FCC PART 15.231
IC RSS-210, ISSUE 8, DECEMBER 2010
TEST AND MEASUREMENT REPORT

For

AnyDATA Corporation

5 Oldfield, Irvine, CA 92618, USA

FCC ID: P4M-ACT613
IC: 4594B-ACT613

Report Type: Original Report	**Product Type:** WCDMA Vehicle Tracker with Bluetooth and RKE Function	
Prepared By	Chen Ge Test Engineer	
Report Number	R1401021-231	
Report Date	2014-06-17	
Reviewed By	Suhaila Khushzad Engineering Manager	
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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R1401021-231	Original Report	2014-06-17

1 General Description

1.1 Product Description for Equipment Under Test (EUT)

This test and measurement report was prepared on behalf of *AnyDATA Corporation*, and their product FCC ID: P4M-ACT613, IC: 4594B-ACT613, model: *ACT613* or the "EUT" as referred on this report is a vehicle tracker with Bluetooth and RKE function.

1.2 Mechanical Description of EUT

The "EUT" measures approximately *80 mm (L) x 45mm (W) x 22mm (H)*, and weighs approximately *66.5*g.

The test data gathered are from typical production sample, serial number: 20140227000306K provided by the manufacturer.

1.3 Objective

This report is prepared on behalf of *AnyDATA Corporation* in accordance with Part 2, Subpart J, and Part 15, Subparts B and C of the Federal Communication Commissions rules and IC RSS-210 Issue 8, December 2010.

1.4 Related Submittal(s)/Grant(s)

FCC Part 22H/24E and RSS-132/133 report No.: R1401021-2224
FCC Part 15.247 and RSS-210 report No.: R1401021-247

1.5 Test Methodology

All measurements contained in this report were conducted in accordance with ANSI C63.4-2009, 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.

1.6 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR16-4-2:2011, The Treatment of Uncertainty in EMC Measurements, the values ranging from $\pm$2.0 dB for Conducted Emissions tests and $\pm$4.0 dB for Radiated Emissions tests are the most accurate estimates pertaining to uncertainty of EMC measurements at BACL Corp.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory, Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

1.7 Test Facility

Bay Area Compliance Laboratories Corp. (BACL) is:

1- An independent Commercial Test Laboratory accredited to **ISO 17025:2005** by **A2LA**, in the fields of: Electromagnetic Compatibility & Telecommunications covering Emissions, Immunity, Radio, RF Exposure, Safety and Telecom. This includes NEBS (Network Equipment Building System), Wireless RF, Telecommunications Terminal Equipment (TTE); Network Equipment; Information Technology Equipment (ITE); Medical Electrical Equipment; Industrial, Commercial, and Medical Test Equipment; Professional Audio and Video Equipment; Electronic (Digital) Products; Industrial and Scientific Instruments; Cabled Distribution Systems and Energy Efficiency Lighting.

2- An ENERGY STAR Recognized Laboratory, for the LM80 Testing, a wide variety of Luminares and Computers.

3- A NIST Designated Phase-I and Phase-II CAB including: ACMA (Australian Communication and Media Authority), BSMI (Bureau of Standards, Metrology and Inspection of Taiwan), IDA (Infocomm Development Authority of Singapore), IC(Industry Canada), Korea (Ministry of Communications Radio Research Laboratory), NCC (Formerly DGT; Directorate General of Telecommunication of Chinese Taipei) OFTA (Office of the Telecommunications Authority of Hong Kong), Vietnam, VCCI - Voluntary Control Council for Interference of Japan and a designated EU CAB (Conformity Assessment Body) (Notified Body) for the EMC and R&TTE Directives.

4- A Product Certification Body accredited to **ISO Guide 65:1996** by **A2LA** to certify:
1- Unlicensed, Licensed radio frequency devices and Telephone Terminal Equipment for the FCC. Scope A1, A2, A3, A4, B1, B2, B3, B4 & C.
2. Radio Standards Specifications (RSS) in the Category I Equipment Standards List and All Broadcasting Technical Standards (BETS) in Category I Equipment Standards List for Industry Canada.
3. Radio Communication Equipment for Singapore.
4. Radio Equipment Specifications, GMDSS Marine Radio Equipment Specifications, and Fixed Network Equipment Specifications for Hong Kong.
5. Japan MIC Telecommunication Business Law (A1, A2) and Radio Law (B1, B2 and B3).
6. Audio/Video, Battery Charging Systems, Computers, Displays, Enterprise Servers, Imaging Equipment, Set-Top Boxes, Telephony, Televisions, Ceiling Fans, CFLs (Including GU24s),Decorative Light Strings, Integral LED Lamps, Luminaires, Residential Ventilating Fans.

