FCC Part 15C

Measurement And Test Report

For

FuZhou Tinyo Technology Co., Ltd

Rm.819,No.A2 Office Building, Wanda Plaza, No.8 Aojiang Road,
Taijiang District,Fuzhou,Fujian,China.

FCC ID: S4BLD22PIC785S450

December 27, 2012

This Report Concerns:	**Equipment Type:**
☒ Original Report	The Tire Pressure Monitor System

Report Number:	MTI121218003RF
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Approved & Authorized By:	Hebe Lee
Test Date:	December 18-27,2012
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior written consent of MTI Technology Laboratory Ltd.

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TABLE OF CONTENTS

1. GENERAL INFORMATION 3

1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) 3
1.2 RELATED SUBMITTAL(S) / GRANT (S) 3
1.3 TEST METHODOLOGY 3
1.4 TEST FACILITY 4

2. SYSTEM TEST CONFIGURATION 5

2.1 EUT DESCRIPTION 5
2.21 EUT CONFIGURATION 5
2.3 EUT EXERCISE 5
2.4 GENERAL TEST PROCEDURES 5
2.4 LIST OF MEASURING EQUIPMENTS USED 6

3. SUMMARY OF TEST RESULTS 7

3.1 MODES OF OPERATION: 7
3.2 TIMING DIAGRAMS OF DIFFERENT TRANSMISSION MODES: 7

4. ANTENNA REQUIREMENT 9

4.1 STANDARD APPLICABLE 9
4.2 ANTENNA CONNECTED CONSTRUCTION 9

5. CONDUCTED DISTURBANCES 10

5.1. MEASUREMENT UNCERTAINTY 10
5.2. LIMIT OF CONDUCTED DISTURBANCES (CLASS B) 10
5.3. EUT SETUP 10
5.4. INSTRUMENT SETUP 10
5.5. TEST PROCEDURE 11
5.6. SUMMARY OF TEST RESULTS 11
5.7. TEST RESULT 11

6. §15.205, §15.209, §15.231- RADIATED EMISSION 12

6.1 DUTY CYCLE 12
6.2 STANDARD APPLICABLE 17
6.3 EUT SETUP 18
6.4 TEST EQUIPMENT LIST AND DETAILS 18
6.5 TEST PROCEDURE 18
6.6 CORRECTED AMPLITUDE & MARGIN CALCULATION 19
6.7 TEST RESULT 19

7 OCCUPIED BANDWIDTH 23

7.1 TEST LIMIT 23
7.2 METHOD OF MEASUREMENT 23
7.3 TEST SETUP 23
7.4 TEST RESULTS 23

8 TRANSMISSION TIME 25

8.1 TEST LIMIT 25
15.231(E): 25
8.2 METHOD OF MEASUREMENT 25
8.3 TEST SETUP 25
8.4 TEST RESULTS 25

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Applicant:	FuZhou Tinyo Technology Co., Ltd
Address of applicant:	Rm.819,No.A2 Office Building, Wanda Plaza, No.8 Aojiang Road,Taijiang District,Fuzhou,Fujian,China
Manufacturer:	FuZhou Tinyo Technology Co., Ltd
Address of manufacturer:	Rm.819,No.A2 Office Building, Wanda Plaza, No.8 Aojiang Road,Taijiang District,Fuzhou,Fujian,China
Equipment Under Test:	The Tire Pressure Monitor System
Tested Model No.:	TYREKIT-100
Trade Name:	TinyoTech
Supplementary Models No:	TYREKIT-XXX
	Remark: TYREKIT behind the first X represents product belongs to the generation, behind the XX represents the product of small version
Type of Modulation:	ASK
Antenna Type:	Integral Antenna, max Gain: 1dBi.
Frequency Band:	433.92MHz
Channel	1
Rated Power:	<10mW
Power Supply:	DC 3.6V from battery

Remark: * *The test data gathered are from the production sample provided by the manufacturer.*

1.2 Related Submittal(s) / Grant (s)

This submittal(s) is a test report based on the Electromagnetic Interference (EMI) tests performed on the EUT. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4 - 2003.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.207, 15.209, and 15.231 rules.

1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 - 2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz. Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4 Test Facility

All measurement required was performed at laboratory of NTEK Testing Technology Co., Ltd., at 1/F, Building E, Fenda Science Park Sanwei Community, Xixiang Street, Baoan District， Shenzhen,Guangdong

The test facility is recognized, certified, or accredited by the following organizations:

FCC – Registration No.: 238937

NTEK Testing Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 238937 .

2. SYSTEM TEST CONFIGURATION

The tests documented in this report were performed in accordance with ANSI C63.4-2003 and FCC CFR 47 Part 15 Subpart C.

2.1 EUT Description

The EUT are used in the car, measuring tire tire pressure, transmitter 433.92MHz.

2.21 EUT Configuration

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

2.3 EUT Exercise

The calibrated antennas used to sample the radiated field strength are mounted on a non-conductive, motorized antenna mast 3 or 10 meters from the leading edge of the turntable.

2.4 General Test Procedures

Conducted Emissions The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 7.1 of ANSI C63.4-2003.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak detector mode.

Radiated Emissions The EUT is a placed on as turntable, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum 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 maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4-2003.

2.4 List of Measuring Equipments Used

Items	Equipment	Manufacturer	Model No.	Serial No.	Last Cal	Calibration Period
1	EMI Test Receiver	ROHDE & SCHWARZ	ESI 26	100079	2012/11/18	1 year
2	Horn Antenna	R/S	CH14-H052	1091698	2012/11/18	1 year
3	3m Semi- Anechoic Chamber	ETS	N/A	N/A	2012/11/18	1 year
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCS30	100038	2012/11/18	1 year
2	EMI Test Receiver	ROHDE & SCHWARZ	ESI 26	100009	2012/11/18	1 year
3	Receiver/ Spectrum Analyzer	ROHDE & SCHWARZ	ESCI	100106	2012/11/18	1 year
4	Spectrum Analyzer	Agilent	E7405A	US41160415	2012/11/18	1 year
5	Artificial Mains	ROHDE & SCHWARZ	ESH2-Z5	100028	2012/11/18	1 year
6	Pulse Limiter	ROHDE & SCHWARZ	ESHSZ2	100044	2012/11/18	1 year
7	LISN	COM Power	LI-200	12212	2012/11/18	1 year
8	LISN	COM Power	LI-200	12019	2012/11/18	1 year
9	3m/5m Semi-Anechoic Chamber	ETS	N/A	N/A	2012/11/18	1 year
10	Ultra-Broadband Antenna	R/S	HL562	100015	2012/11/18	1 year
11	Horn Antenna	R/S	HF906	100039	2012/11/18	1 year
12	Loop Antenna	Beijing Daze	ZN30900A	SEL0097	2012/11/18	1Year
13	RF Test Panel	R/S	TS / RSP	335015/ 0017	N/A	N/A
14	Turntable	ETS	2088	2149	N/A	N/A
15	Antenna Mast	ETS	2075	2346	N/A	N/A

3. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
15.203	Antenna Requirement	Pass
15.205	Restricted Band of Operation	Pass
15.207	Conducted Emission	N/A
15.209/231	Radiated Emission	Pass
15.231	Transmission time	Pass
15.231	Out of Band Emission	N/A
Note: 1 N/A is not applicable. 2 The EUT has been tested as an independent unit. And Continual Transmitting in maximum power(The new battery be used during Test)		

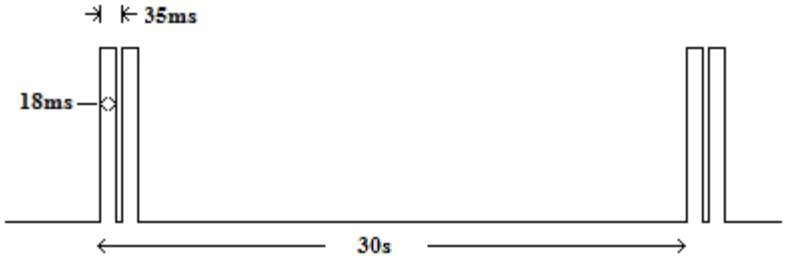
3.1 Modes of operation:

Three modes of operation are possible: Stationary Alert State, Auto State mode, Detection state mode.

As the average output power is the same for all modes, it was deemed necessary to only measure the timing behavior in one mode.
The Trigger box provide by the customer was used to force transmit modulated signal for 30 minutes (18000 frames / 0.1 sec interval) for performing the measurements.

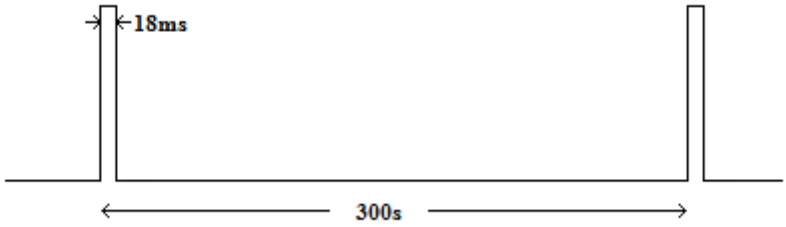
3.2 Timing Diagrams of different transmission modes:

Alert State:



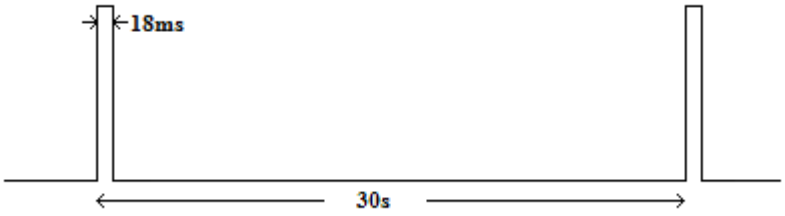
note: above diagram not in scale

Auto mode:



note: above diagram not in scale

Detection mode:



Mode express in frames /time:

Alert State: 2 frames / 30s
Auto mode: 1 frames / 5 minutes
Detection mode: 1 frames /30s

MOST Worst case:

Alert State: 2 frames / 30s

4. ANTENNA REQUIREMENT

4.1 Standard Applicable

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

4.2 Antenna Connected Construction

This product has a permanent antenna, fulfill the requirement of this section.

5. CONDUCTED DISTURBANCES

5.1. Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is +2.4 dB.

