20
Limit : FCC_SPARTC_15.231(b)_F_433.92_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - VERTICAL	Power : DC 5V (Power by PC)
EUT : DKIS	Note : Mode 1: Transmit (Power by PC)_434.64MHz Y axis

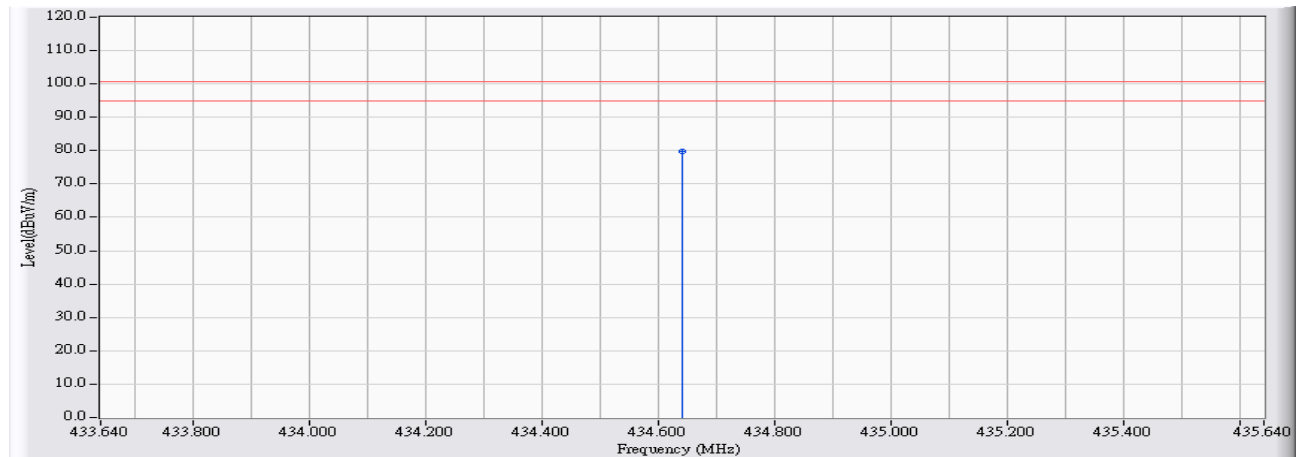


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	434.641	25.929	57.419	83.348	-17.482	100.830	PEAK

## Note:

1. All Reading Levels are Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB4-H	Time : 2017/07/20
Limit : FCC_SPARTC_15.231(b)_F_433.92_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_434.64MHz Z axis

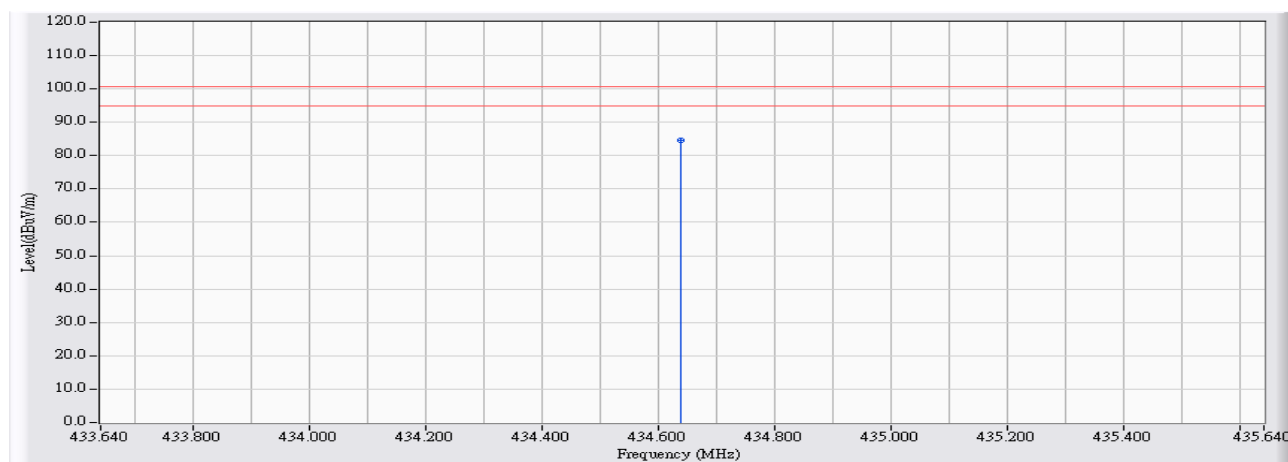


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	434.639	25.929	53.851	79.780	-21.050	100.830	PEAK

Note:

1. All Reading Levels are Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB4-H	Time : 2017/07/20
Limit : FCC_SPARTC_15.231(b)_F_433.92_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - VERTICAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_434.64MHz Z axis



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	434.637	25.929	58.781	84.710	-16.120	100.830	PEAK

## Note:

1. All Reading Levels are Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.



Product	DK1S		
Test Item	Fundamental Radiated Emission		
Test Mode	Mode 1: Transmit (Power by PC)		
Date of Test	2017/07/19	Test Site	CB4-H

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Peak Measurement Level (dBuV/m)	Average Measurement Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)
<b>Horizontal</b>						
433.179(X-axis)	25.906	47.090	72.996	61.540	100.800	80.800
433.200(Y-axis)	25.906	50.120	76.026	64.570	100.800	80.800
433.216(Z-axis)	25.907	40.490	66.397	54.935	100.800	80.800
<b>Vertical</b>						
433.194(X-axis)	25.906	50.400	76.306	64.850	100.800	80.800
433.201(Y-axis)	25.906	41.850	67.756	56.300	100.800	80.800
433.198(Z-axis)	25.906	45.550	71.456	60.000	100.800	80.800

Note1:

Peak Measurement Level = Reading Level +Correct factor

Average Measurement Level = Peak Measurement Level +20Log(Duty Cycle)

(Duty Cycle)=(Ton/(Ton+Toff))=36.98/138.28

20Log(Duty Cycle)= -11.456

Product	DK1S		
Test Item	Fundamental Radiated Emission		
Test Mode	Mode 1: Transmit (Power by PC)		
Date of Test	2017/07/20	Test Site	CB4-H

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Peak Measurement Level (dBuV/m)	Average Measurement Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)
<b>Horizontal</b>						
434.642(X-axis)	25.929	61.874	87.803	76.347	100.850	80.850
434.641(Y-axis)	25.929	64.374	90.303	78.847	100.850	80.850
434.639(Z-axis)	25.929	53.851	79.780	68.324	100.850	80.850
<b>Vertical</b>						
434.643(X-axis)	25.929	65.219	91.148	79.660	100.850	80.850
434.641(Y-axis)	25.929	57.419	83.348	71.860	100.850	80.850
434.637(Z-axis)	25.929	58.781	84.710	73.222	100.850	80.850

Note1:

Peak Measurement Level = Reading Level +Correct factor

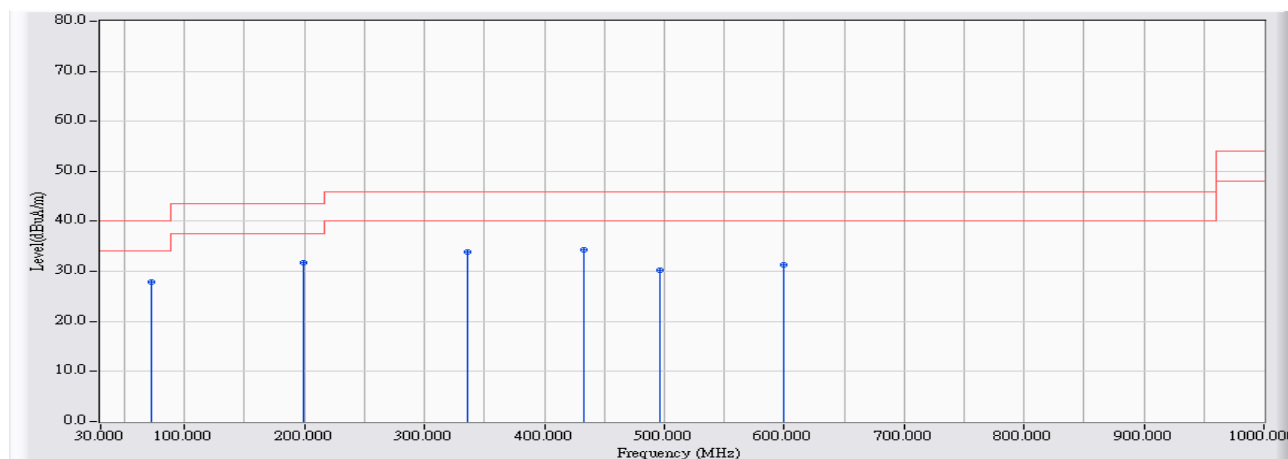
Average Measurement Level = Peak Measurement Level +20Log(Duty Cycle)

(Duty Cycle)=(Ton/(Ton+Toff)=36.88/138.42

20Log(Duty Cycle)= -11.488

**30MHz-1GHz Spurious :**

Site : CB4-H	Time : 2017/07/19
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_433.2MHz

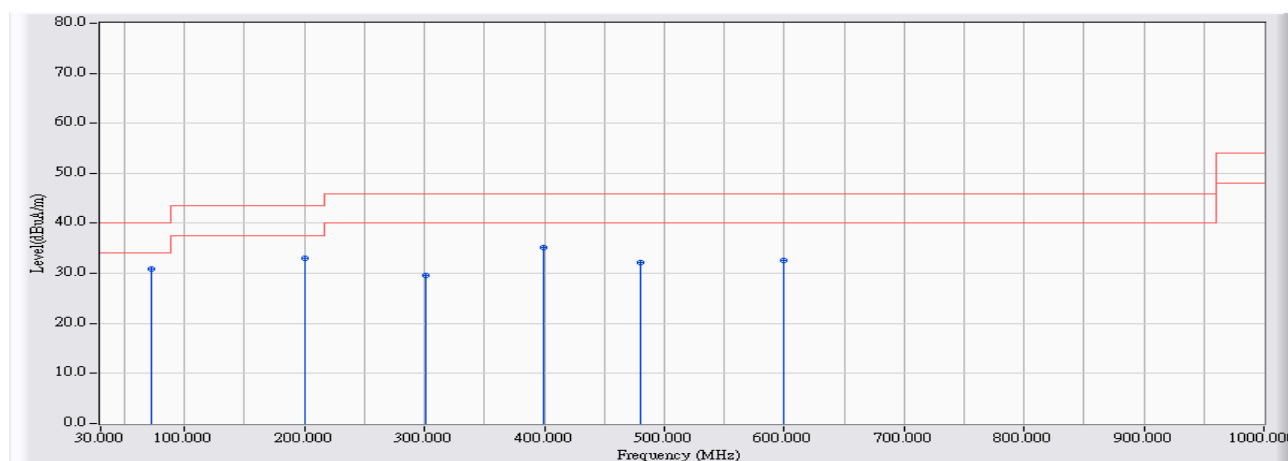


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuA)	Measure Level (dBuA/m)	Margin (dB)	Limit (dBuA/m)	Detector Type
1		71.900	-20.243	48.232	27.989	-12.011	40.000	QUASIPeAK
2	*	199.636	-15.882	47.686	31.803	-11.697	43.500	QUASIPeAK
3		336.004	-11.013	44.946	33.934	-12.066	46.000	QUASIPeAK
4		433.092	-8.363	42.614	34.252	-11.748	46.000	QUASIPeAK
5		496.911	-7.237	37.577	30.340	-15.660	46.000	QUASIPeAK
6		599.915	-5.944	37.284	31.340	-14.660	46.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB4-H	Time : 2017/07/19
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - VERTICAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_433.2MHz