The test site used by BACL Corp. to collect radiated and conducted emissions measurement data is located at its facility in Sunnyvale, California, USA.

The test site at BACL Corp. has been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997, and Article 8 of the VCCI regulations on December 25, 1997. The test site also complies with the test methods and procedures set forth in CISPR 22:2008 §10.4 for measurements below 1 GHz and §10.6 for measurements above 1 GHz as well as ANSI C63.4-2009, ANSI C63.4-2009, TIA/EIA-603 & CISPR 24:2010.

The Federal Communications Commission and Voluntary Control Council for Interference have the reports on file and they are listed under FCC registration number: 90464 and VCCI Registration No.: A-0027. The test site has been approved by the FCC and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, BACL Corp. is an American Association for Laboratory Accreditation (A2LA) accredited laboratory (Lab Code 3297-02). The current scope of accreditations can be found at

http://www.a2la.org/scopepdf/3297-02.pdf?CFID=1132286&CFTOKEN=e42a3240dac3f6ba-6DE17DCB-1851-9E57-477422F667031258&jsessionid=8430d44f1f47cf2996124343c704b367816b

2 System Test Configuration

2.1 Justification

The EUT was configured for testing according to ANSI C63.4-2009.

The EUT was tested in a testing mode to represent worst-case results during the final qualification test.

Modulation	Frequency (MHz)		
	300	319	433.92
ASK	Mode 1	Mode 3	Mode 5
FSK	Mode 2	Mode 4	Mode 6

2.2 EUT Exercise Software

The test utility used was AnyDATA Modem was provided by AnyDATA Corporation.

2.3 Special Equipment

There were no special accessories were required, included, or intended for use with EUT during these tests.

2.4 Equipment Modifications

No modifications were made to the EUT.

2.5 EUT Internal Configuration Details

Manufacturers	Descriptions	Models	Serial Numbers
AnyDATA Corporation	RKE Board	ACT613 TRANS V1.0	TDJ0064
AnyDATA Corporation	STN Board	ACT231 STN V1.2	SEA02649
AnyDATA Corporation	WCDMA Board	ACT613 MAIN V1.2	MEB00024

2.6 Interface Ports and Cabling

Cable Description	Length (m)	From	To
Power Cable	3	DC Power Supply	EUT

3 Summary of Test Results

Results reported relate only to the product tested.

FCC & IC Rules	Description of Test	Result
FCC §15.203, IC RSS-Gen §7.1.2	Antenna Requirement	Compliant
FCC §15.207(a) IC RSS-Gen §7.2.4	AC Line Conducted Emissions	N/A
FCC §15.231 (a); IC RSS-210 A1.1.1	Deactivation Time	Compliant
FCC §15.231 (b); §15.205, §15.209 IC RSS-210 A1.1.2 & 2.2 IC RSS-Gen	Radiated Spurious Emissions	Compliant
FCC §15.231 (c); IC RSS-210 A1.1.3	Emission Bandwidth	Compliant
FCC §15.109 IC RSS-Gen §4.10, §6	Receiver Spurious Emission	N/A

Note: N/A: the EUT was powered by DC and RKE part of the EUT is transmitter only unit, therefore receiver spurious emission is not required.

4 FCC §15.203 & IC RSS-Gen §7.1.2 – Antenna Requirement

4.1 Applicable Standard

According to FCC §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.

And according to FCC §15.247 (b) (4), if transmitting antennas of directional gain greater than 6 dBi are used the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

As per IC RSS-Gen §7.1.2: Transmitter Antenna, a transmitter can only be sold or operated with antennas with which it was certified. A transmitter may be certified with multiple antenna types. An antenna type comprises antennas having similar in-band and out-of-band radiation patterns. Testing shall be performed using the highest-gain antenna of each combination of transmitter and antenna type for which certification is being sought, with the transmitter output power set at the maximum level. Any antenna of the same type and having equal or lesser gain as an antenna that had been successfully tested for certification with the transmitter, will also be considered certified with the transmitter, and may be used and marketed with the transmitter. The manufacturer shall include with the application for certification a list of acceptable antenna types to be used with the transmitter.