5.2. Limit of Conducted Disturbances (Class B)

Frequency Range (MHz)	Limits (dBuV)	
	Quasi-Peak	Average
0.150～0.500	66～56	56～46
0.500～5.000	56	46
5.000～30.00	60	50

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

5.3. EUT Setup

The setup of EUT is according with ANSI Standard C63.4-2003 measurement procedure.

The EUT was placed center and the back edge of the test table.

The cables were draped along the test table and bundled to 30-40cm in the middle.

The spacing between the peripherals was 10 cm.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.

5.4. Instrument Setup

The test receiver was set with the following configurations:
Test Receiver Setting:
Frequency Range……150 KHz to 30 MHz
Detector……..Peak & Quasi-Peak & Average
Sweep Speed……Auto
IF Band Width……..9 KHz

5.5. Test Procedure

During the conducted emission test, the EUT power cord was connected to the auxiliary outlet of the first Artificial Mains.
Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination.
All data was recorded in the peak detection mode. Quasi-peak and Average readings were only performed when an emission was found to be marginal (within -10 dBμV of specification limits).
Quasi-peak readings are distinguished with a **"QP"**. Average readings are distinguished with a **"AV".**

5.6. Summary of Test Results

According to the data in section 3.6, the worst margin reading of:

EUT Configuration on Test

The Tire Pressure Monitor System

Model Number	:	TYREKIT-100
Serial Number	:	N/A
Applicant	:	FuZhou Tinyo Technology Co., Ltd

5.7. Test Result

EUT supply by battery ,so the test not applicable.

6. §15.205, §15.209, §15.231- RADIATED EMISSION

6.1 Duty cycle
4.3.2 Duty Cycle Correction Factor

Limit:

For frequency hopping or pulsed systems where the dwell time per channel or transmitter on-time is less than 100 mS, the field strength can be determined by averaging over one complete pulse train, including blanking intervals.
The correction factor can be calculated by using the following formula:

$$C_F(dB) = 20\log\left(\frac{dwell\ time}{100mS}\right)$$

6.1.1 Method of measurement

(1). Place the EUT on the table and set it in transmitting mode.

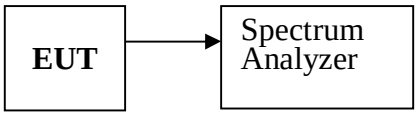
(2). Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

(3). Set spectrum analyzer Center=433.9MHz, Span = 0MHz, Sweep = 100ms.

(4). Set the spectrum analyzer as RBW, VBW=1MHz,

(5). Max hold, view and count how many channel in the band.

6.1.2 Test Setup



6.1.3 Test Results

For Auto mode
Ton=450*4+975* 9=10575us=10.575ms
Duty Cycle =Ton/18.23=10.575/18.23=58.00%
Correction factor = 20 Log (Pulse Duration(ms)/18.23ms)=20Log(10.575/18.23)= -4.73dB

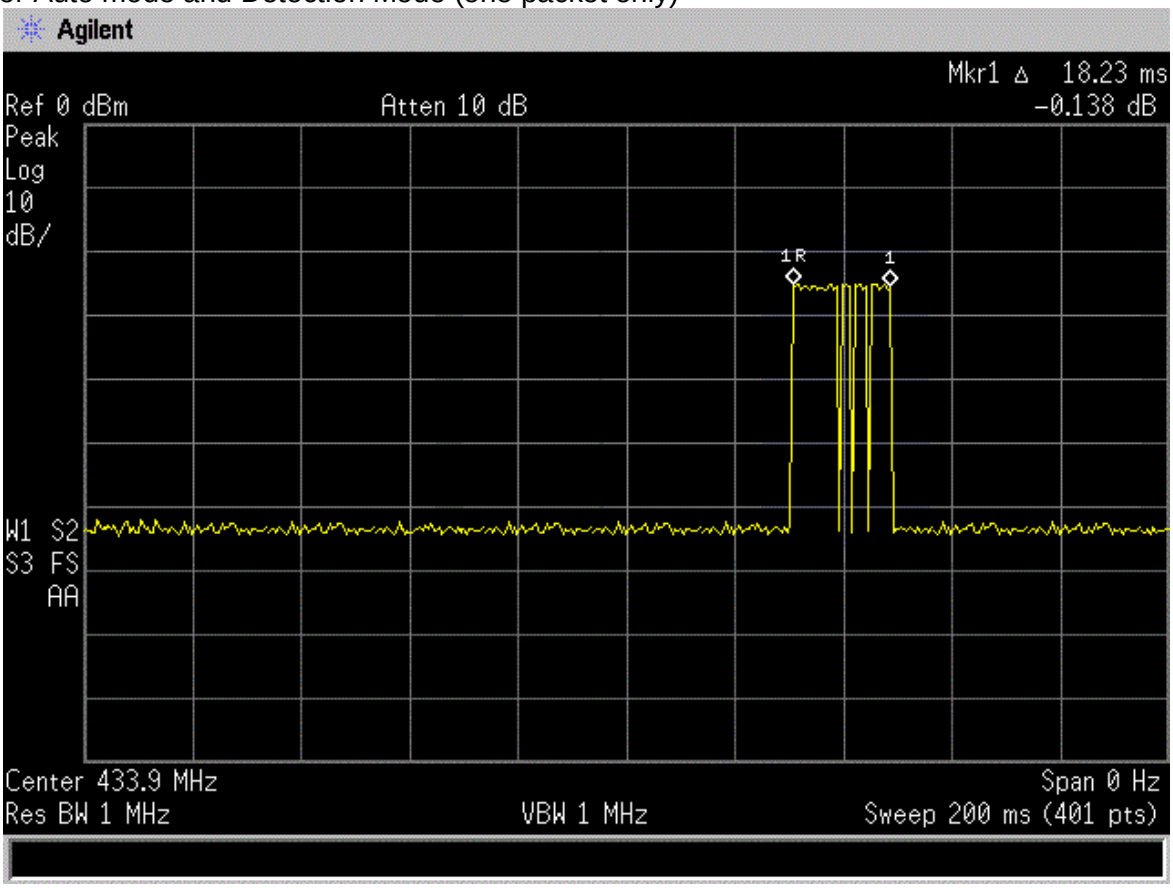
For Detection mode
Ton=450*4+975* 9=10575us=10.575ms
Duty Cycle =Ton/18.23=10.575/18.23=58.00%
Correction factor = 20 Log (Pulse Duration(ms)/18.23ms)=20Log(10.575/18.23)= -4.73dB

For Alert State:
Ton=2*(450*4+975* 9)=21150us=21.15ms
Duty Cycle=Ton/53.38=21.15/53.38=39.62%
Correction factor = 20 Log (Pulse Duration(ms)/53.38ms)=20Log(21.15/53.38)= -8.04dB

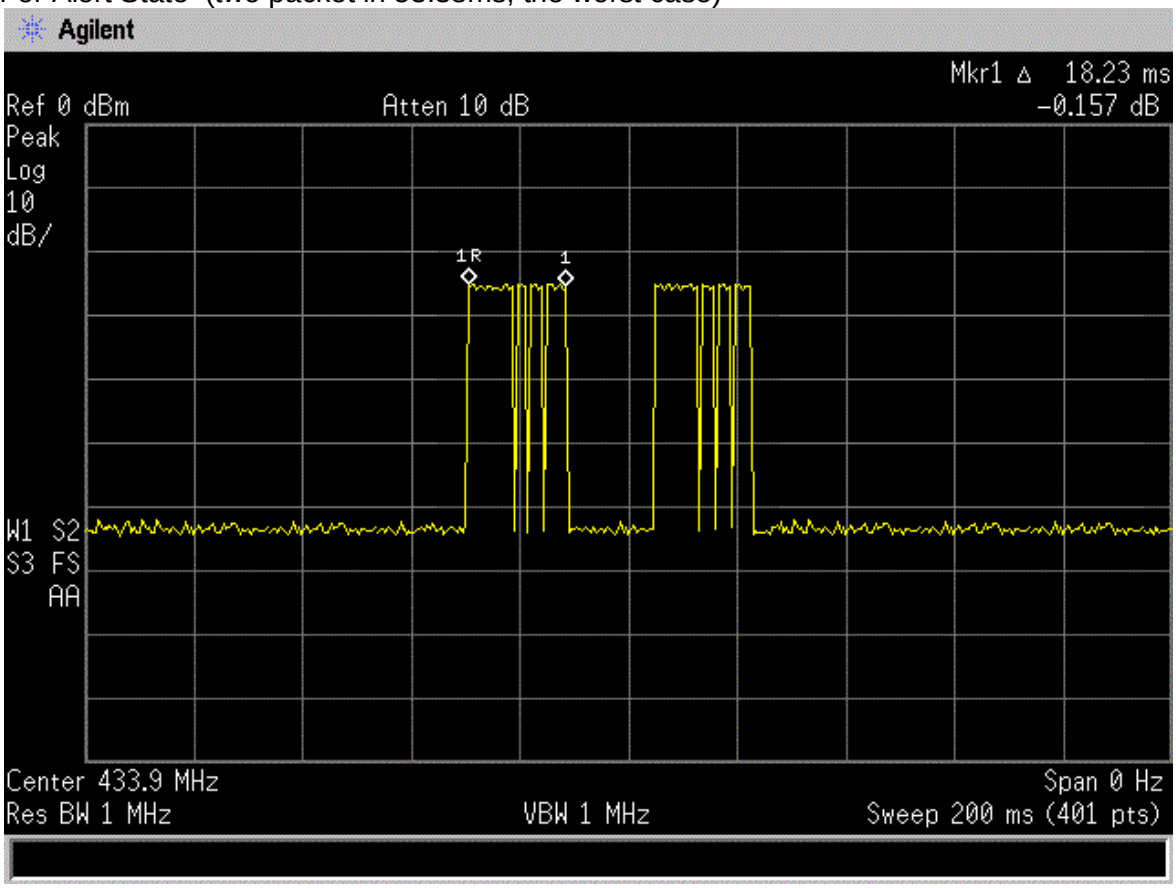
Note: The Alert State mode for 2 data packet signal and Auto State for 1 data packet signal within 100ms, the data packet signal for 18.23ms has same, so the worst duty cycle result come to Alert State Mode.