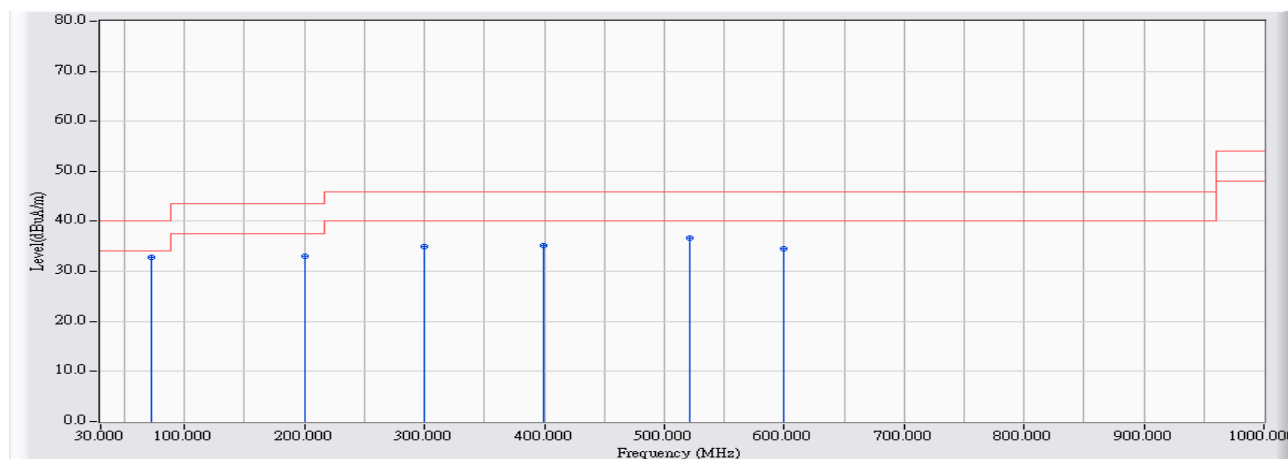


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuA)	Measure Level (dBuA/m)	Margin (dB)	Limit (dBuA/m)	Detector Type
1	*	71.706	-20.263	51.070	30.807	-9.193	40.000	QUASIPeAK
2		199.830	-15.874	48.815	32.940	-10.560	43.500	QUASIPeAK
3		300.991	-12.142	41.784	29.642	-16.358	46.000	QUASIPeAK
4		399.048	-8.975	44.181	35.206	-10.794	46.000	QUASIPeAK
5		479.938	-7.542	39.804	32.262	-13.738	46.000	QUASIPeAK
6		599.915	-5.944	38.598	32.654	-13.346	46.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB4-H	Time : 2017/07/19
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_434.64MHz

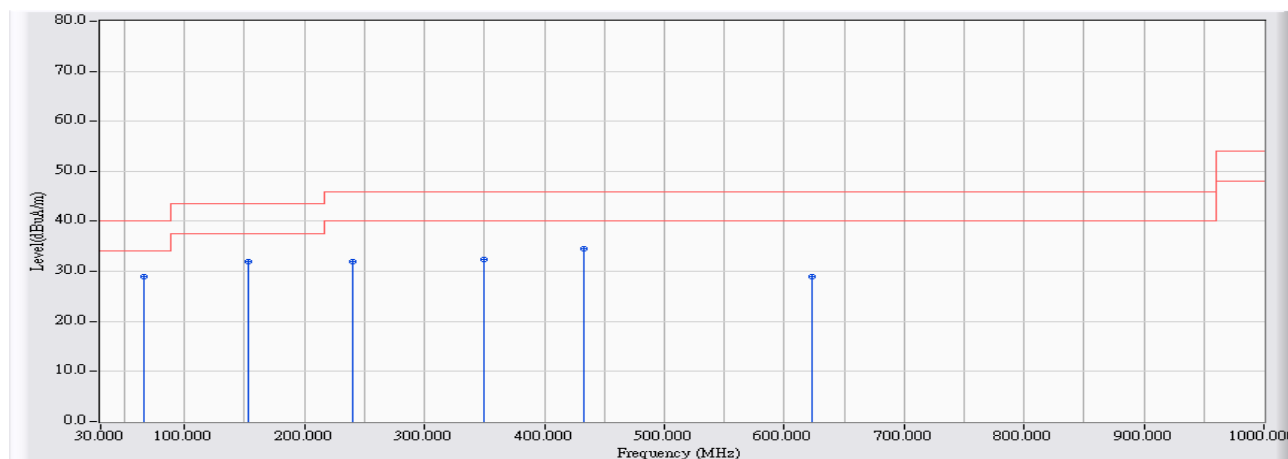


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuA)	Measure Level (dBuA/m)	Margin (dB)	Limit (dBuA/m)	Detector Type
1	*	71.803	-20.253	53.015	32.762	-7.238	40.000	QUASIPeAK
2		199.830	-15.874	48.815	32.940	-10.560	43.500	QUASIPeAK
3		300.021	-12.170	47.045	34.875	-11.125	46.000	QUASIPeAK
4		399.048	-8.975	44.181	35.206	-10.794	46.000	QUASIPeAK
5		520.965	-6.929	43.506	36.576	-9.424	46.000	QUASIPeAK
6		599.915	-5.944	40.576	34.632	-11.368	46.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB4-H	Time : 2017/07/19
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - VERTICAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_434.64MHz

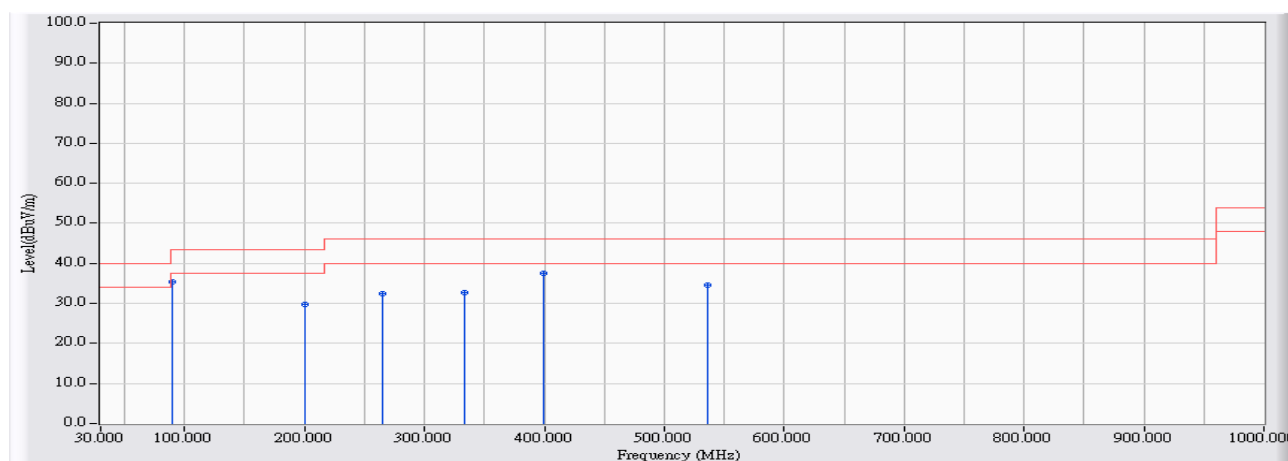


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuA)	Measure Level (dBuA/m)	Margin (dB)	Limit (dBuA/m)	Detector Type
1	*	66.565	-20.475	49.346	28.871	-11.129	40.000	QUASIPeAK
2		153.566	-14.896	46.839	31.943	-11.557	43.500	QUASIPeAK
3		239.984	-13.618	45.533	31.915	-14.085	46.000	QUASIPeAK
4		350.165	-10.563	42.960	32.397	-13.603	46.000	QUASIPeAK
5		433.189	-8.361	42.927	34.566	-11.434	46.000	QUASIPeAK
6		622.999	-5.722	34.590	28.868	-17.132	46.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB4-H	Time : 2017/07/20
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - HORIZONTAL	Power : DC 4.2V (Power by Battery)
EUT : DK1S	Note : Mode 2: Transmit (Power by Battery)_433.2MHz

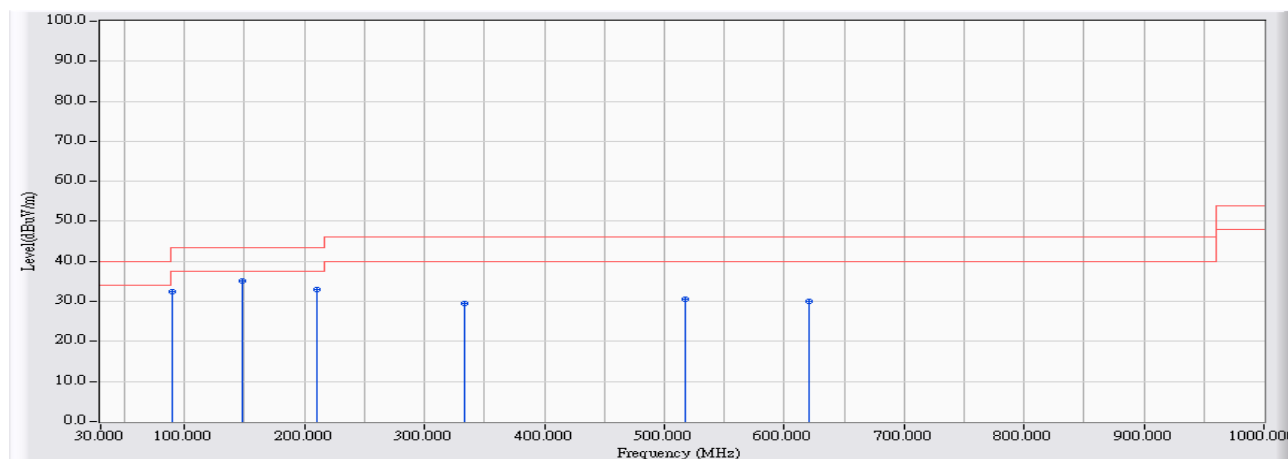


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	89.261	-25.592	60.847	35.255	-8.245	43.500	QUASIPeAK
2		199.830	-23.343	53.149	29.806	-13.694	43.500	QUASIPeAK
3		265.492	-20.275	52.745	32.469	-13.531	46.000	QUASIPeAK
4		332.998	-18.332	51.044	32.711	-13.289	46.000	QUASIPeAK
5		399.339	-16.044	53.523	37.478	-8.522	46.000	QUASIPeAK
6		536.095	-14.018	48.619	34.601	-11.399	46.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB4-H	Time : 2017/07/20
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - VERTICAL	Power : DC 4.2V (Power by Battery)
EUT : DK1S	Note : Mode 2: Transmit (Power by Battery)_433.2MHz