4.2 Result

The antenna is an integrated antenna with -7 dBi gain for PKE, which in accordance to sections FCC Part 15.203 and IC RSS-Gen §7.1.2, is considered sufficient to comply with the provisions of these sections.

5 FCC §15.231 (b), §15.209 & IC RSS-210 §A1.1.2, RSS-Gen – Radiated Spurious Emissions

5.1 Applicable Standard

As per FCC §15.35(d): Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1 MHz.

As per FCC §15.209(a): Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table

Frequency (MHz)	Field Strength (micro volts/meter)	Measurement Distance (meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100**	3
88 - 216	150**	3
216 - 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

As Per FCC §15.205(a) except as show in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 – 0.110 0.495 – 0.505 2.1735 – 2.1905 4.125 – 4.128 4.17725 – 4.17775 4.20725 – 4.20775 6.215 – 6.218 6.26775 – 6.26825 6.31175 – 6.31225 8.291 – 8.294 8.362 – 8.366 8.37625 – 8.38675 8.41425 – 8.41475 12.29 – 12.293 12.51975 – 12.52025 12.57675 – 12.57725 13.36 – 13.41	16.42 – 16.423 16.69475 – 16.69525 25.5 – 25.67 37.5 – 38.25 73 – 74.6 74.8 – 75.2 108 – 121.94 123 – 138 149.9 – 150.05 156.52475 – 156.52525 156.7 – 156.9 162.0125 –167.17 167.72 – 173.2 240 – 285 322 – 335.4 399.9 – 410 608 – 614	960 – 1240 1300 – 1427 1435 – 1626.5 1645.5 – 1646.5 1660 – 1710 1718.8 – 1722.2 2200 – 2300 2310 – 2390 2483.5 – 2500 2690 – 2900 3260 – 3267 3.332 – 3.339 3 3458 – 3 358 3.600 – 4.400	4. 5 – 5. 15 5. 35 – 5. 46 7.25 – 7.75 8.025 – 8.5 9.0 – 9.2 9.3 – 9.5 10.6 – 12.7 13.25 – 13.4 14.47 – 14.5 15.35 – 16.2 17.7 – 21.4 22.01 – 23.12 23.6 – 24.0 31.2 – 31.8 36.43 – 36.5 Above 38.6

(b) Except as provided in §15.205 paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

(c) Except as provided in paragraphs (d) and (e), regardless of the field strength limits specified elsewhere in this Subpart, the provisions of this Section apply to emissions from any intentional radiator.

As Per FCC §15.231 (b)

(b): In addition to the provisions of §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	2,250	225
70-130	1,250	125
130-174	1,250 to 3,750**	125 to 375**
174-260	3,750	375
260-470	3,750 to 12,500**	375 to 1,250**
Above 470	12,500	1,250

According to RSS-210:

Category I licence-exempt equipment is required to comply with the provisions in RSS-Gen with respect to emissions falling within restricted frequency bands. These restricted frequency bands are listed in RSS-Gen.

RSS-210 §2.5 General Field Strength Limits

RSS-Gen includes the general field strength limits of unwanted emissions, where applicable, for transmitters and receivers operating in accordance with the provisions specified in this standard.

Unwanted emissions of transmitters and receivers are permitted to fall within the restricted bands listed in RSS-Gen, and including the TV bands, but fundamental emissions are prohibited in the restricted bands bands.

As Per IC RSS-210 A1.1

The frequency bands and field strength limits in tables A and B of this annex are only for the transmission of a control signal, such as that used with alarm systems, door openers, remote switches, etc. Radio control of toys or model aircraft, and continuous transmissions, such as voice or video, are not permitted except as provided in Section A1.1.5 below. Data may be sent with a control signal.