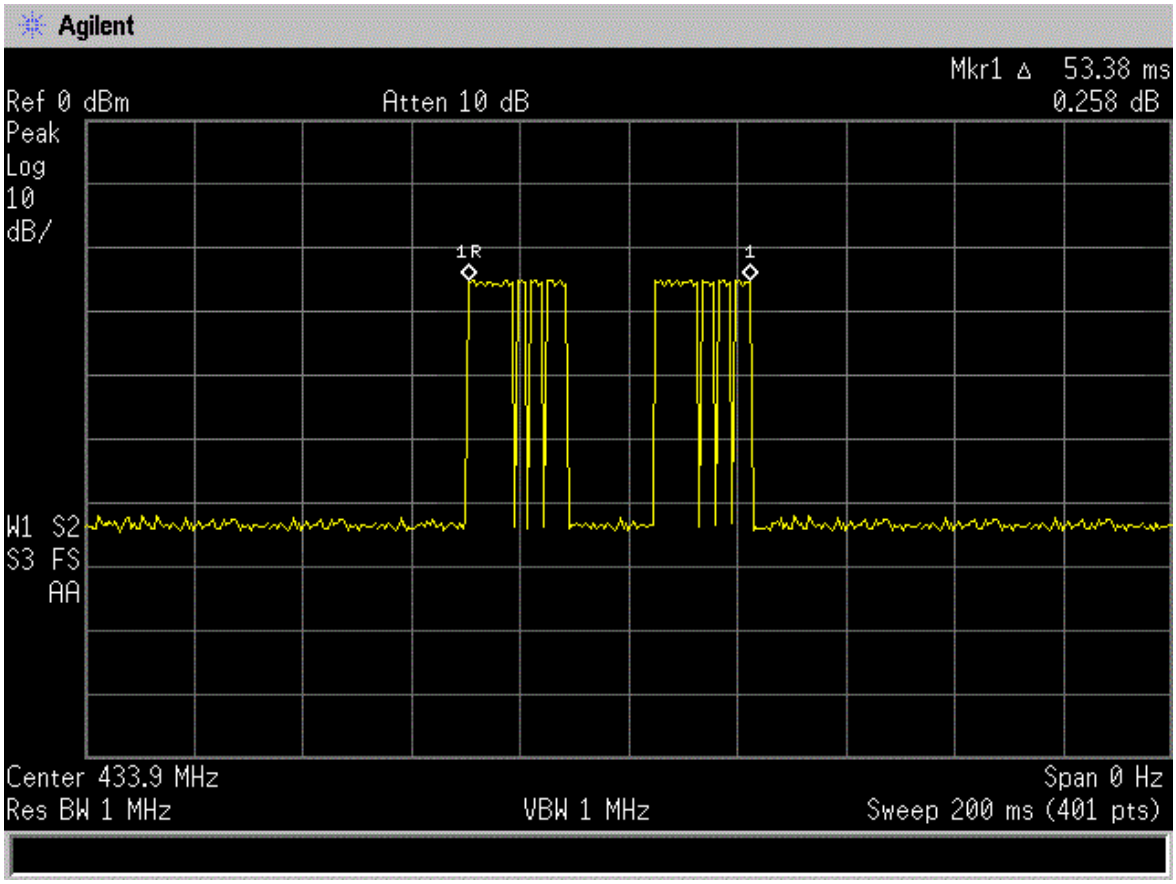
Detailed information please see the following page.

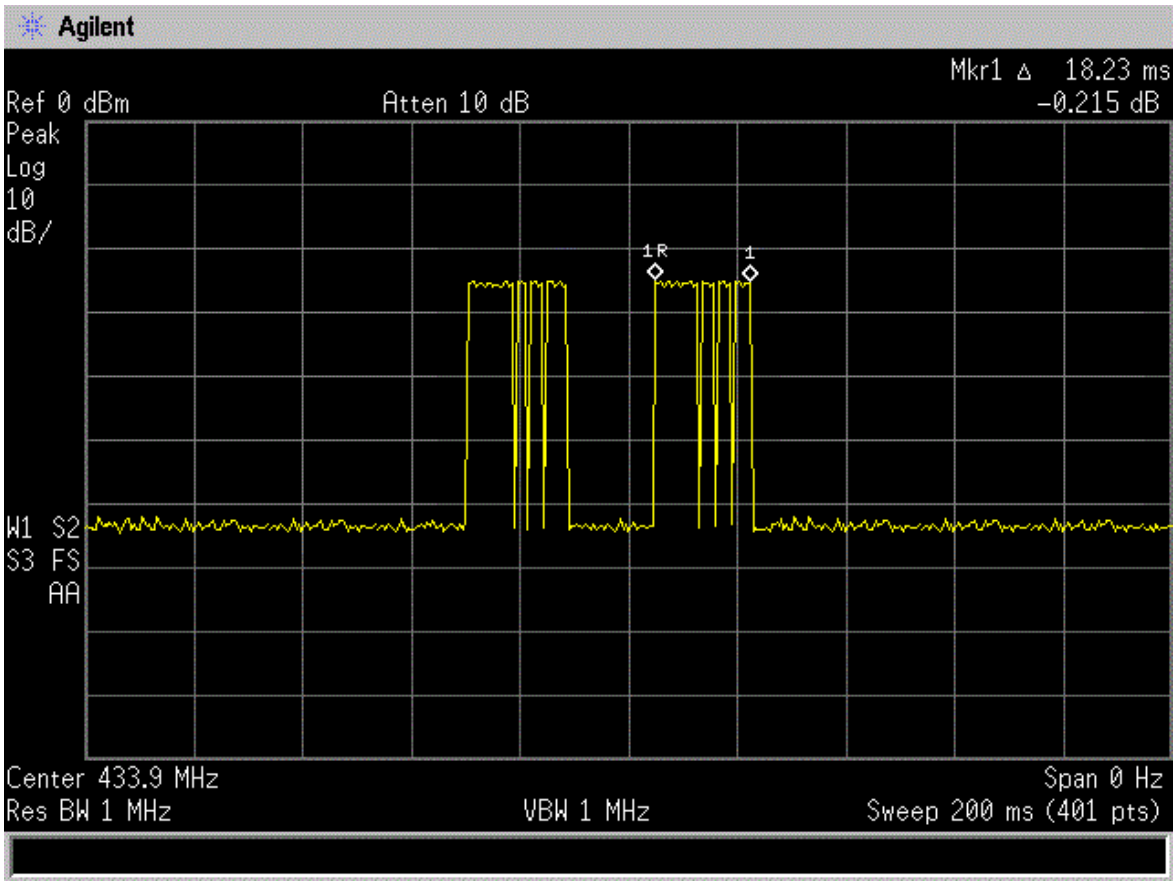
For Auto mode and Detection Mode (one packet only)