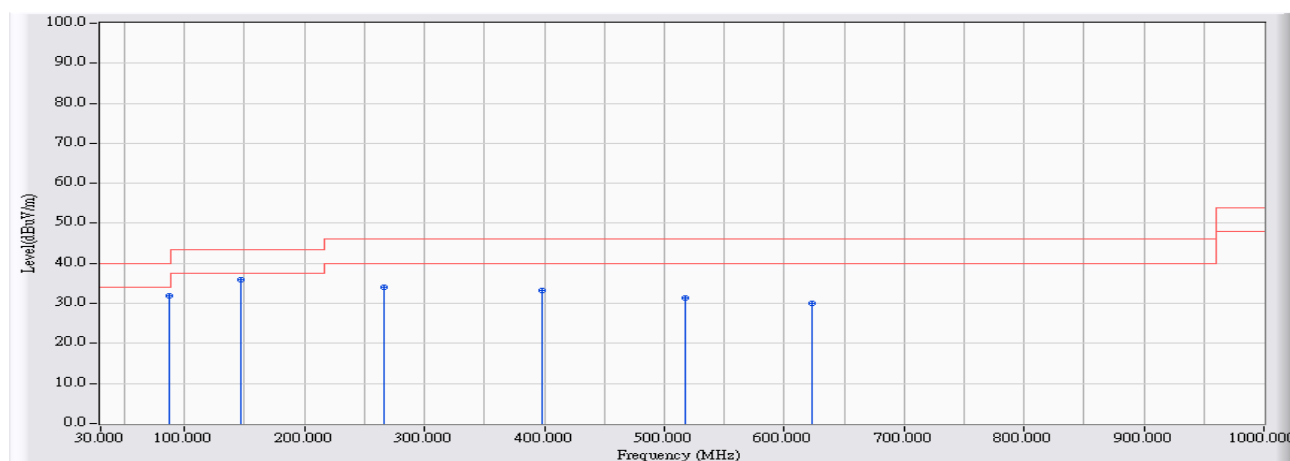
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		89.164	-25.607	58.118	32.511	-10.989	43.500	QUASIPeAK
2	*	147.746	-22.105	57.098	34.993	-8.507	43.500	QUASIPeAK
3		210.596	-22.557	55.605	33.047	-10.453	43.500	QUASIPeAK
4		332.998	-18.332	47.798	29.465	-16.535	46.000	QUASIPeAK
5		517.279	-13.960	44.658	30.697	-15.303	46.000	QUASIPeAK
6		621.253	-12.343	42.337	29.994	-16.006	46.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.



Site : CB4-H	Time : 2017/07/20
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - HORIZONTAL	Power : DC 4.2V (Power by Battery)
EUT : DK1S	Note : Mode 2: Transmit (Power by Battery) _434.64MHz

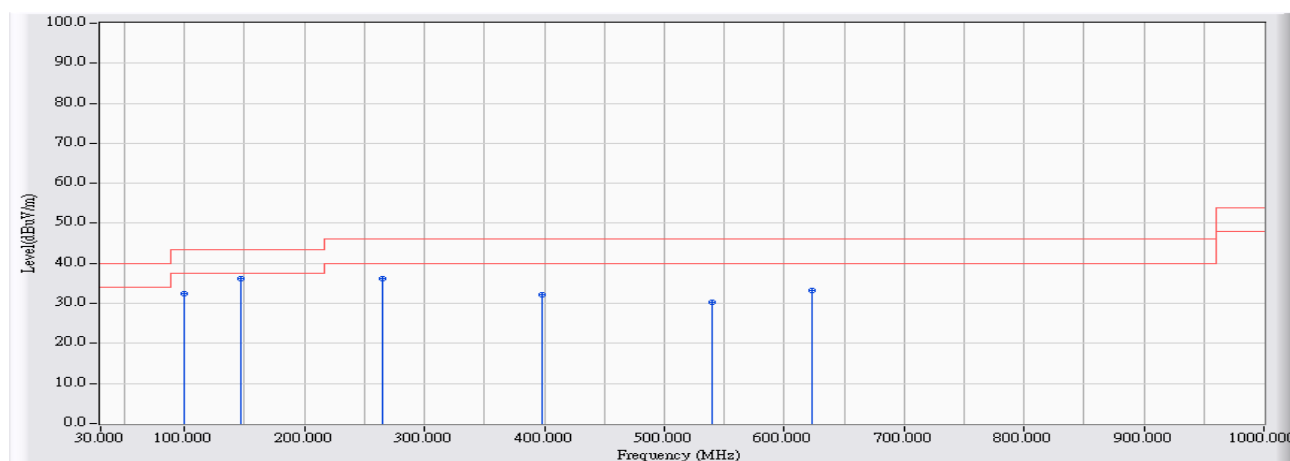


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		87.709	-25.822	57.680	31.859	-8.141	40.000	QUASIPeAK
2	*	147.358	-22.080	57.875	35.794	-7.706	43.500	QUASIPeAK
3		266.462	-20.253	54.341	34.088	-11.912	46.000	QUASIPeAK
4		398.175	-16.113	49.325	33.211	-12.789	46.000	QUASIPeAK
5		517.376	-13.961	45.461	31.500	-14.500	46.000	QUASIPeAK
6		623.096	-12.394	42.421	30.027	-15.973	46.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB4-H	Time : 2017/07/20
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - VERTICAL	Power : DC 4.2V (Power by Battery)
EUT : DK1S	Note : Mode 2: Transmit (Power by Battery) _434.64MHz



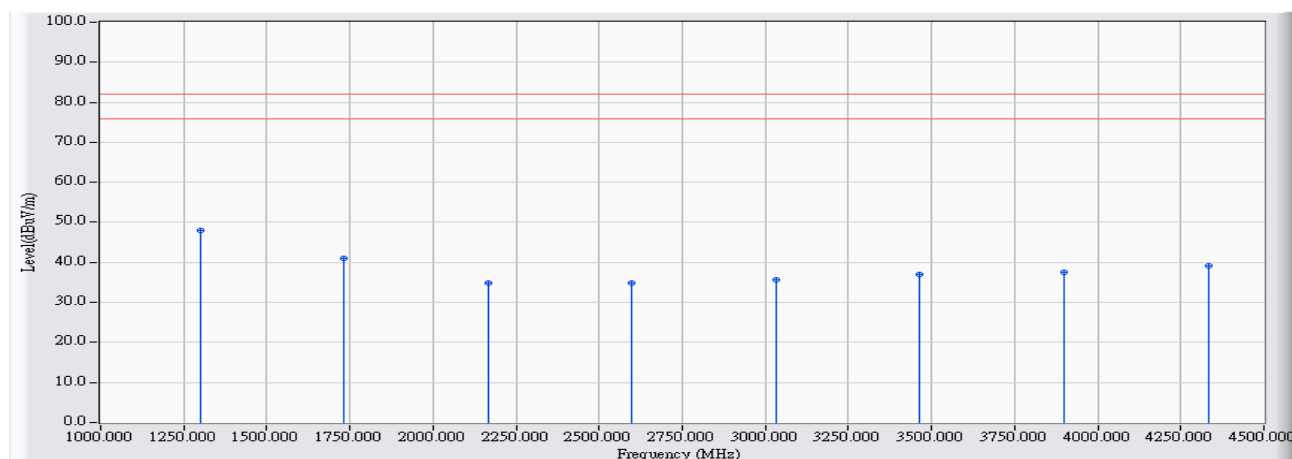
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	99.736	-23.447	55.995	32.548	-10.952	43.500	QUASIPeAK
2	* 147.358	-22.080	58.201	36.120	-7.380	43.500	QUASIPeAK
3	265.492	-20.275	56.435	36.159	-9.841	46.000	QUASIPeAK
4	398.175	-16.113	48.196	32.082	-13.918	46.000	QUASIPeAK
5	539.296	-13.854	44.187	30.333	-15.667	46.000	QUASIPeAK
6	623.193	-12.397	45.715	33.319	-12.681	46.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

**Above 1GHz Spurious:**

Site : CB4-H	Time : 2017/07/20
Limit : FCC_SpartC_15.231(b)_H_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_433.2MHz

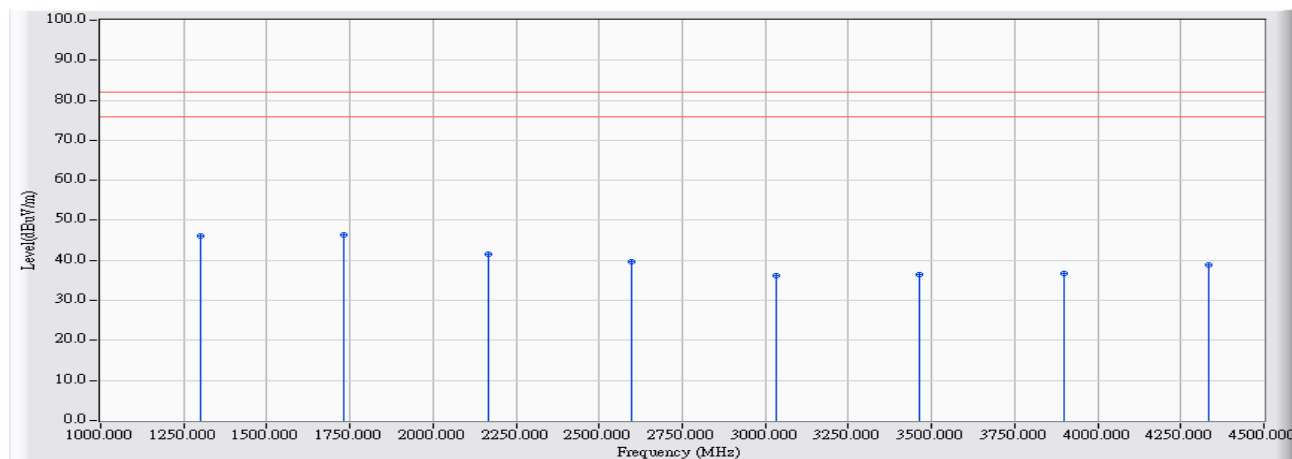


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	1299.640	-13.638	61.530	47.892	-34.038	81.930	PEAK
2		1732.801	-12.016	52.960	40.943	-40.987	81.930	PEAK
3		2166.028	-10.282	45.230	34.947	-46.983	81.930	PEAK
4		2599.230	-8.314	43.110	34.796	-47.134	81.930	PEAK
5		3032.400	-7.076	42.830	35.754	-46.176	81.930	PEAK
6		3465.611	-6.285	43.170	36.885	-45.045	81.930	PEAK
7		3898.801	-4.645	42.190	37.545	-44.385	81.930	PEAK
8		4332.141	-2.710	41.760	39.050	-42.880	81.930	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. “ \* ”, means this data is the worst emission level.
4. Measurement Level = Reading Level + Correct Factor.
5. Average Measurement Level = Peak Measurement Level + 20Log (Duty Cycle)  
(Duty Cycle)=(Ton/(Ton+Toff))=36.98/138.28  
20Log(Duty Cycle)=-11.456
6. The average measurement was not performed when the peak measured data under the limit of peak detection.