Table A: Permissible Field Strength Limits for Momentarily Operated Devices

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emissions (microvolts/meter)
40.66-40.70	Dee Section A2.7	
70-130	1,250	125
130-174	1,250 to 3,750**	125 to 375**
174-260	3,750	375
260-470	3,750 to 12,500**	375 to 1,250**
Above 470	12,500	1,250

Note 1: Limits on the field strength of emissions, as shown in this table, are based on the average value of the measured emissions. As an alternative, compliance with the limits in this table may be based on the use of measurement instrumentation with a CISPR quasi-peak detector.

Linear interpolation with frequency F in MHz:

For 130-174 MHz: FS (microvolts/m) = (56.82 x F)-6136
For 260-470 MHz: FS (microvolts/m) = (41.67 x F)-7083

Note 2: The frequency band 225-399.9 MHz is allocated for Government of Canada usage. There are different types of operations in different parts of this band of frequencies, including communications with aircraft and operations using high-power transmitters. Besides avoiding the restricted frequency bands listed in RSS-Gen, it is recommended that the entire 225-399.9 MHz band be avoided.

5.2 Test Setup

The radiated emissions tests were performed in the 5-meter Chamber, using the setup in accordance with ANSI C63.4-2009. The specification used was the FCC 15C and IC RSS-210 limits.

The spacing between the peripherals was 10 centimeters.

External I/O cables were draped along the edge of the test table and bundle when necessary.

5.3 Test Procedure

For the radiated emissions test, the EUT host, and all support equipment power cords was connected to the DC Power Supply.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The EUT is set 3 meter away from the testing antenna, which is varied from 1-4 meter, and the EUT is placed on a turntable, which is 0.8 meter above ground plane, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna should be changed the polarization both of horizontal and vertical.

The spectrum analyzer or receiver is set as:

Below 1000 MHz:

RBW = 100 kHz / VBW = 300 kHz / Sweep = Auto

Above 1000 MHz:

(1) Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto

5.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude (CA) is calculated by adding the Antenna Factor (AF), the Cable Loss (CL), the Attenuator Factor (Atten) and subtracting the Amplifier Gain (Ga) to the indicated Amplitude (Ai) reading. The basic equation is as follows:

CA = Ai + AF + CL + Atten – Ga

For example, the Corrected Amplitude (CA) of 40.3 dBuV/m = indicated Amplitude reading (Ai) 32.5 dBuV + Antenna Factor (AF) 23.5dB + Cable Loss (CL) 3.7 dB + Attenuator (Atten) 10 dB - Amplifier Gain (Ga) 29.4 dB

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of -7 dB means the emission is 7 dB below the maximum limit. The equation for margin calculation is as follows:

Margin (dB) = Corrected Amplitude (dBuV/m) - Limit (dBuV/m)

5.5 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Cycle
Agilent	Spectrum Analyzer	E4446A	MY48250238	2013-08-29	1 year
Sunol Science Corp	System Controller	SC99V	122303-1	N/R	N/R
Sunol Science Corp	Combination Antenna	JB3	A020106-3	2013-07-11	1 year
Hewlett Packard	Pre-amplifier	8447D	2944A06639	2013-06-09	1 year
EMCO	Horn antenna	3115	9511-4627	2014-01-07	1 year
Mini-Circuits	Pre Amplifier	ZVA-183-S	570400946	2013-05-09	1 year

Statement of Traceability: BACL attests that all calibrations have been performed per the A2LA requirements, traceable to NIST.

5.6 Test Environmental Conditions

Temperature:	24 °C
Relative Humidity:	45 %
ATM Pressure:	101.77 kPa

The testing was performed by Chen Ge on 2014-03-13 at 5 meter chamber 2.

5.7 Radiated Emissions Test Result Data

Please refer the following tables and plots.