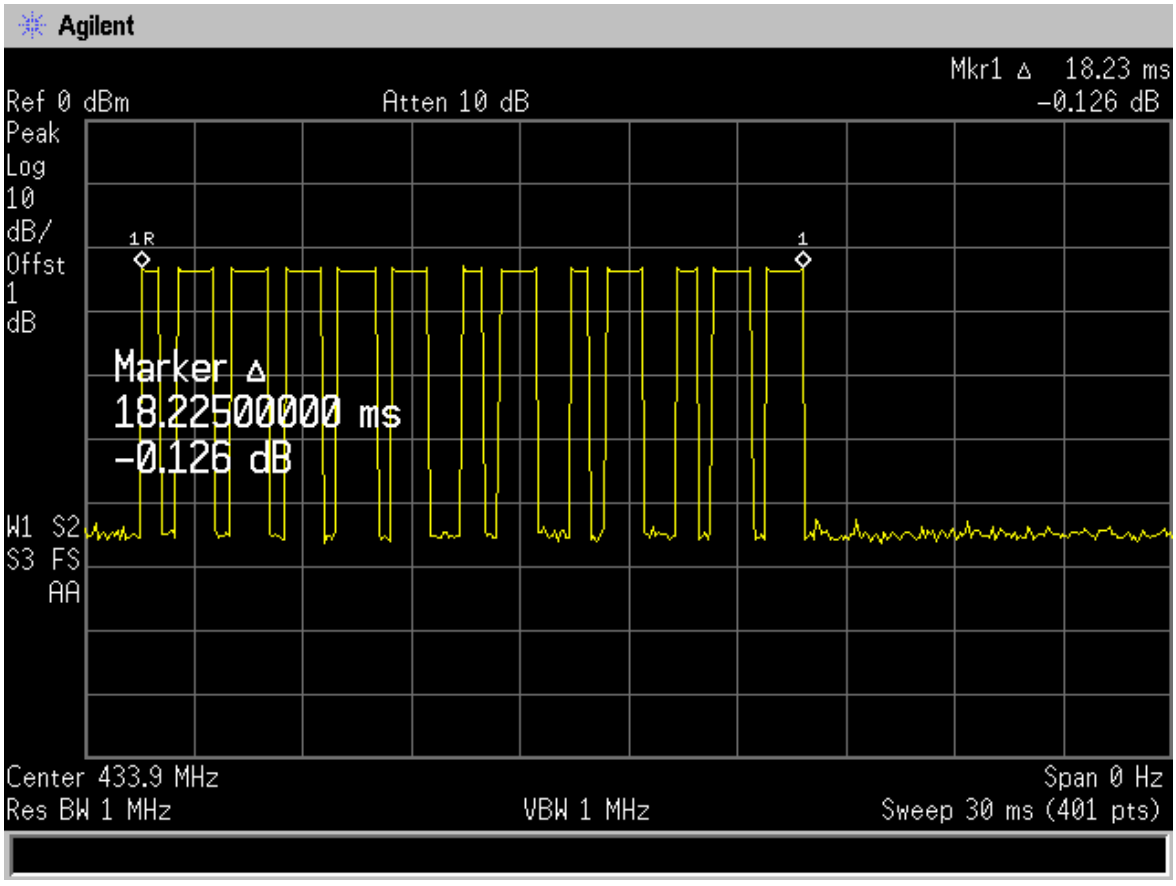


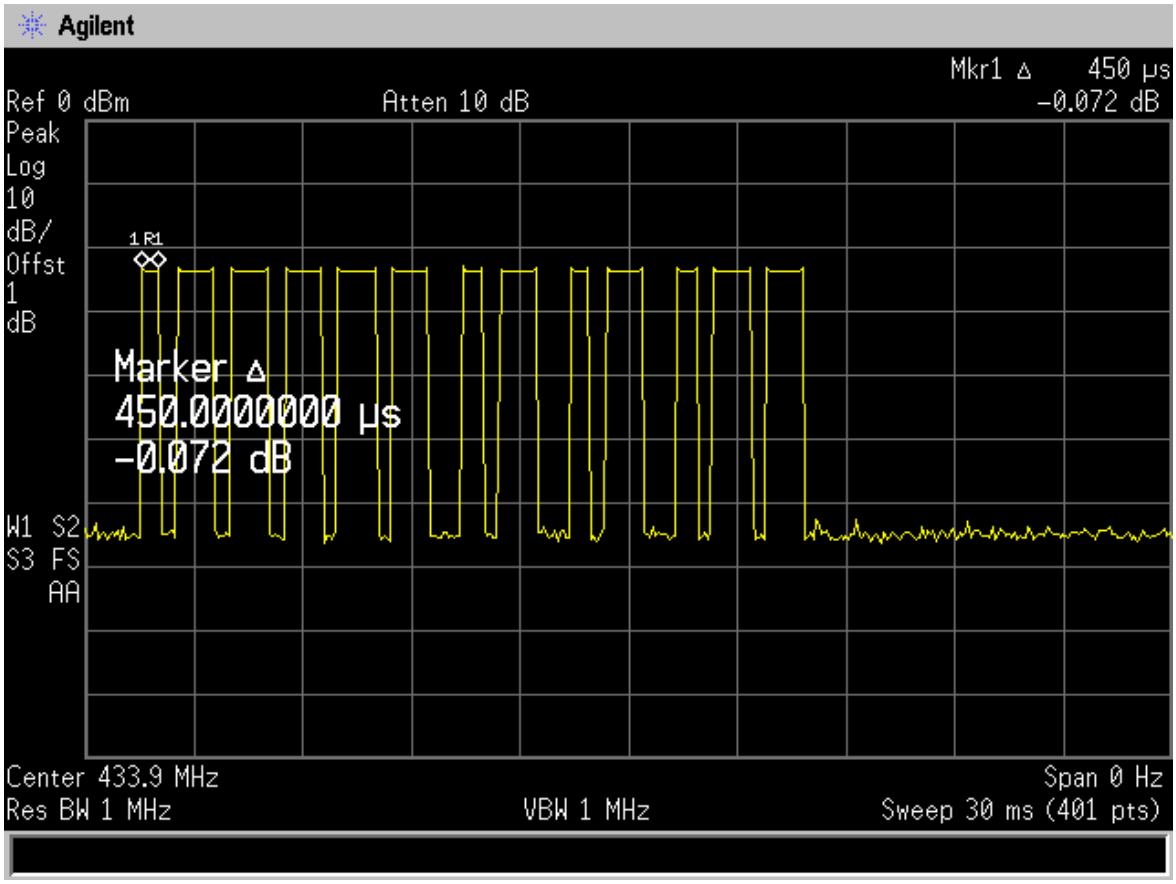
For Alert State (two packet in 53.38ms, the worst case)

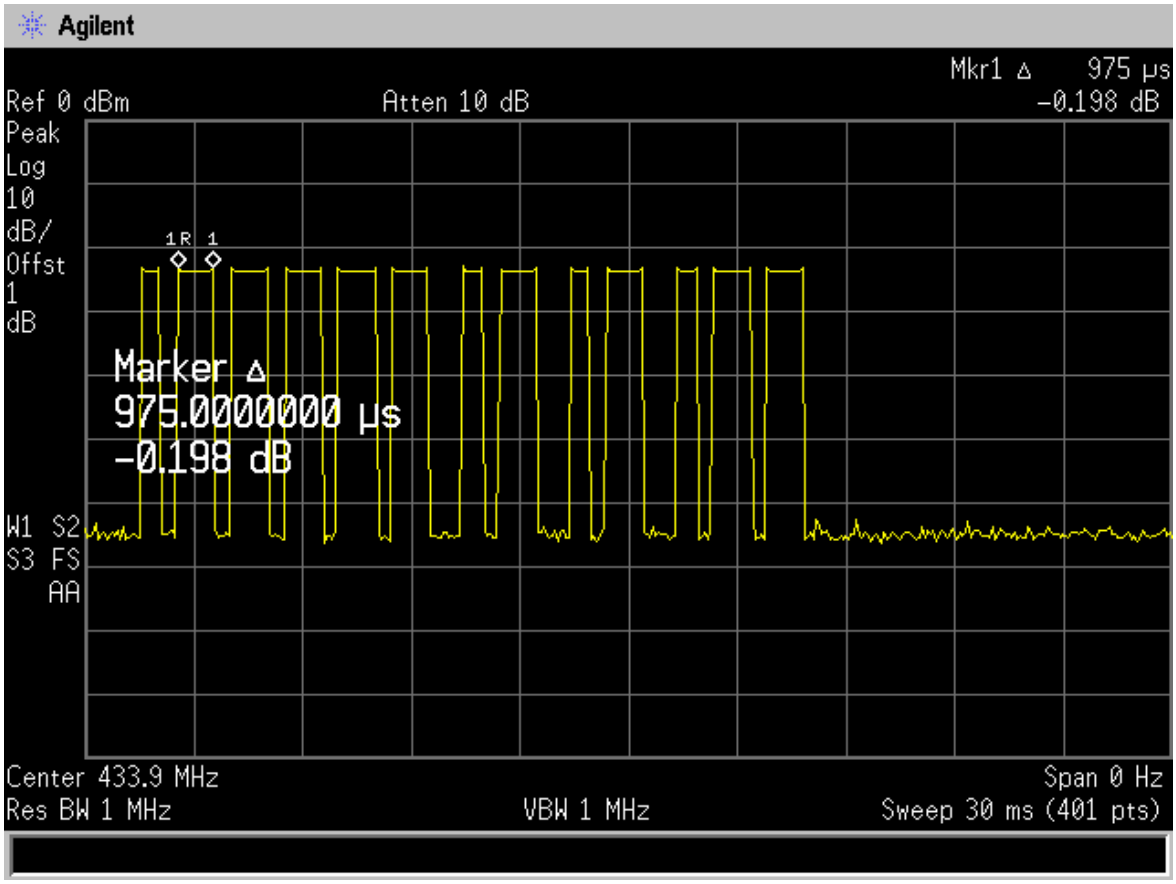





Agilent
Mkr1 Δ 18.23 ms
-0.215 dB
Ref 0 dBm
Atten 10 dB
Peak
Log
10
dB/
1R
1
W1 S2
S3 FS
AA
Center 433.9 MHz
Span 0 Hz
Res BW 1 MHz
VBW 1 MHz
Sweep 200 ms (401 pts)


Agilent
Mkr1 Δ 18.23 ms
-0.126 dB
Ref 0 dBm
Atten 10 dB
Peak
Log
10
dB/
Offst
1
dB
1R
1
Marker Δ
18.22500000 ms
-0.126 dB
W1 S2
S3 FS
AA
Center 433.9 MHz
Span 0 Hz
Res BW 1 MHz
VBW 1 MHz
Sweep 30 ms (401 pts)


Agilent
Mkr1 Δ 450 µs
-0.072 dB
Ref 0 dBm
Atten 10 dB
Peak
Log
10
dB/
Offst
1
dB
1R1
Marker Δ
450.0000000 µs
-0.072 dB
W1 S2
S3 FS
AA
Center 433.9 MHz
Res BW 1 MHz
VBW 1 MHz
Span 0 Hz
Sweep 30 ms (401 pts)


Agilent
Mkr1 Δ 975 µs
-0.198 dB
Ref 0 dBm
Atten 10 dB
Peak
Log
10
dB/
Offst
1
dB
1R 1
Marker Δ
975.0000000 µs
-0.198 dB
W1 S2
S3 FS
AA
Center 433.9 MHz
Res BW 1 MHz
VBW 1 MHz
Span 0 Hz
Sweep 30 ms (401 pts)

6.2 Standard Applicable

(1) According to §15.231(e), in addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators operated under this Section shall not exceed the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emissions (microvolts/meter)
40.66 – 40.70	1000	100
70 – 130	500	50
130 – 174	500 to 1500 **	50 to 150 **
174 – 260	1500	150
260 – 470	1500 to 5000 **	150 to 500 **
Above 470	5000	500

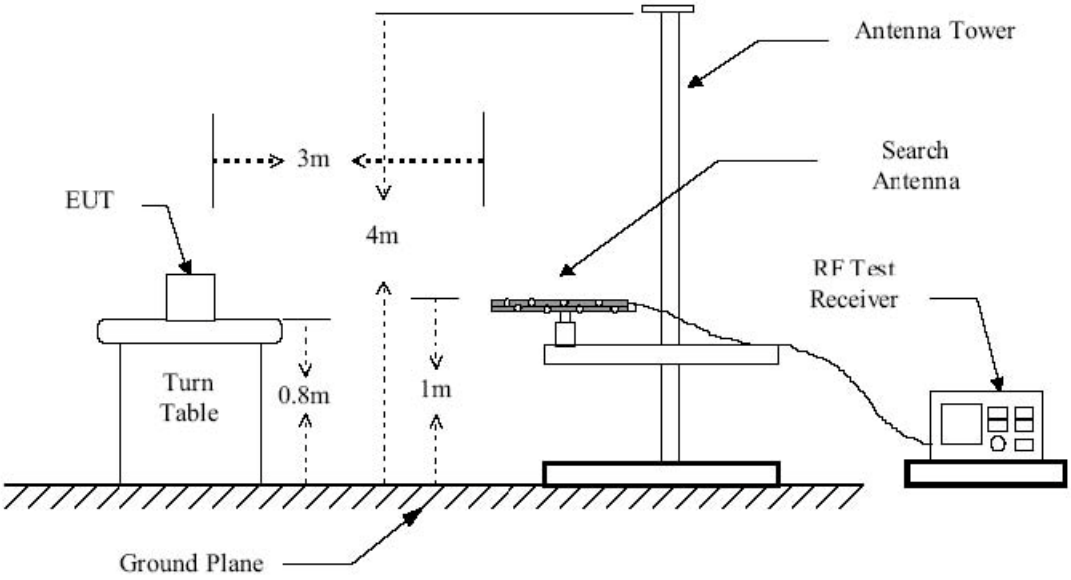
Remark: *** linear interpolations*

[Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows: for the band 130-174 MHz, μV/m at 3 meters = 22.72727(F) - 2454.545; for the band 260-470 MHz, μV/m at 3 meters = 16.6667(F) - 2833.3333. The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.]