Site : CB4-H	Time : 2017/07/20
Limit : FCC_SpartC_15.231(b)_H_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_433.2MHz

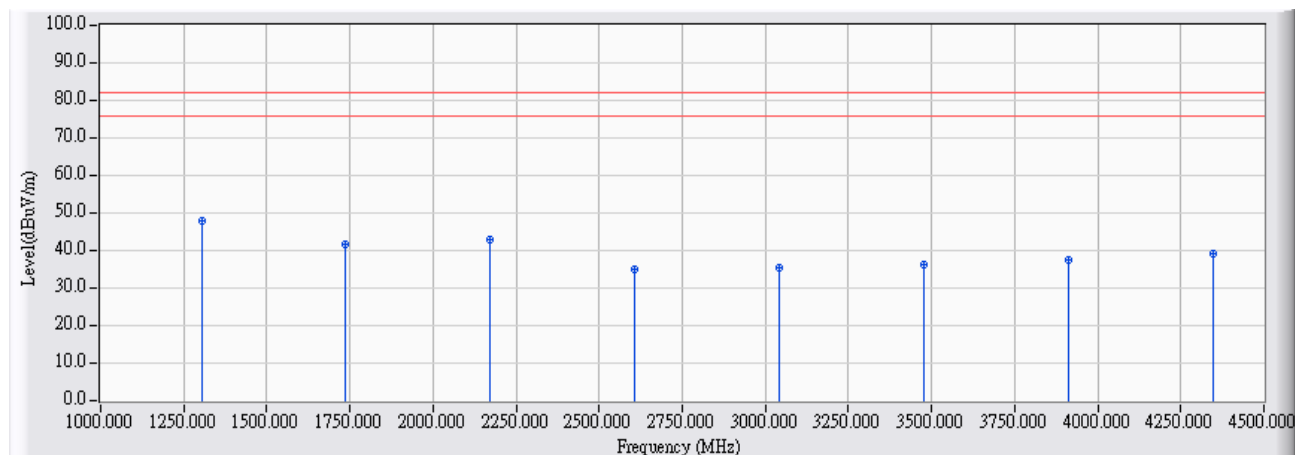


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		1299.616	-13.638	59.780	46.142	-35.788	81.930	PEAK
2	*	1732.801	-12.016	58.510	46.493	-35.437	81.930	PEAK
3		2166.401	-10.281	51.840	41.559	-40.371	81.930	PEAK
4		2599.231	-8.314	47.870	39.556	-42.374	81.930	PEAK
5		3032.423	-7.076	43.310	36.234	-45.696	81.930	PEAK
6		3465.603	-6.285	42.700	36.415	-45.515	81.930	PEAK
7		3898.813	-4.645	41.490	36.845	-45.085	81.930	PEAK
8		4332.301	-2.709	41.550	38.841	-43.089	81.930	PEAK

## Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. “ \* ”, means this data is the worst emission level.
4. Measurement Level = Reading Level + Correct Factor.
5. Average Measurement Level = Peak Measurement Level + 20Log (Duty Cycle)  
(Duty Cycle)=(Ton/(Ton+Toff))=36.98/138.28  
20Log(Duty Cycle)=-11.456
6. The average measurement was not performed when the peak measured data under the limit of peak detection.

Site : CB4-H	Time : 2017/07/20
Limit : FCC_SpartC_15.231(b)_H_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_434.64MHz

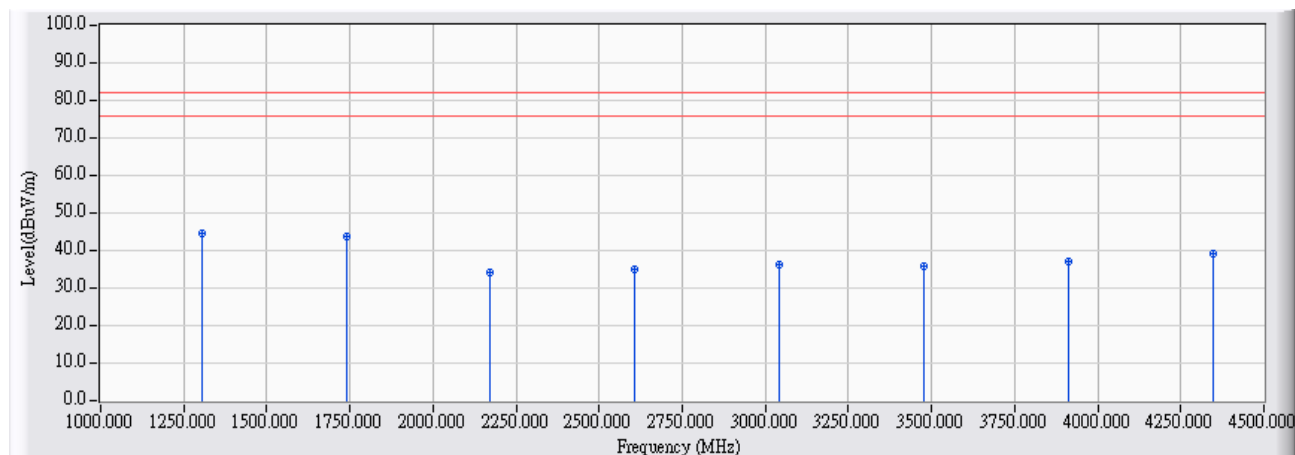


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	1303.920	-13.620	61.650	48.029	-33.901	81.930	PEAK
2		1736.712	-12.003	53.520	41.517	-40.413	81.930	PEAK
3		2173.267	-10.246	53.350	43.104	-38.826	81.930	PEAK
4		2607.840	-8.288	43.240	34.951	-46.979	81.930	PEAK
5		3042.480	-7.059	42.660	35.601	-46.329	81.930	PEAK
6		3477.120	-6.261	42.340	36.078	-45.852	81.930	PEAK
7		3911.760	-4.591	42.210	37.618	-44.312	81.930	PEAK
8		4346.400	-2.640	41.860	39.220	-42.710	81.930	PEAK

## Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. " \* ", means this data is the worst emission level.
4. Measurement Level = Reading Level + Correct Factor.
5. Average Measurement Level = Peak Measurement Level + 20Log (Duty Cycle)  
(Duty Cycle)=(Ton/(Ton+Toff))=36.98/138.42  
20Log(Duty Cycle)=-11.488
6. The average measurement was not performed when the peak measured data under the limit of peak detection.

Site : CB4-H	Time : 2017/07/20
Limit : FCC_SpartC_15.231(b)_H_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : DC 5V (Power by PC)
EUT : DK1S	Note : Mode 1: Transmit (Power by PC)_434.64MHz

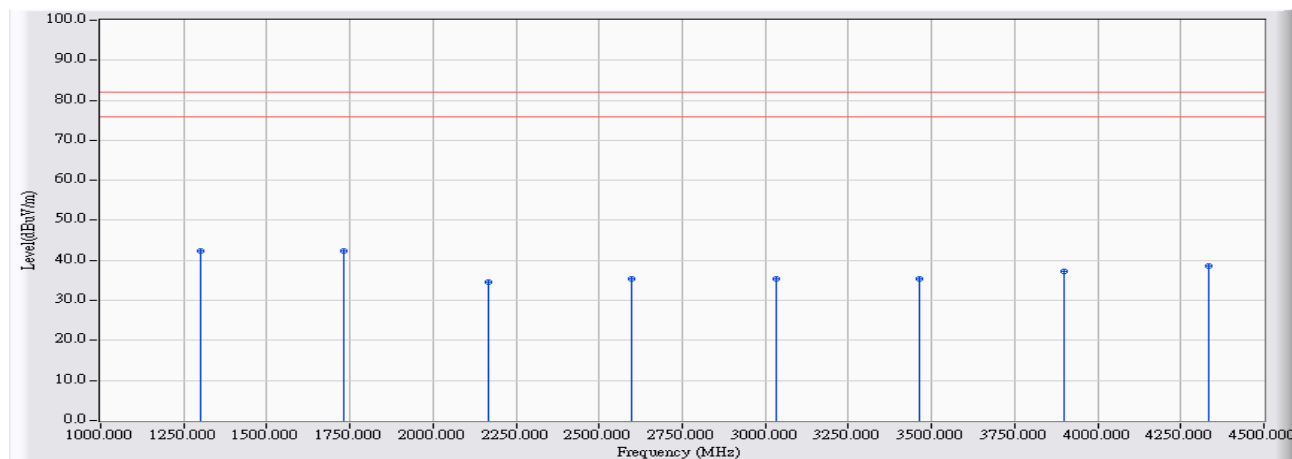


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	1303.920	-13.620	58.280	44.659	-37.271	81.930	PEAK
2	*	1738.560	-11.997	55.783	43.786	-38.144	81.930	PEAK
3		2173.234	-10.246	44.330	34.084	-47.846	81.930	PEAK
4		2607.849	-8.288	43.110	34.821	-47.109	81.930	PEAK
5		3042.481	-7.059	43.450	36.391	-45.539	81.930	PEAK
6		3477.123	-6.261	42.220	35.958	-45.972	81.930	PEAK
7		3911.760	-4.591	41.540	36.948	-44.982	81.930	PEAK
8		4346.411	-2.640	41.640	39.000	-42.930	81.930	PEAK

## Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. " \* ", means this data is the worst emission level.
4. Measurement Level = Reading Level + Correct Factor.
5. Average Measurement Level = Peak Measurement Level + 20Log (Duty Cycle)  
(Duty Cycle)=(Ton/(Ton+Toff))=36.98/138.42  
20Log(Duty Cycle)=-11.488
6. The average measurement was not performed when the peak measured data under the limit of peak detection.