Test Mode: Transmitting

Mode1: 300 MHz ASK

Field Strength of Peak Emission

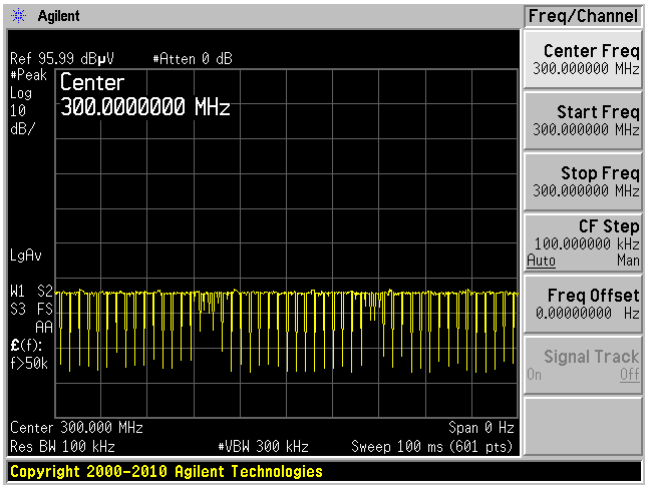
Freq. (MHz)	S.A. Reading (dBuV)	Turntable Azimuth Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC/IC		
			Height (cm)	Polar. (H/V)	Factor (dB/m)				Limit (dBuV/m)	Margin (dB)	Comment
300	56.29	238	100	H	17	1.17	25.44	49.02	94.67	-45.65	Peak/Fund.
300	56.61	210	100	V	17	1.17	25.44	49.34	94.67	-45.33	Peak/Fund.
600	34.21	0	100	H	22.4	1.8	25.25	33.16	74.67	-41.51	Peak/Harm
600	34.53	0	100	V	22.4	1.8	25.25	33.48	74.67	-41.19	Peak/Harm
1200	36.06	0	100	H	26.32	2.56	27.63	37.31	74	-36.69	Peak/Harm
1200	35.77	0	100	V	26.32	2.56	27.63	37.02	74	-36.98	Peak/Harm
1500	40.8	70	100	H	28.07	3.02	27.7	44.19	74	-29.81	Peak/Harm
1500	40.47	96	100	V	28.07	3.02	27.7	43.86	74	-30.14	Peak/Harm
3000	34.36	0	100	H	32.32	4.23	27.9	43.01	74.67	-31.66	Peak/Harm
3000	34.83	0	100	V	32.32	4.23	27.9	43.48	74.67	-31.19	Peak/Harm

Field Strength of Average Emission

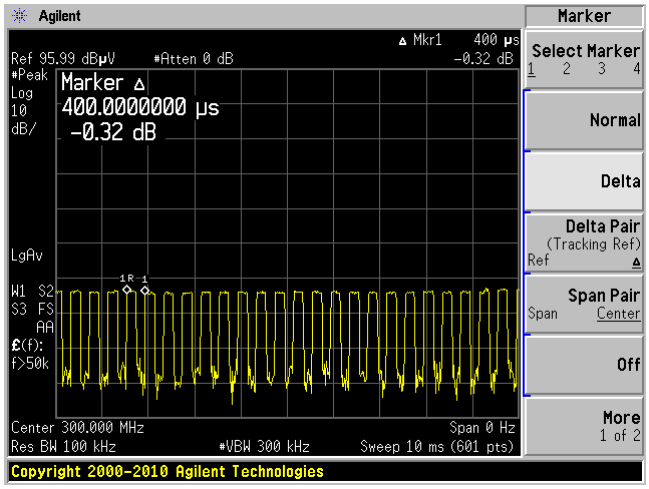
Freq. (MHz)	Peak Measurement at 3m (dBuV/m)	Polar (H/V)	Duty Cycle Correlation Factor (dB)	Corrected Amplitude (dBμV/m)	FCC/IC		
					Limit (dBuV/m)	Margin (dB)	Comment
300	49.02	H	-6.27734	42.74266	74.67	-31.9273	Ave/Fund.
300	49.34	V	-6.27734	43.06266	74.67	-31.6073	Ave/Fund.
600	33.16	H	-6.27734	26.88266	54.67	-27.7873	Ave/Harm
600	33.48	V	-6.27734	27.20266	54.67	-27.4673	Ave/Harm
1200	37.31	H	-6.27734	31.03266	54	-22.9673	Ave/Harm
1200	37.02	V	-6.27734	30.74266	54	-23.2573	Ave/Harm
1500	44.19	H	-6.27734	37.91266	54	-16.0873	Ave/Harm
1500	43.86	V	-6.27734	37.58266	54	-16.4173	Ave/Harm
3000	43.01	H	-6.27734	36.73266	54.67	-17.9373	Ave/Harm
3000	43.48	V	-6.27734	37.20266	54.67	-17.4673	Ave/Harm