(2) According to §15.231(a) (b), the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Frequency (MHZ)	**Field Strength Limits at 3 metres (watts,e.i.r.p.)**		
	uV/m	dB uV/m	Measurement distance(m)
0.009-0.490	2400/F(kHz)	XX	300
0.490-1.705	24000/F(kHz)	XX	30
1.705-30	30	29.5	30
30~88	100(3nW)	40	3
88~216	150(6.8nW)	43.5	3
216~960	200(12nW)	46	3
Above960	500(75nW)	54	3

6.3 EUT Setup



6.4 Test Equipment List and Details

See section 2.4.

6.5 Test Procedure

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

3. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using the quasi-peak

method or average method as specified and then reported in Data sheet peak mode and QP mode.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.

6.6 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Ant. Factor + Cable Loss – Ampl. Gain

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15 Limit

6.7 Test Result

According the test, the worst test mode Alert State, the alert state data detail see the below:

We have scanned the 10th harmonic from 9KHz to the EUT.
Detailed information please see the following page.

From 9KHz to 30MHz: Conclusion: ***PASS***

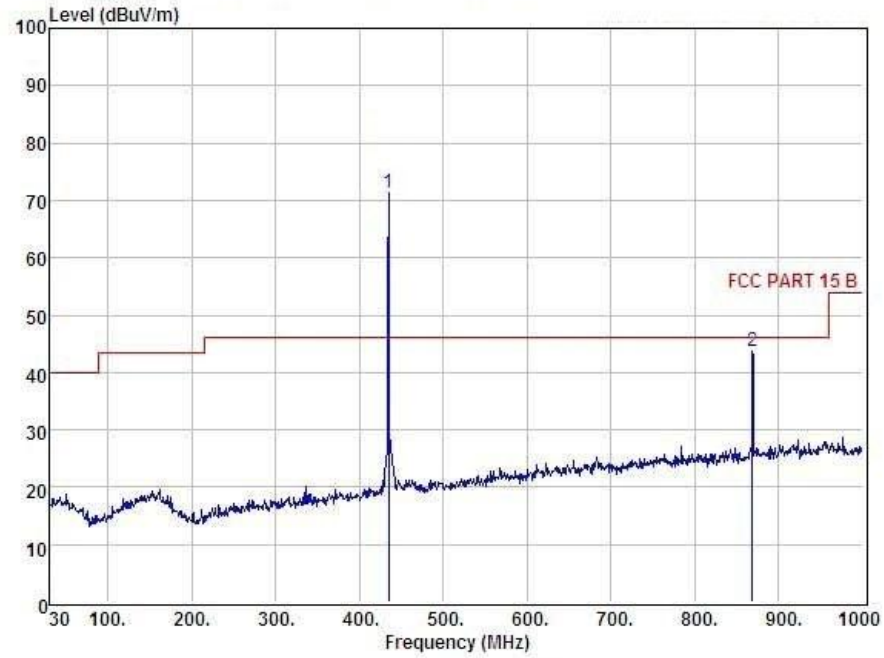
Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

According to the data below, the FCC Part 15.205 and 15.209 standards, and had the worst margin of:

-1.10 dBmV at **868.08 MHz** in the **Horizontal** polarization, **9 kHz to 10 GHz, 3Meters**

Note: *this EUT was tested in 3 orthogonal positions and the worst case position data was reported.*

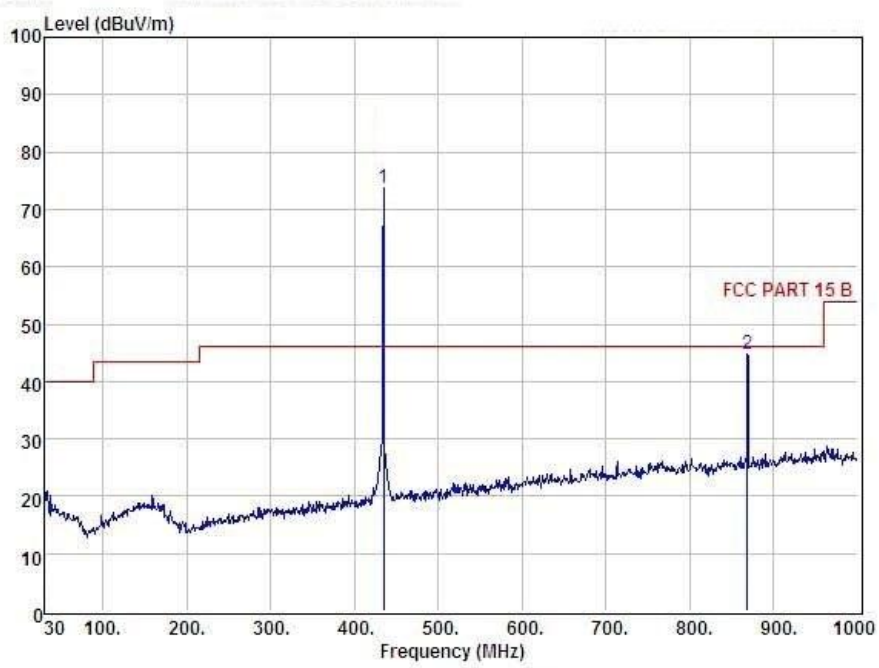
Plot of Radiation Emissions Test
Transmitting below 1GHz
Horizontal



Condition : FCC PART 15 B 3m POL: VERTICAL

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Lose	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	433.92	82.42	15.58	27.47	0.59	71.12	46.00	25.12	
2	868.08	48.70	21.23	27.68	1.47	43.72	46.00	-2.28	

Vertical



Condition : FCC PART 15 B 3m POL: HORIZONTAL

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Lose	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	433.92	84.84	15.58	27.47	0.59	73.54	46.00	27.54	
2	868.08	49.88	21.23	27.68	1.47	44.90	46.00	-1.10	

Spurious Emission Above 1GHz (The worst case is Alert State mode)

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
CH:433.92MHz										
433.92	AV	/	/	H	/	/	/	65.50	72.87	-7.37
433.92	AV	/	/	V	/	/	/	63.08	72.87	-9.79
433.92	PK	84.84	76	H	15.58	0.59	27.47	73.54	92.87	-19.33
433.92	PK	82.42	213	V	15.58	0.59	27.47	71.12	92.87	-21.75
1301.7	AV	/	/	H	/	/	/	49.11	54	-4.89
1301.7	AV	/	/	V	/	/	/	48.64	54	-5.36
1301.7	PK	56.58	188	H	29.10	4.47	33.00	57.15	74	-16.85
1301.7	PK	56.11	272	V	29.10	4.47	33.00	56.68	74	-17.32
1735.6	AV	/	/	H	/	/	/	47.42	54	-6.58
1735.6	AV	/	/	V	/	/	/	48.01	54	-5.99
1735.6	PK	46.73	108	H	37.45	5.28	34.00	55.46	74	-18.54
1735.6	PK	47.32	253	V	37.45	5.28	34.00	56.05	74	-17.95

Note: 1 Testing is carried out with frequency rang 9 kHz to the tenth harmonics, which above 10th Harmonics is close to the noise base even antenna close up to 1meter distance according the measurement of ANSI C63.4. Emissions 20dB lower than the limit are not reported.

2 Correct Factor=Cable Loss+Antenna Factor-Amplifier Gain
Correction Amplitude=Reading + Correct Factor
Margin= Correction Amplitude -Limit

3 –Spectrum setting:
a. Peak setting 30MHz-1GHz,RBW=120KHz,VBW=300KHz.
b. AV setting 30MHz-1GHz,RBW=1MHz,VBW=10Hz.

4 –Average should be determined by duty cycle factor.
the total on time is 21.15ms,
Duty cycle factor = 20 log (21.15/53.38)=-8.04
Average = peak value – 8.04 dB

7 Occupied bandwidth

7.1 Test limit

Please refer section15.231

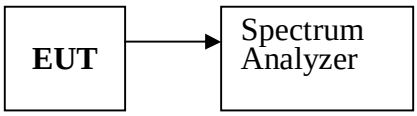
According to § 15.231(C), The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70MHz and below 900MHz.

7.2 Method of measurement

a)The bandwidth is measured at an amplitude level reduced 20dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

b)The test receiver RBW set 30KHZ,VBW set 30KHZ,Sweep time set auto.