Site : CB4-H	Time : 2017/07/19
Limit : FCC_SpartC_15.231(b)_H_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : DC 4.2V (Power by Battery)
EUT : DK1S	Note : Mode 2: Transmit (Power by Battery)_433.2MHz

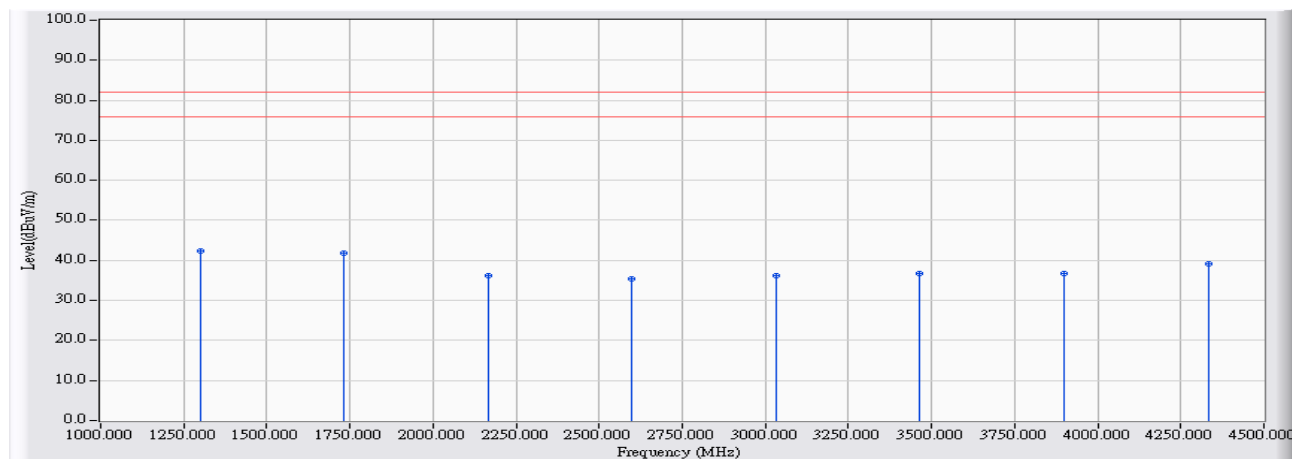


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	1299.607	-13.638	56.060	42.422	-39.508	81.930	PEAK
2		1732.811	-12.016	54.300	42.283	-39.647	81.930	PEAK
3		2166.012	-10.282	44.880	34.597	-47.333	81.930	PEAK
4		2599.224	-8.314	43.810	35.496	-46.434	81.930	PEAK
5		3032.412	-7.076	42.390	35.314	-46.616	81.930	PEAK
6		3465.604	-6.285	41.670	35.385	-46.545	81.930	PEAK
7		3898.807	-4.645	41.810	37.165	-44.765	81.930	PEAK
8		4332.340	-2.709	41.410	38.701	-43.229	81.930	PEAK

## Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. “ \* ”, means this data is the worst emission level.
4. Measurement Level = Reading Level + Correct Factor.
5. Average Measurement Level = Peak Measurement Level + 20Log (Duty Cycle)  
(Duty Cycle)=(Ton/(Ton+Toff))=36.98/138.28  
20Log(Duty Cycle)= -11.456
6. The average measurement was not performed when the peak measured data under the limit of peak detection.

Site : CB4-H	Time : 2017/07/19
Limit : FCC_SpartC_15.231(b)_H_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : DC 4.2V (Power by Battery)
EUT : DK1S	Note : Mode 2: Transmit (Power by Battery)_433.2MHz



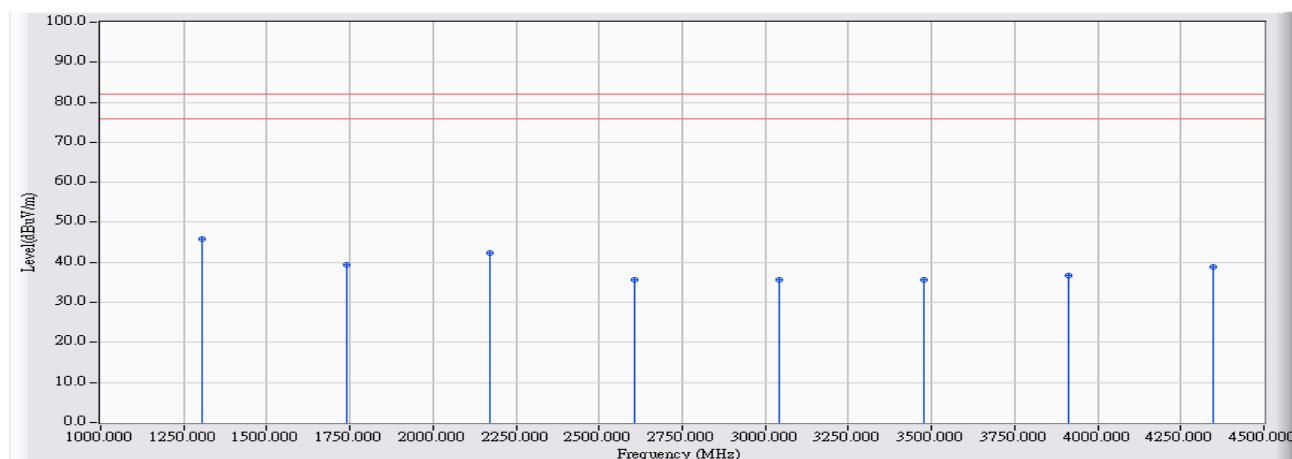
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	1299.604	-13.638	55.900	42.262	-39.668	81.930	PEAK
2		1732.789	-12.016	53.820	41.803	-40.127	81.930	PEAK
3		2166.013	-10.282	46.470	36.187	-45.743	81.930	PEAK
4		2599.201	-8.314	43.640	35.326	-46.604	81.930	PEAK
5		3032.321	-7.076	43.160	36.084	-45.846	81.930	PEAK
6		3465.601	-6.285	43.050	36.765	-45.165	81.930	PEAK
7		3898.801	-4.645	41.350	36.705	-45.225	81.930	PEAK
8		4332.201	-2.709	41.780	39.070	-42.860	81.930	PEAK

## Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. " \* ", means this data is the worst emission level.
4. Measurement Level = Reading Level + Correct Factor.
5. Average Measurement Level = Peak Measurement Level + 20Log (Duty Cycle)  
(Duty Cycle)=(Ton/(Ton+Toff))=36.98/138.28  
20Log(Duty Cycle)= -11.456
6. The average measurement was not performed when the peak measured data under the limit of peak detection.



Site : CB4-H	Time : 2017/07/19
Limit : FCC_SpartC_15.231(b)_H_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - HORIZONTAL	Power : DC 4.2V (Power by Battery)
EUT : DK1S	Note : Mode 2: Transmit (Power by Battery)_434.64MHz

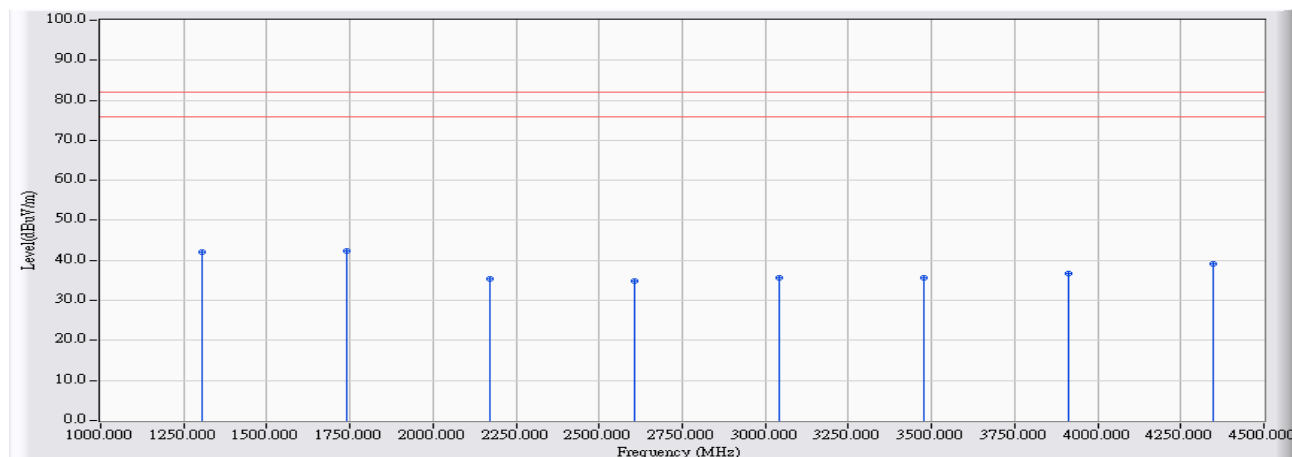


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	1303.921	-13.620	59.354	45.733	-36.197	81.930	PEAK
2		1738.563	-11.997	51.400	39.403	-42.527	81.930	PEAK
3		2173.201	-10.247	52.647	42.400	-39.530	81.930	PEAK
4		2607.843	-8.288	44.032	35.743	-46.187	81.930	PEAK
5		3042.478	-7.059	42.640	35.581	-46.349	81.930	PEAK
6		3477.127	-6.261	41.800	35.538	-46.392	81.930	PEAK
7		3911.768	-4.591	41.370	36.778	-45.152	81.930	PEAK
8		4346.400	-2.640	41.520	38.880	-43.050	81.930	PEAK

## Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. " \* ", means this data is the worst emission level.
4. Measurement Level = Reading Level + Correct Factor.
5. Average Measurement Level = Peak Measurement Level + 20Log (Duty Cycle)  
 Duty Cycle(Only Ton)= Ton/ (Ton+off)=36.88/138.42  
 20\*Log(Duty Cycle) = -11.488
6. The average measurement was not performed when the peak measured data under the limit of peak detection.

Site : CB4-H	Time : 2017/07/19
Limit : FCC_SpartC_15.231(b)_H_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_B091_1-18GHz_3M_0117 - VERTICAL	Power : DC 4.2V (Power by Battery)
EUT : DK1S	Note : Mode 2: Transmit (Power by Battery)_434.64MHz



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		1303.920	-13.620	55.760	42.139	-39.791	81.930	PEAK
2	*	1738.569	-11.997	54.450	42.453	-39.477	81.930	PEAK
3		2173.200	-10.247	45.700	35.453	-46.477	81.930	PEAK
4		2607.840	-8.288	43.050	34.761	-47.169	81.930	PEAK
5		3043.563	-7.058	42.600	35.542	-46.388	81.930	PEAK
6		3477.128	-6.261	41.990	35.728	-46.202	81.930	PEAK
7		3911.763	-4.591	41.420	36.828	-45.102	81.930	PEAK
8		4346.426	-2.640	41.690	39.050	-42.880	81.930	PEAK

## Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. " \* ", means this data is the worst emission level.
4. Measurement Level = Reading Level + Correct Factor.
5. Average Measurement Level = Peak Measurement Level + 20Log (Duty Cycle)  
 Duty Cycle(Only Ton)= Ton/ (Ton+off)=36.98/138.28  
 20\*Log(Duty Cycle) = -11.456
6. The average measurement was not performed when the peak measured data under the limit of peak detection.