Duty Cycle factor was calculated by the following function and plots:

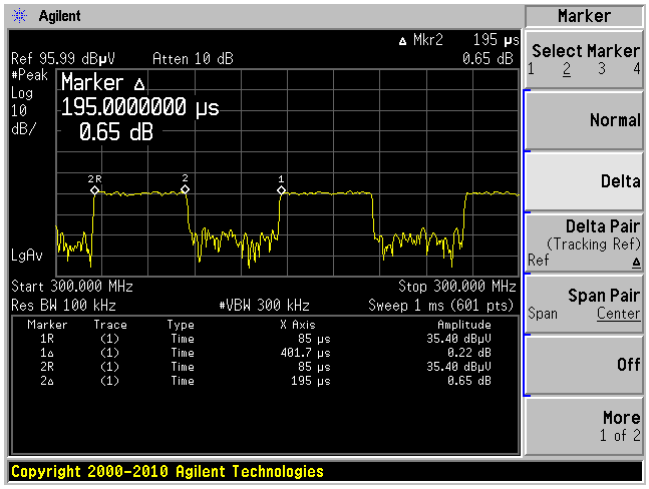
Duty Cycle factor = 20 * log (Ton/Tp) = 20 * log (195us/ 401.7 us) = -6.27734 dB



100ms plots



10ms Plots shows the Cycle time.



1ms plot shows detail Ton and Tp time.

Ton = 195 us
Tp = 401.7us

Mode2: 300 MHz FSK

Field Strength of Peak Emission

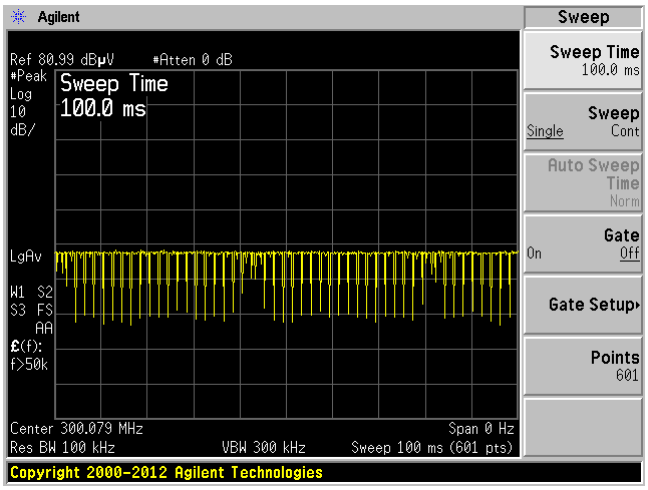
Freq. (MHz)	S.A. Reading (dBuV)	Turntable Azimuth Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC/IC		
			Height (cm)	Polar. (H/V)	Factor (dB/m)				Limit (dBuV/m)	Margin (dB)	Comment
300	58.59	230	100	H	17	1.17	25.44	51.32	94.67	-43.35	Peak/Fund.
300	56.33	240	100	V	17	1.17	25.44	49.06	94.67	-45.61	Peak/Fund.
600	34.17	0	100	H	22.4	1.8	25.25	33.12	74.67	-41.55	Peak/Harm
600	34.24	0	100	V	22.4	1.8	25.25	33.19	74.67	-41.48	Peak/Harm
1200	35.43	0	100	H	26.32	2.56	27.63	36.68	74	-37.32	Peak/Harm
1200	35.76	0	100	V	26.32	2.56	27.63	37.01	74	-36.99	Peak/Harm
1500	41.22	223	100	H	28.07	3.02	27.7	44.61	74	-29.39	Peak/Harm
1500	43.36	110	100	V	28.07	3.02	27.7	46.75	74	-27.25	Peak/Harm
3000	34.3	0	100	H	32.32	4.23	27.9	42.95	74.67	-31.72	Peak/Harm
3000	35.12	0	100	V	32.32	4.23	27.9	43.77	74.67	-30.9	Peak/Harm