7.3 Test Setup

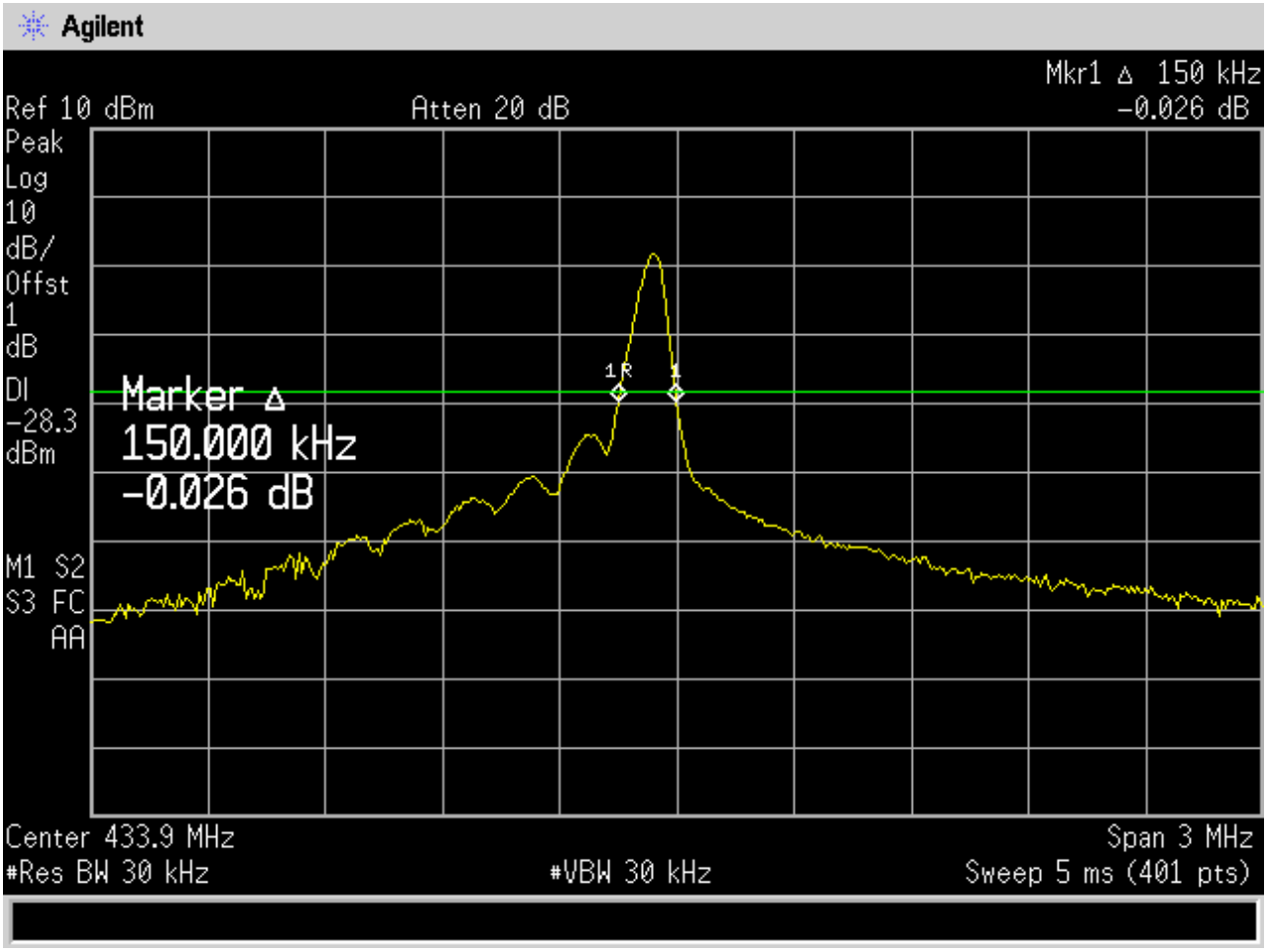


7.4 Test Results

PASS.

Detailed information please see the following page.

Frequency	Test Result	Limit	Result
433.92MHz	150KHz	<1.08MHz	Pass


Agilent
Mkr1 Δ 150 kHz
Ref 10 dBm
Atten 20 dB
-0.026 dB
Peak
Log
10
dB/
Offst
1
dB
Dl
-28.3
dBm
Marker Δ
150.000 kHz
-0.026 dB
1R
1
M1 S2
S3 FC
AA
Center 433.9 MHz
Span 3 MHz
#Res BW 30 kHz
#VBW 30 kHz
Sweep 5 ms (401 pts)

8 Transmission time

8.1 Test limit

15.231(e):

Devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds.

8.2 Method of measurement

7.2.1. Place the EUT on the table and set it in transmitting mode.

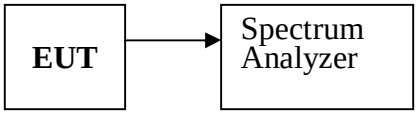
7.2.2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

7.2.3. Set spectrum analyzer Center=433.9MHz, Span = 0MHz, Sweep = 200ms.

7.2.4. Set the spectrum analyzer as RBW, VBW=1MHz,

7.2.5. Max hold, view and count how many channel in the band.

8.3 Test Setup



8.4 Test Results

PASS.

Detailed information please see the following page.

For Auto State:

(1) Auto mode:

Transmission length: 1*18.23ms=18.23ms=0.02s<1 second (15.231e condition)

Minimum silent period: 30*18.23ms=546.9ms=0.54s and 10s (15.231e condition)

Silent Period:300s-0.02s=299.98s>10s

Note: Auto State mode transmitter data packet with the circuit description:

The TMPS will send 1 data packet signal to corresponding receiver for every 5 minutes

(2) Detection mode:

Transmission length: 1*18.23ms=18.23ms=0.02s<1 second (15.231e condition)

Minimum silent period: 30*18.23ms=546.9ms=0.54s and 10s (15.231e condition)

Silent Period:30s-0.02s=29.98s>10s

Note: TMPS 30 second detection time, each 0.1Kg/cm2 deviation change in pressure or 0.1degree deviation change in temperature, 1 data packet signal send to corresponding receiver

For Alert State:

Transmission length: 2*18.23ms=36.46ms=0.04s<1 second (15.231e condition)

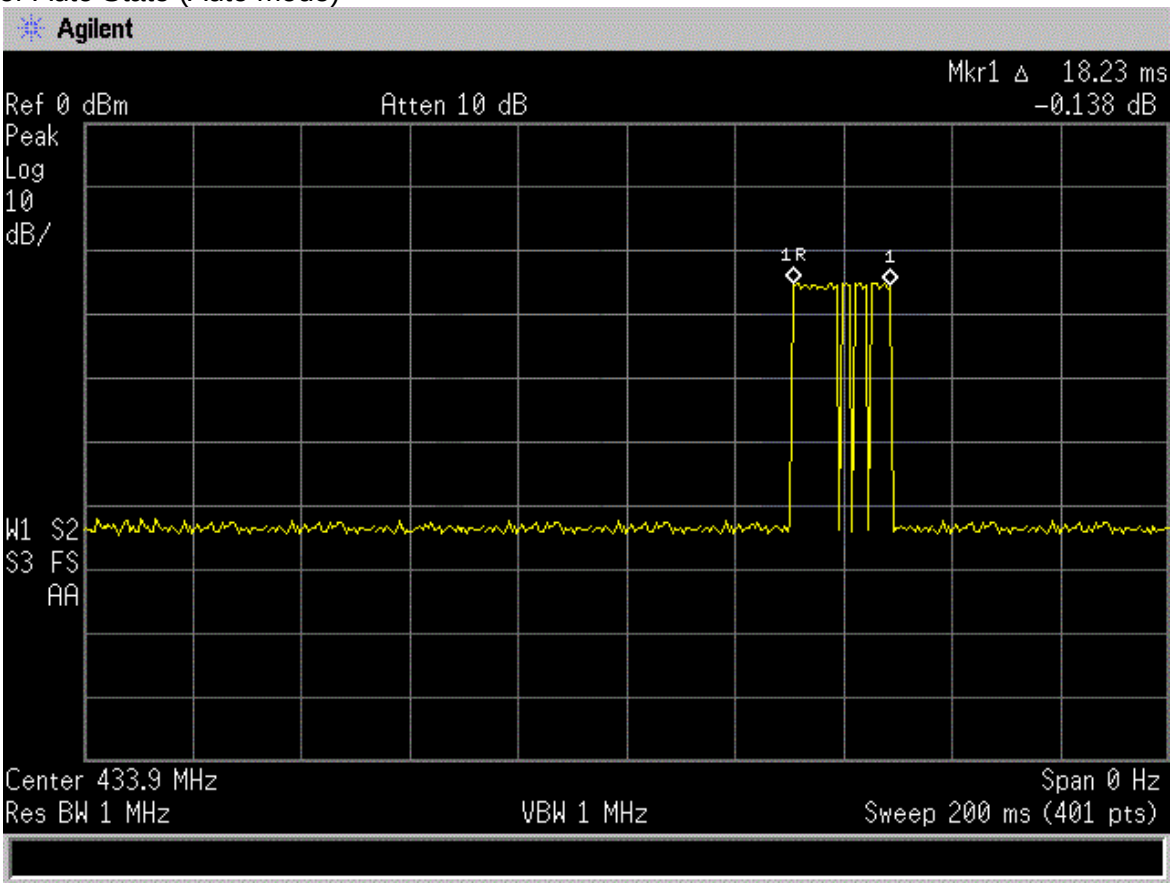
Minimum silent period: 30*36.46ms=1093.8ms=1.09s and 10s (15.231e condition)

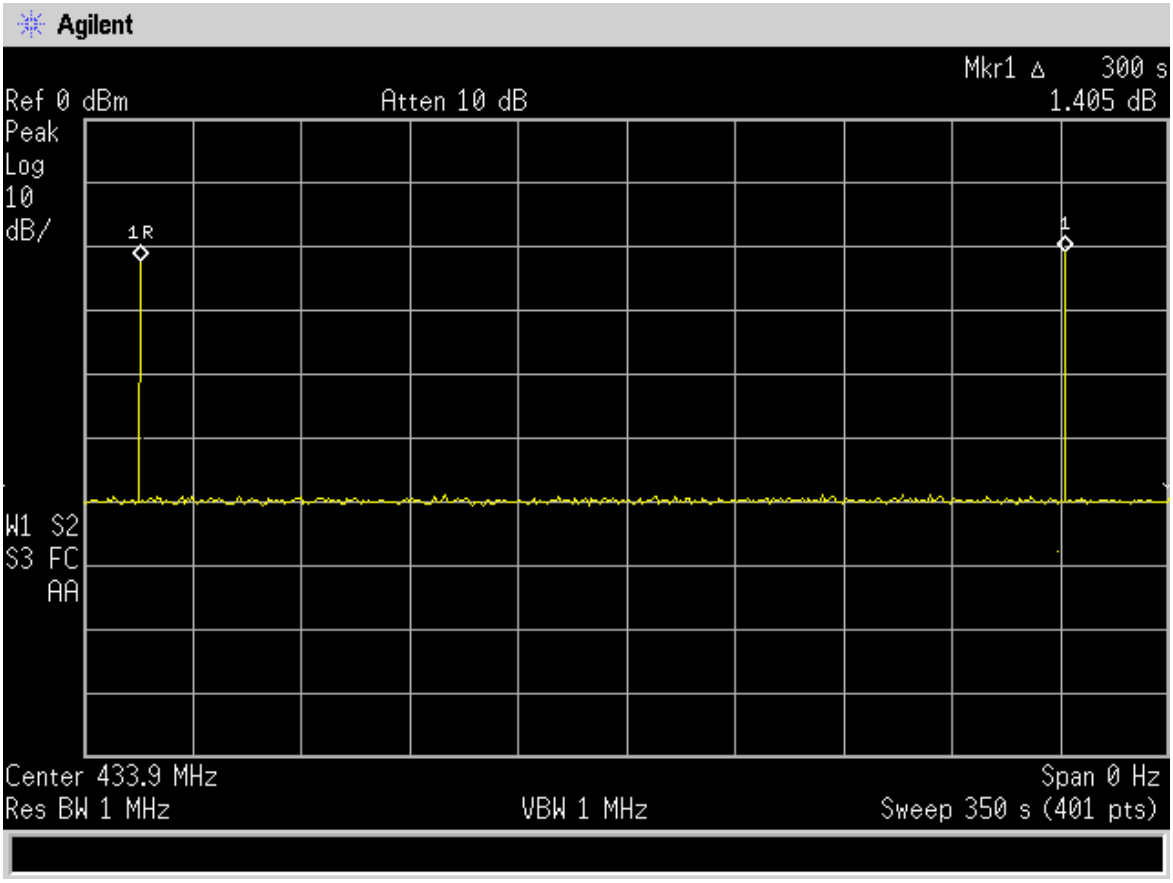
Silent Period:30s-0.04s=29.96s>10s

Note: Alert State mode transmitter data packet with the circuit description:

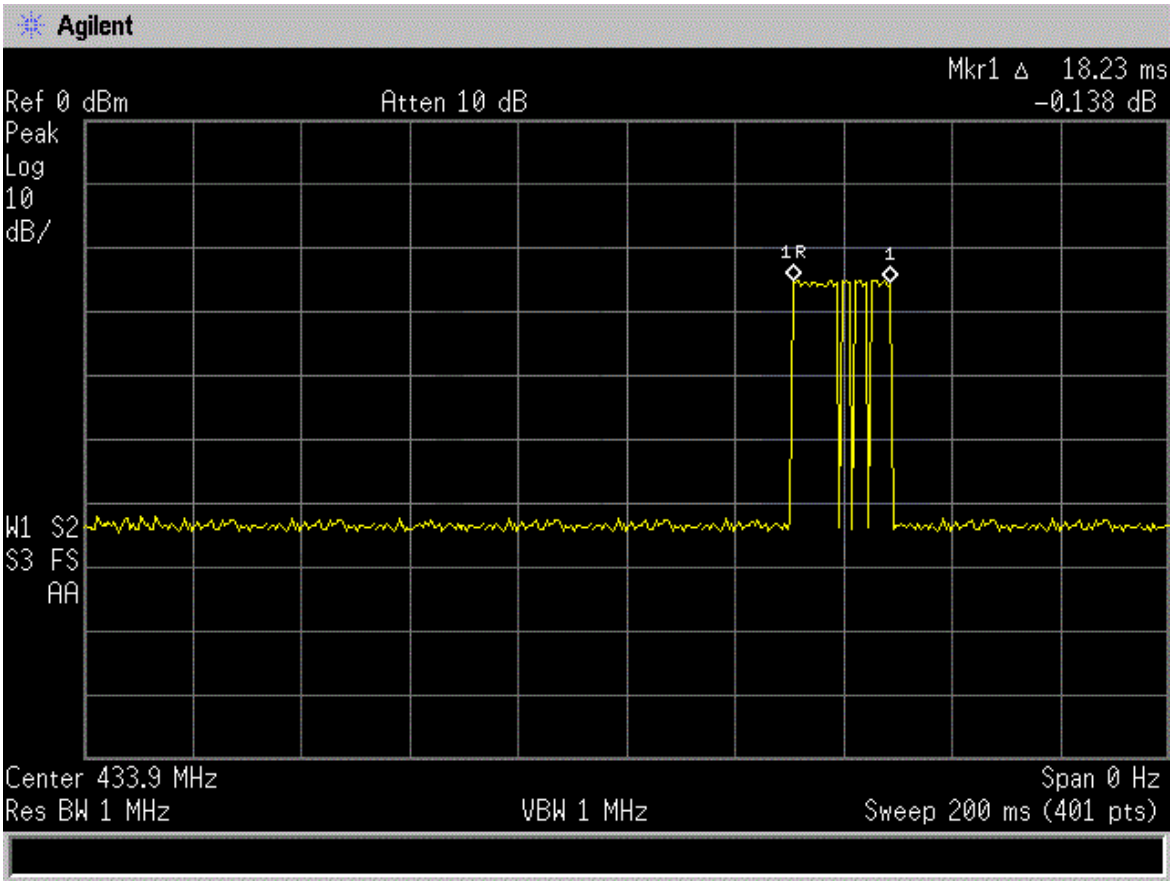
The TMPS send 2 data packet signal within less than 0.1 second, there is 30 second silence within each signal pattern send out, the signal pattern will continuous send out until the pressure or temperature reset to the normal range.

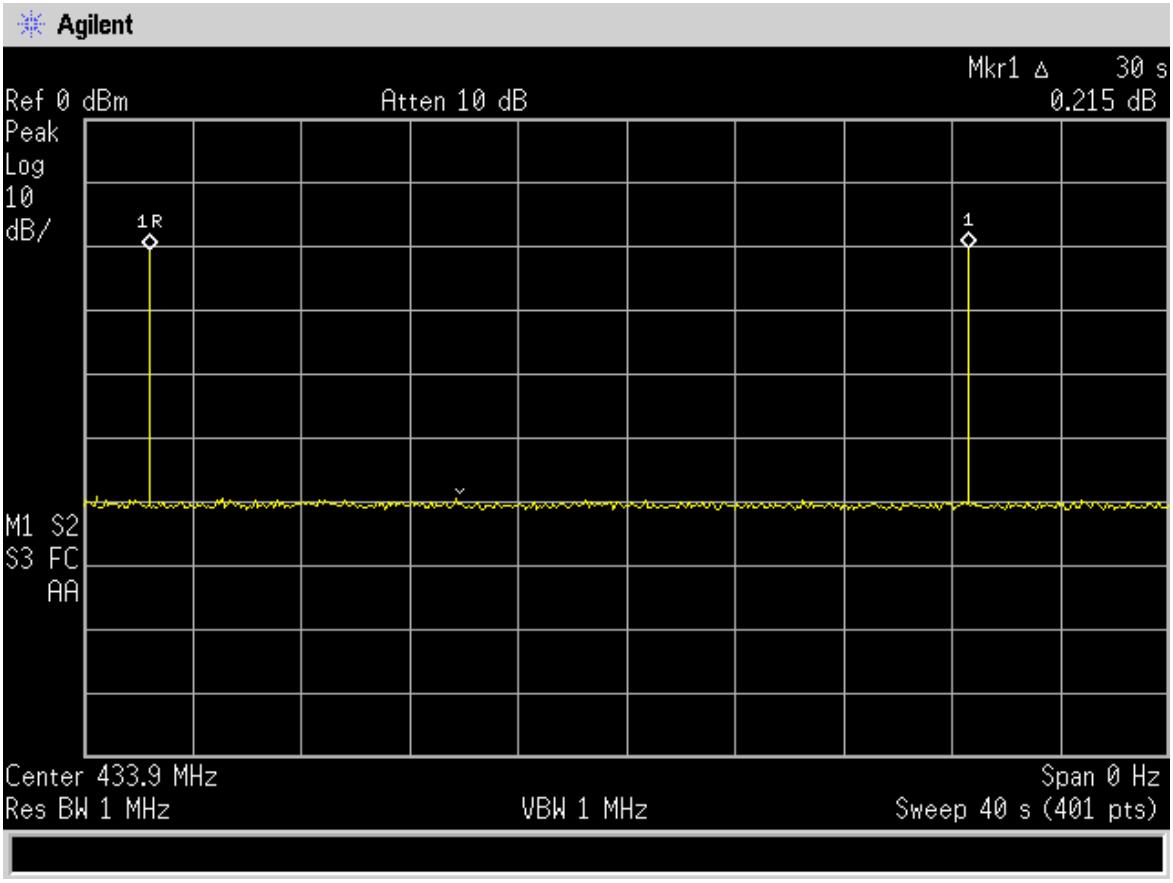
For Auto State (Auto mode)