## 4. Occupied Bandwidth

### 4.1. Test Equipment

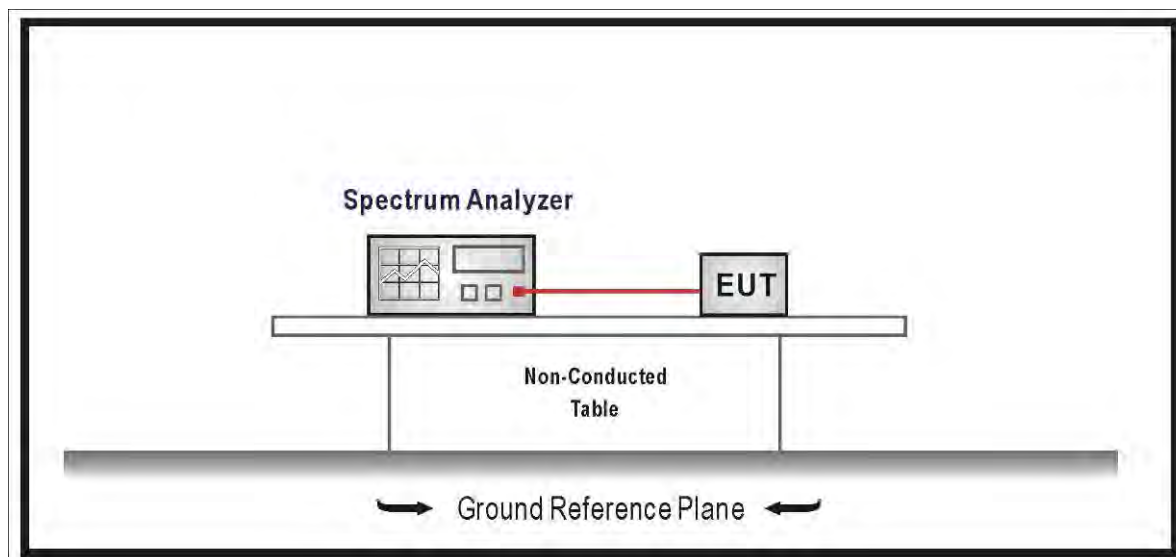
The following test equipment are used during the radiated emission tests:

Occupied Bandwidth / SR10-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2018/07/25
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/01/22

Note: All equipment that need to calibrate are with calibration period of 1 year.

### 4.2. Test Setup



### 4.3. Limits

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

### 4.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.231(b): 2015

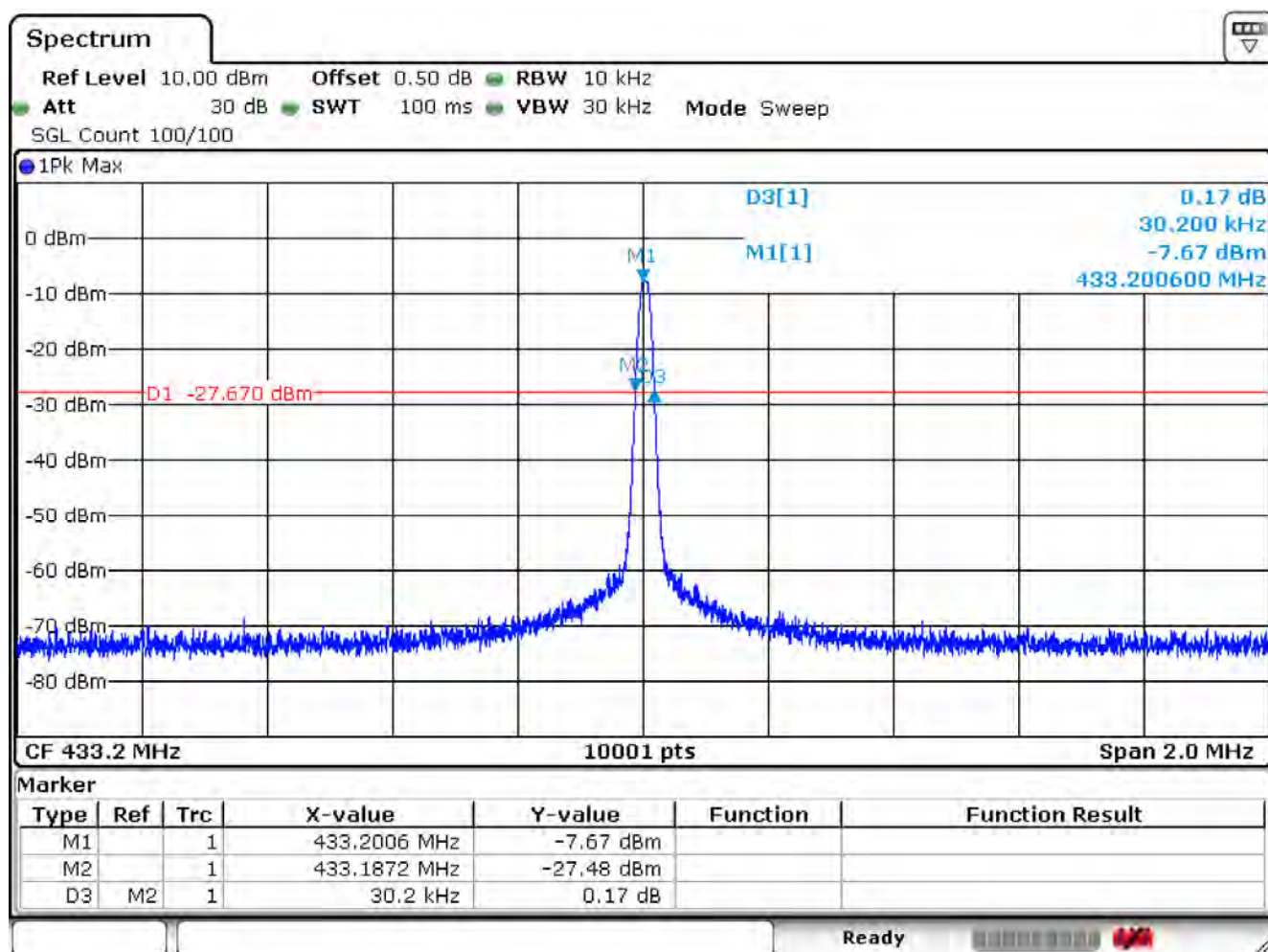
### 4.5. Uncertainty

$\pm 150\text{Hz}$

#### 4.6. Test Result

Product	DK1S		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit (Power by PC)		
Date of Test	2017/07/19	Test Site	SR10-H

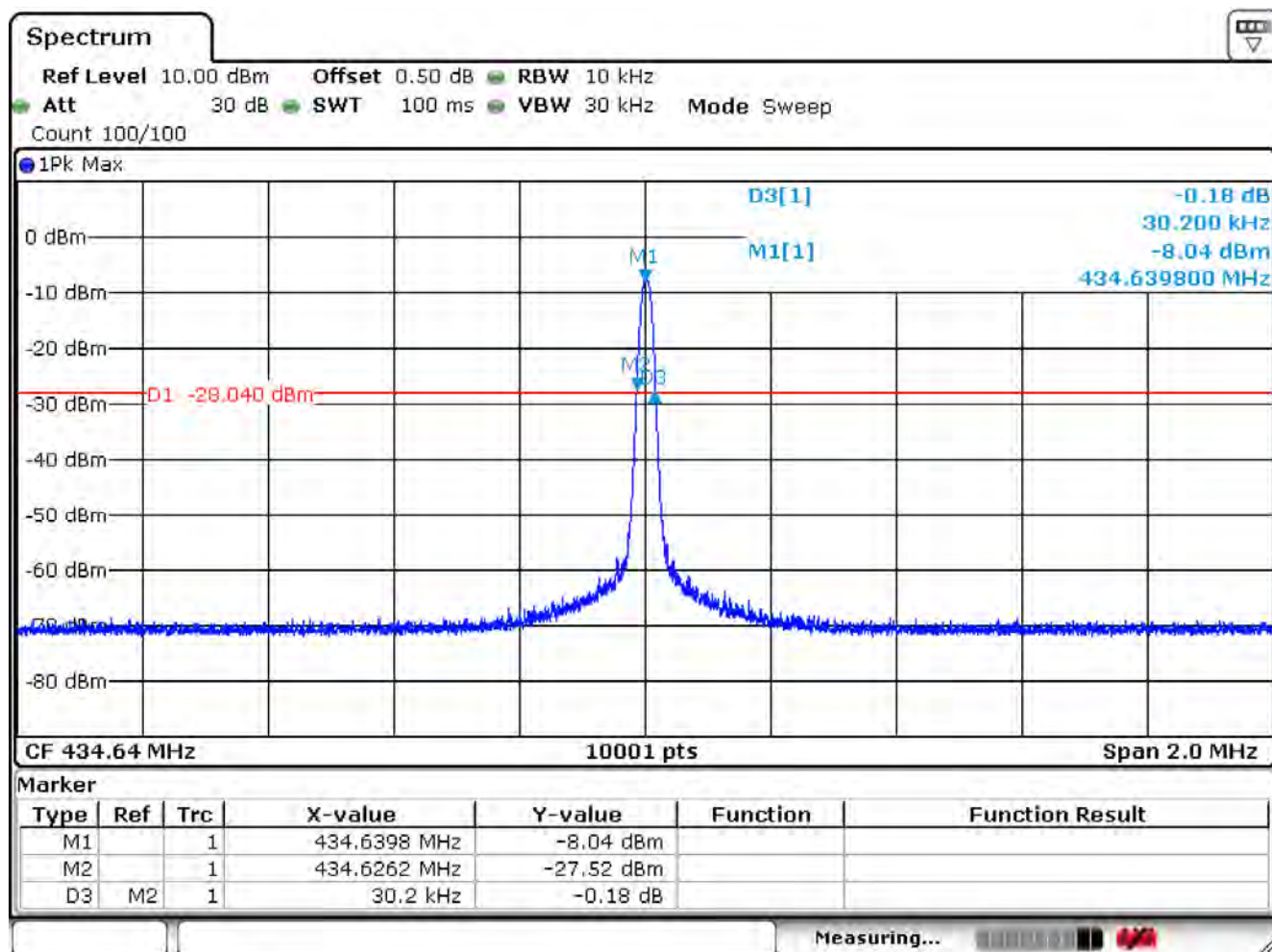
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
1	433.2	0.0302	1.0847	Pass