Field Strength of Average Emission

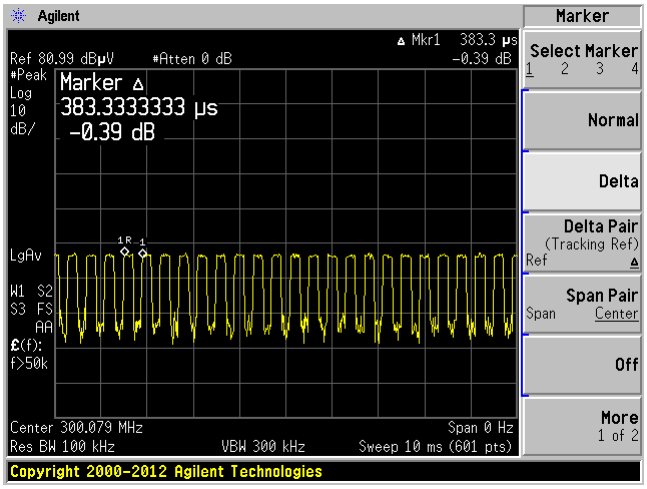
Freq. (MHz)	Peak Measurement at 3m (dBuV/m)	Polar (H/V)	Duty Cycle Correlation Factor (dB)	Corrected Amplitude (dBμV/m)	FCC/IC		
					Limit (dBuV/m)	Margin (dB)	Comment
300	51.32	H	-6.3534	44.9666	74.67	-29.7034	Ave/Fund.
300	49.06	V	-6.3534	42.7066	74.67	-31.9634	Ave/Fund.
600	33.12	H	-6.3534	26.7666	54.67	-27.9034	Ave/Harm
600	33.19	V	-6.3534	26.8366	54.67	-27.8334	Ave/Harm
1200	36.68	H	-6.3534	30.3266	54	-23.6734	Ave/Harm
1200	37.01	V	-6.3534	30.6566	54	-23.3434	Ave/Harm
1500	44.61	H	-6.3534	38.2566	54	-15.7434	Ave/Harm
1500	46.75	V	-6.3534	40.3966	54	-13.6034	Ave/Harm
3000	42.95	H	-6.3534	36.5966	54.67	-18.0734	Ave/Harm
3000	43.77	V	-6.3534	37.4166	54.67	-17.2534	Ave/Harm

Duty Cycle factor was calculated by the following function and plots:

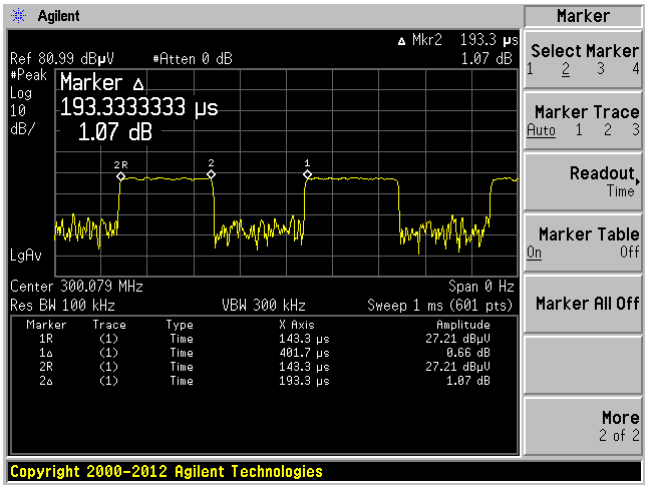
Duty Cycle factor = 20 * log (Ton/Tp) = 20 * log (193.3us/401.7us) = -6.3534 dB



100ms plots



10ms Plots shows the Cycle time.



1ms plot shows detail Ton and Tp time.