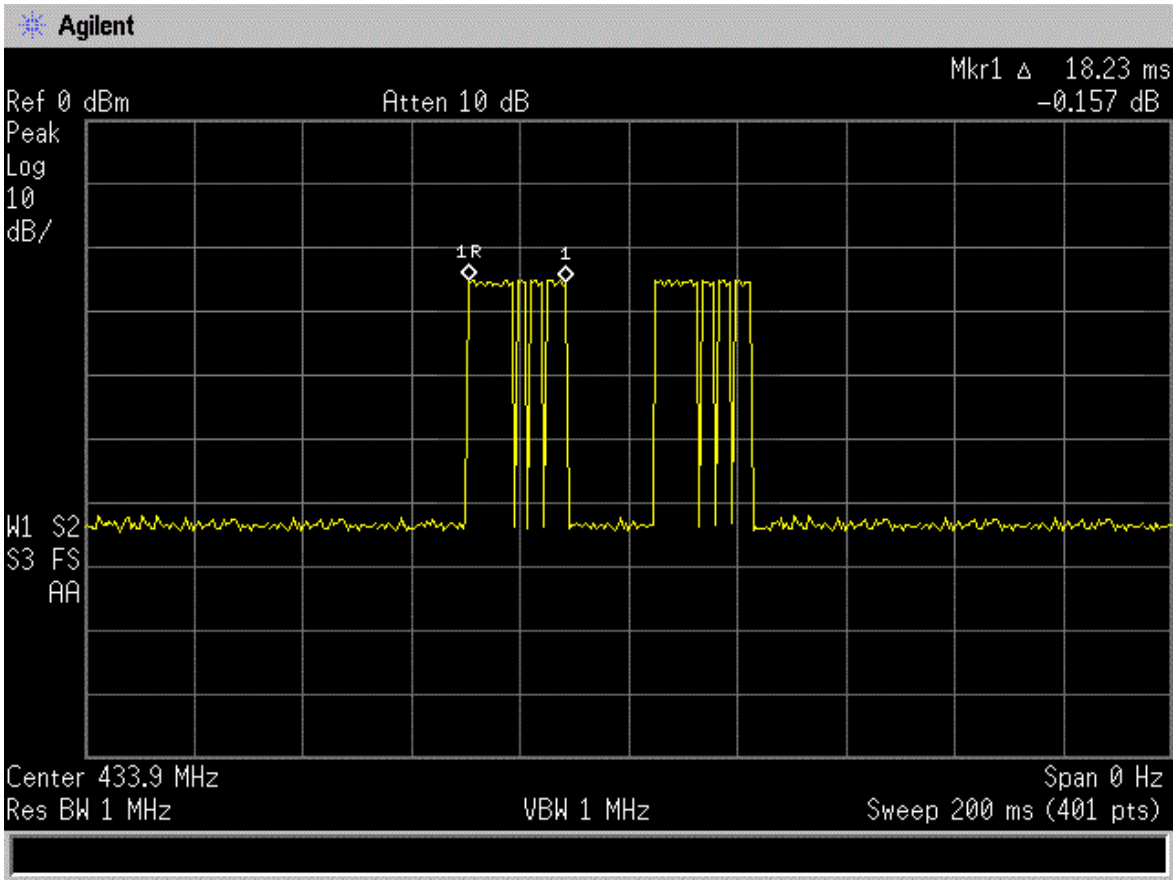


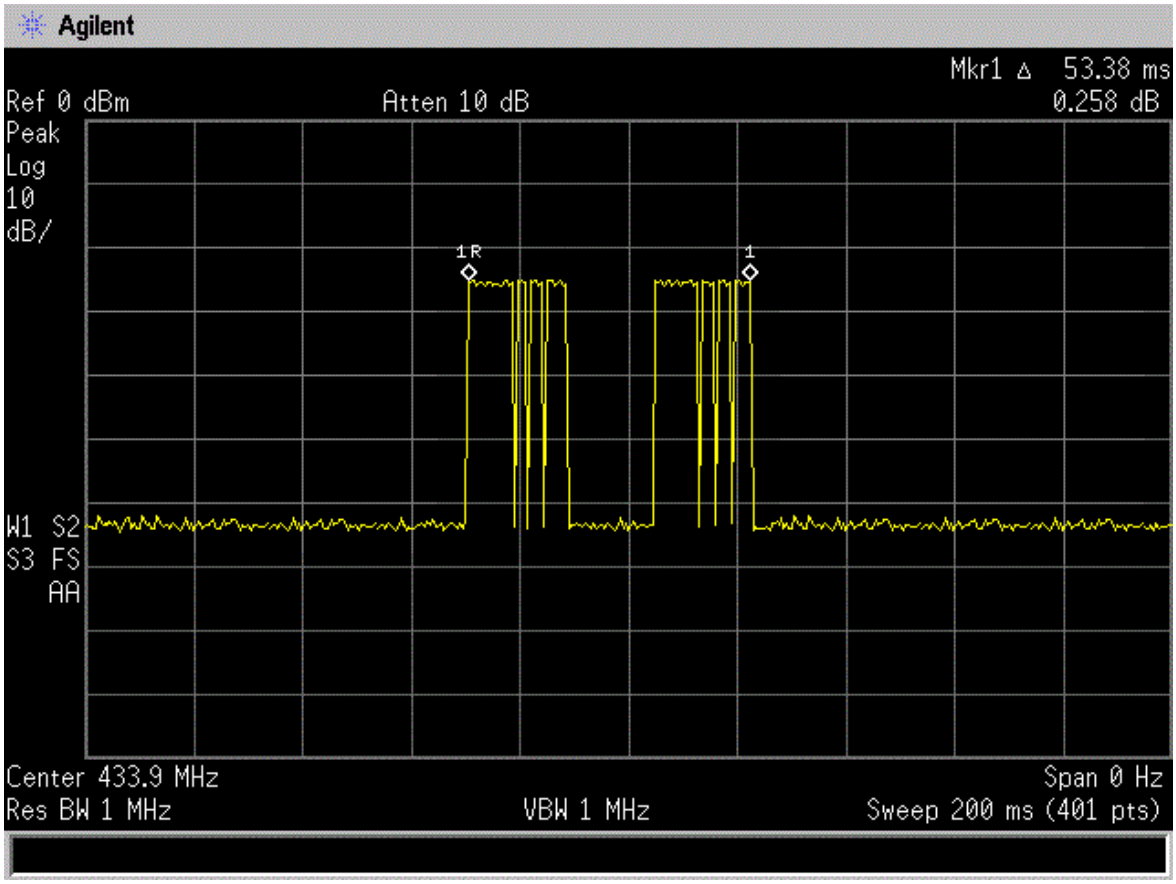
For Auto State (detection mode)

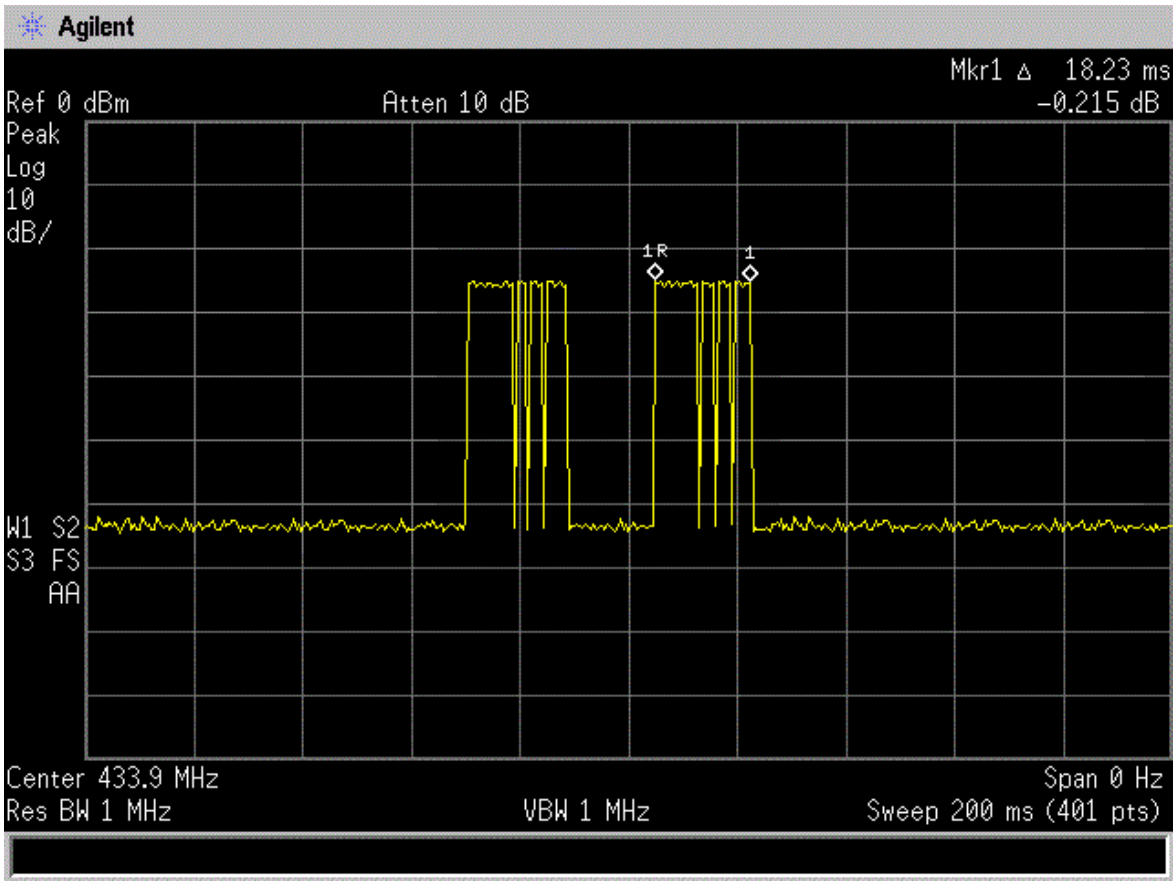


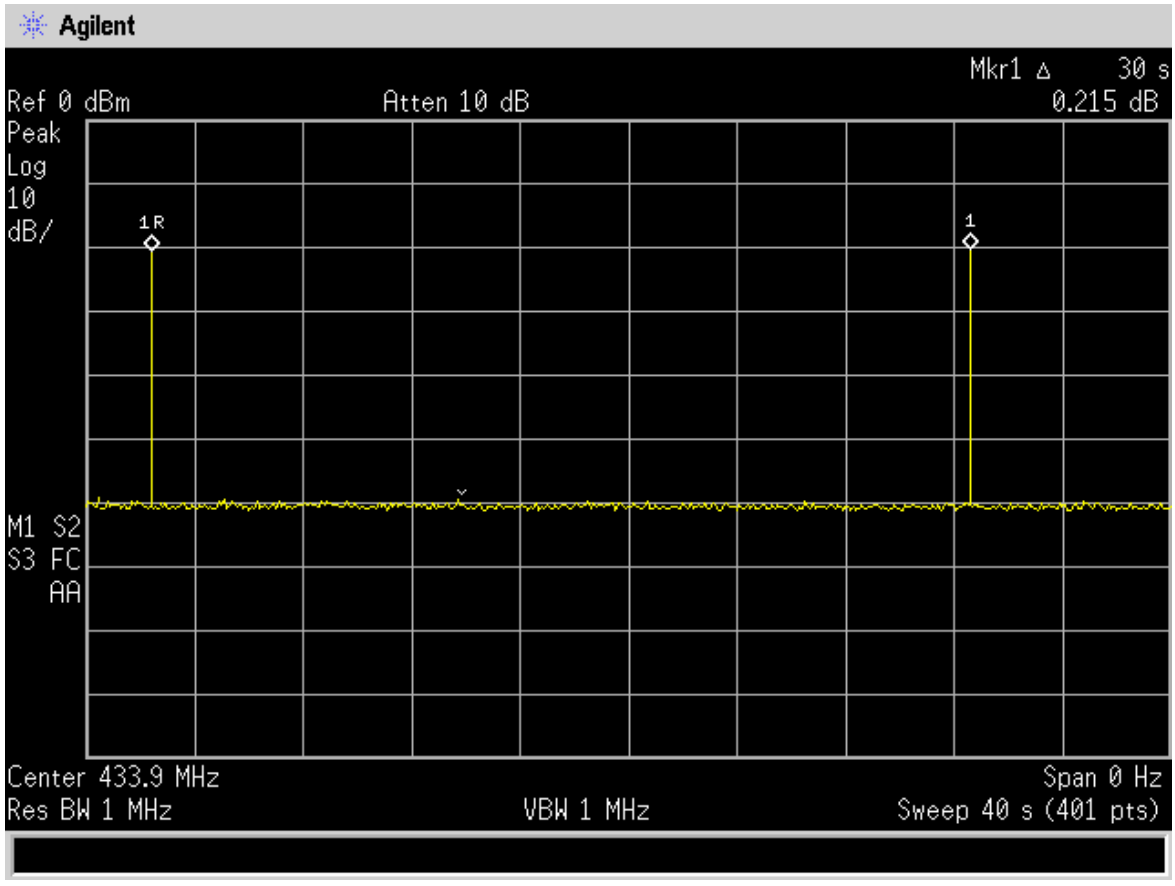


For Alert State









--------END OF THE REPORT-------