Date: 19.JUL.2017 17:06:20

Product	DK1S		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit (Power by PC)		
Date of Test	2017/07/19	Test Site	SR10-H

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
2	434.64	0.0302	1.0847	Pass



Date: 19.JUL.2017 17:45:48

## 5. Duty cycle

### 5.1. Test Equipment

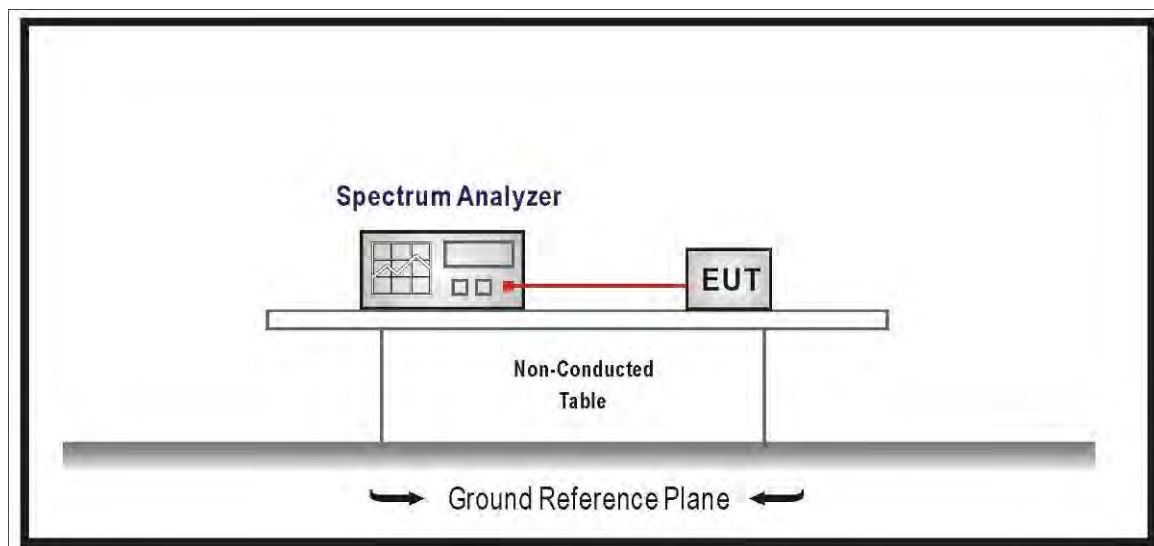
The following test equipment are used during the radiated emission tests:

Duty cycle / SR10-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2018/07/25
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/01/22

Note: All equipment that need to calibrate are with calibration period of 1 year.

### 5.2. Test Setup



### 5.3. Limits

N/A

### 5.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.231(b): 2015

### 5.5. Uncertainty

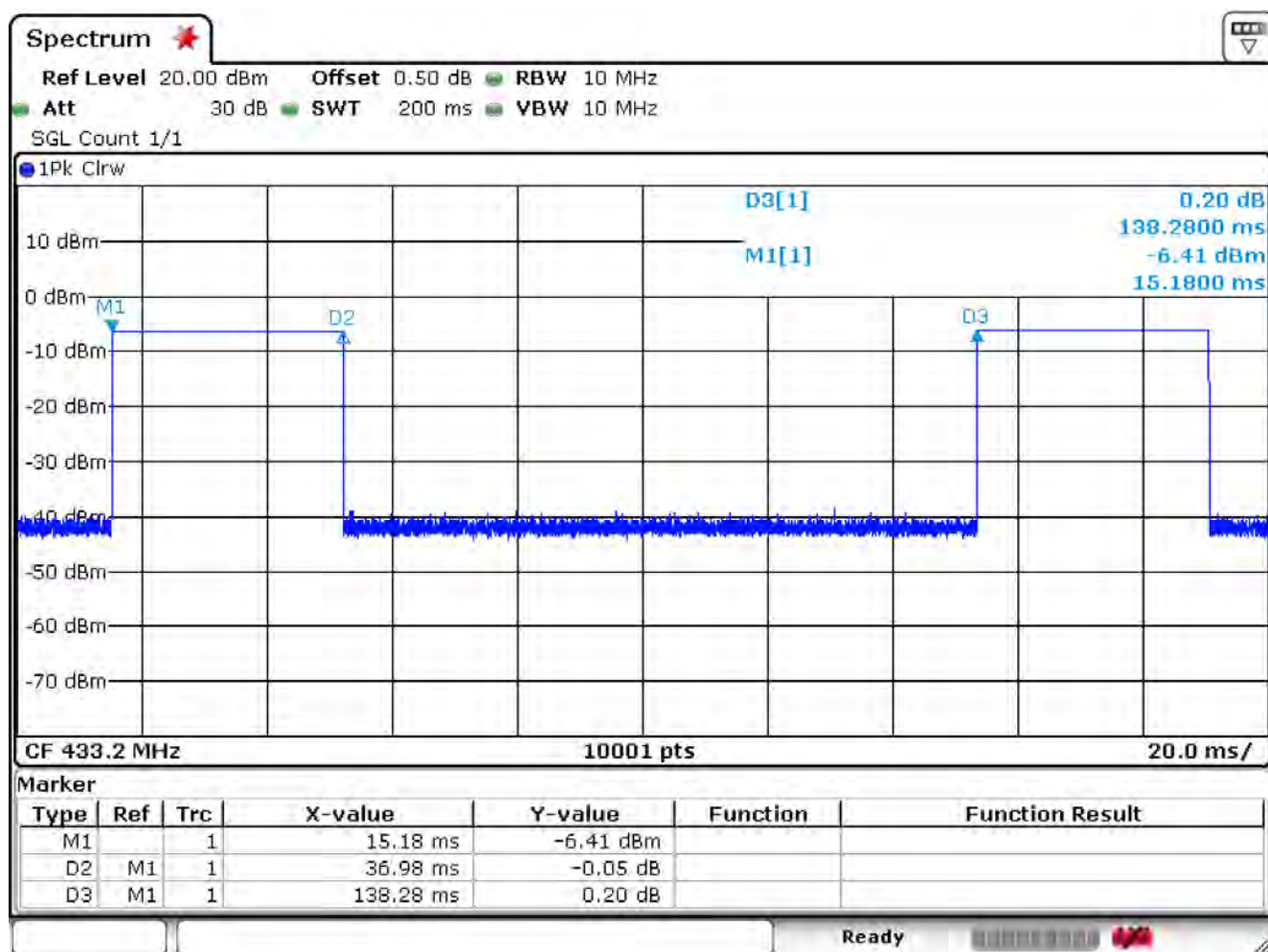
± 25msec



## 5.6. Test Result

Product	DK1S		
Test Item	Duty Cycle		
Test Mode	Mode 1: Transmit (Power by PC)		
Date of Test	2017/07/20	Test Site	SR10-H

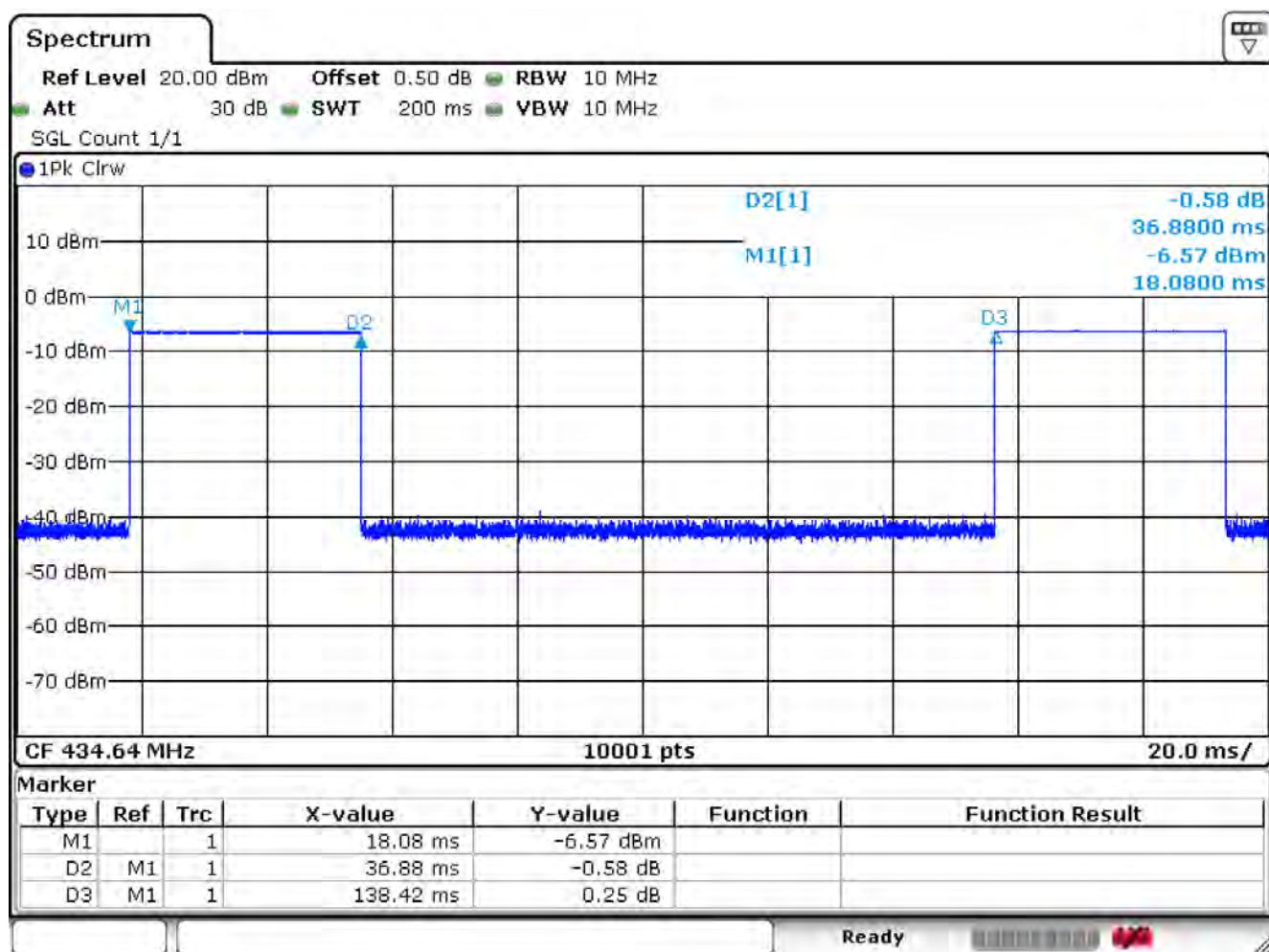
Frequency (MHz)	On Time(ms)	On+Off Time(ms)	Duty Cycle(%)	Duty Factor(dB)
433.2	36.98	138.28	26.74%	11.456



Date: 20 JUL 2017 23:24:40

Product	DK1S		
Test Item	Duty Cycle		
Test Mode	Mode 1: Transmit (Power by PC)		
Date of Test	2017/07/20	Test Site	SR10-H

Frequency (MHz)	On Time(ms)	On+Off Time(ms)	Duty Cycle(%)	Duty Factor(dB)
434.64	36.88	138.42	26.64%	11.488



Date: 20 JUL 2017 23:26:05



## 6. Transmitter time

### 6.1. Test Equipment

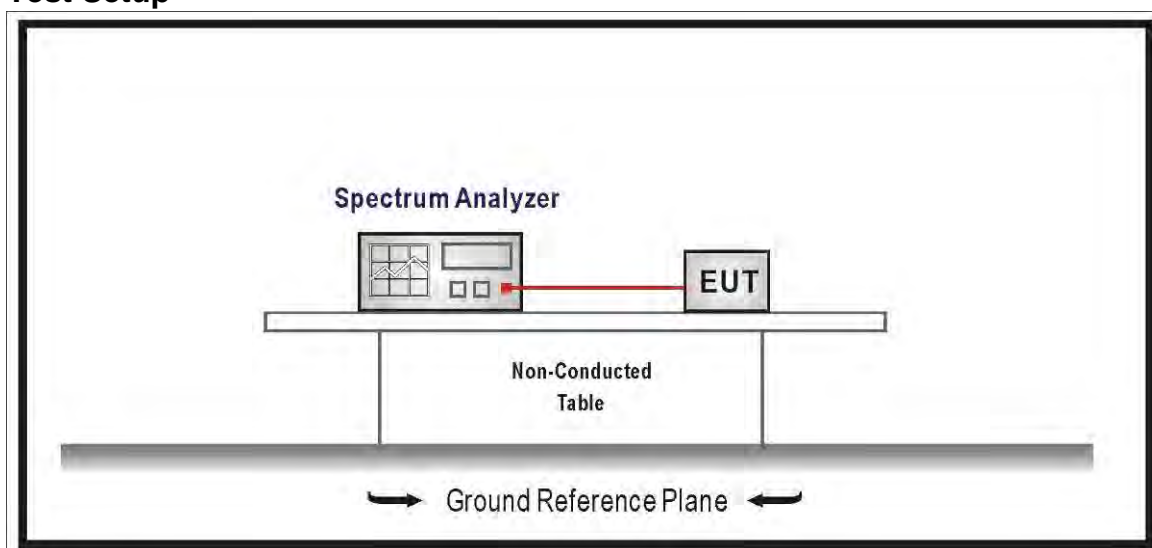
The following test equipment are used during the radiated emission tests:

Transmitter time / SR10-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2018/07/25
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/01/22

Note: All equipment that need to calibrate are with calibration period of 1 year.

### 6.2. Test Setup



### 6.3. Limits

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released. A transmitter activated automatically shall cease transmission within 5 seconds after activation.

### 6.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.231(b): 2015

### 6.5. Uncertainty

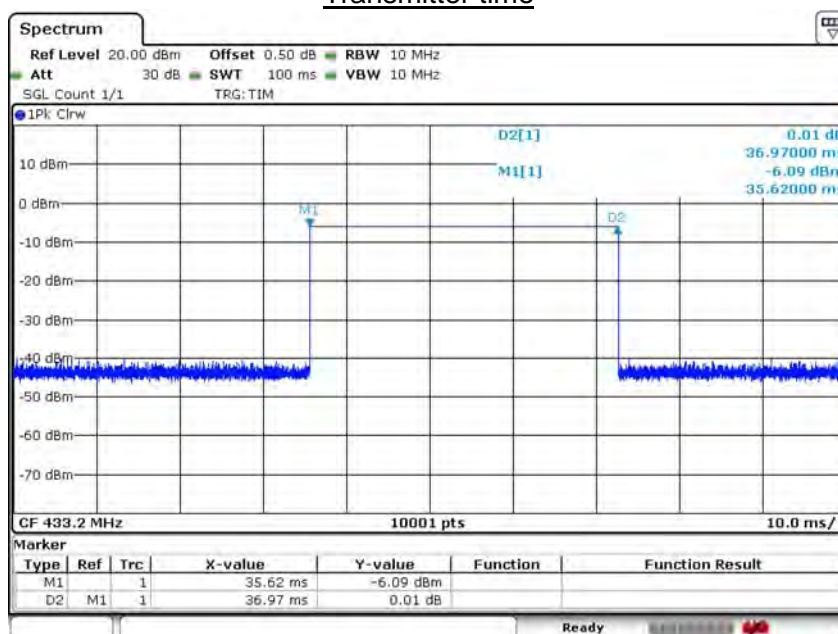
± 25msec

## 6.6. Test Result

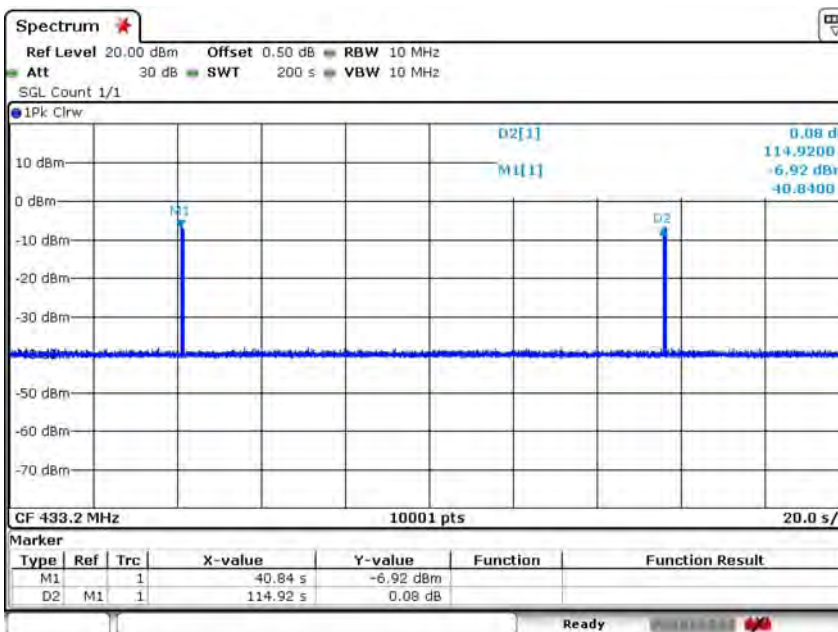
Product	DK1S		
Test Item	Transmitter time		
Test Mode	Mode 1: Transmit (Power by PC)		
Date of Test	2017/07/18	Test Site	SR10-H

Center Frequency	433.2 MHz
Transmitter time = 36.97ms < 5 sec.	Below 5 sec.
Result	PASS

### Transmitter time



Date: 18 JUL 2017 14:17:25

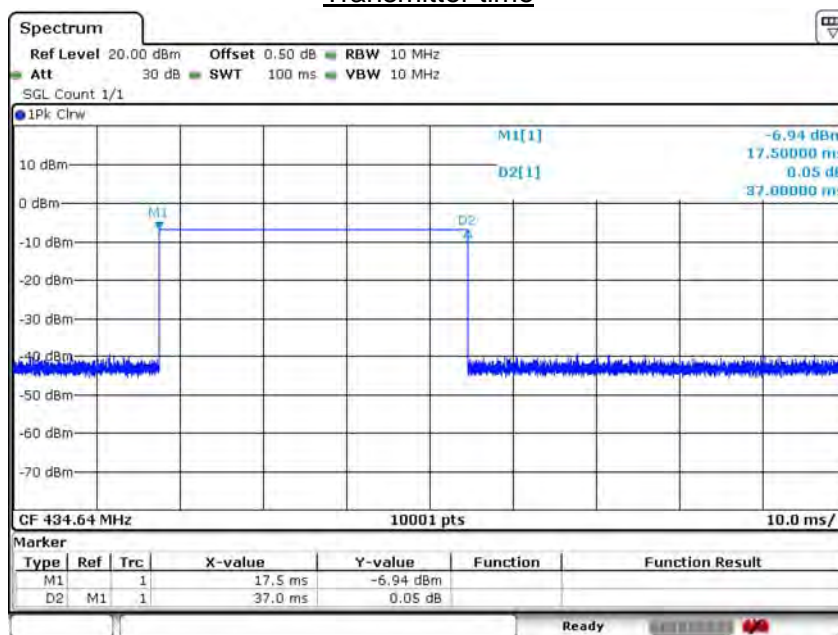


Date: 19 JUL 2017 18:01:51

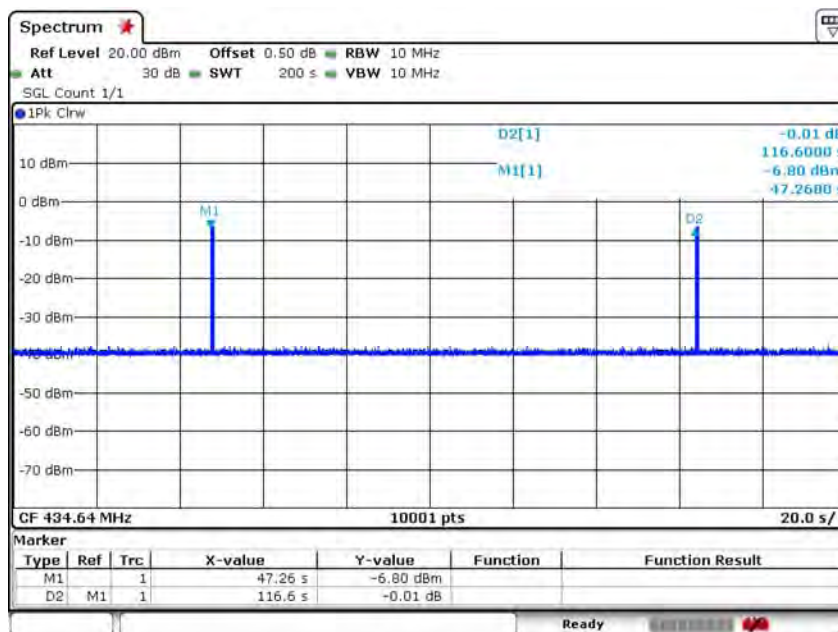
Product	DK1S		
Test Item	Transmitter time		
Test Mode	Mode 1: Transmit (Power by PC)		
Date of Test	2017/07/21	Test Site	SR10-H

Center Frequency	434.64 MHz
Transmitter time = 37.0ms < 5 sec.	Below 5 sec.
Result	PASS

### Transmitter time



Date: 21.JUL.2017 00:50:24



Date: 21.JUL.2017 00:48:12