Ton = 193.3 us
Tp = 401.7 us

Mode 3: 309.5075MHz ASK

Field Strength of Peak Emission

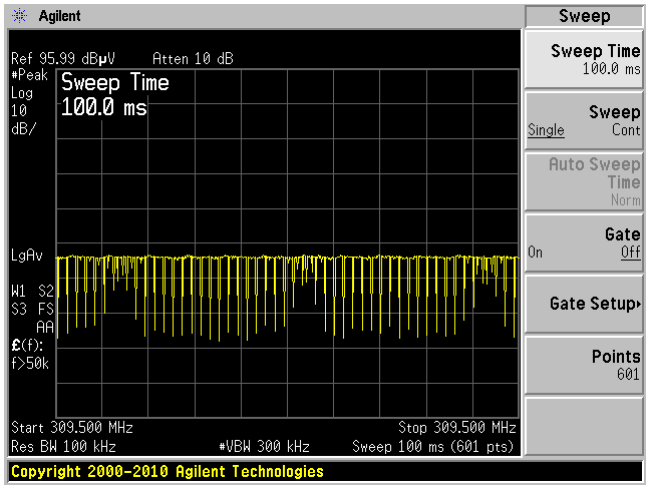
Freq. (MHz)	S.A. Reading (dBuV)	Turntable Azimuth Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC/IC		
			Height (cm)	Polar. (H/V)	Factor (dB/m)				Limit (dBuV/m)	Margin (dB)	Comment
310	60.51	234	100	H	17	1.17	25.44	53.24	95.32	-42.08	Peak/Fund.
310	60.39	209	100	V	17	1.17	25.44	53.12	95.32	-42.2	Peak/Fund.
620	34.56	0	100	H	22.4	1.8	25.25	33.51	75.32	-41.81	Peak/Harm
620	34.65	0	100	V	22.4	1.8	25.25	33.6	75.32	-41.72	Peak/Harm
1240	36.66	0	100	H	26.32	2.56	27.63	37.91	74	-36.09	Peak/Harm
1240	39.45	0	100	V	26.32	2.56	27.63	40.7	74	-33.3	Peak/Harm
1550	36.01	0	100	H	28.07	3.02	27.7	39.4	74	-34.6	Peak/Harm
1550	34.65	0	100	V	28.07	3.02	27.7	38.04	74	-35.96	Peak/Harm
3100	35.15	0	100	H	32.32	4.23	27.9	43.8	75.32	-31.52	Peak/Harm
3100	34.88	0	100	V	32.32	4.23	27.9	43.53	75.32	-31.79	Peak/Harm

Field Strength of Average Emission

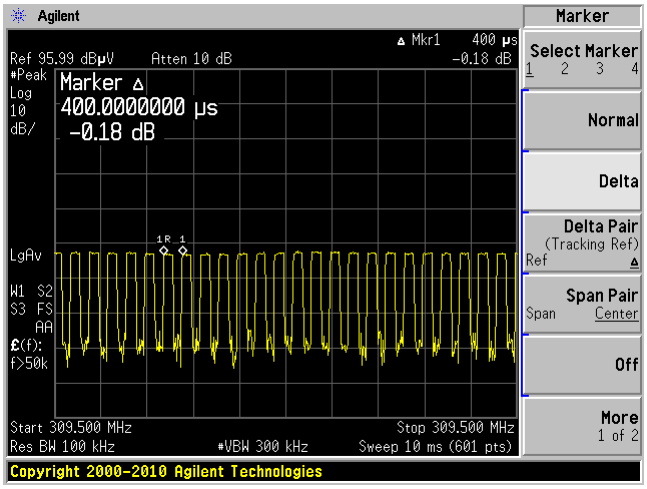
Freq. (MHz)	Peak Measurement at 3m (dBuV/m)	Polar (H/V)	Duty Cycle Correlation Factor (dB)	Corrected Amplitude (dBμV/m)	FCC/IC		
					Limit (dBuV/m)	Margin (dB)	Comment
310	53.24	H	-6.16511	47.07489	75.32	-28.2451	Ave/Fund.
310	53.12	V	-6.16511	46.95489	75.32	-28.3651	Ave/Fund.
620	33.51	H	-6.16511	27.34489	55.32	-27.97511	Ave/Harm
620	33.6	V	-6.16511	27.43489	55.32	-27.88511	Ave/Harm
1240	37.91	H	-6.16511	31.74489	54	-22.2551	Ave/Harm
1240	40.7	V	-6.16511	34.53489	54	-19.4651	Ave/Harm
1550	39.4	H	-6.16511	33.23489	54	-20.7651	Ave/Harm
1550	38.04	V	-6.16511	31.87489	54	-22.1251	Ave/Harm
3100	43.8	H	-6.16511	37.63489	55.32	-17.6851	Ave/Harm
3100	43.53	V	-6.16511	37.36489	55.32	-17.9551	Ave/Harm

Duty Cycle factor was calculated by the following function and plots:

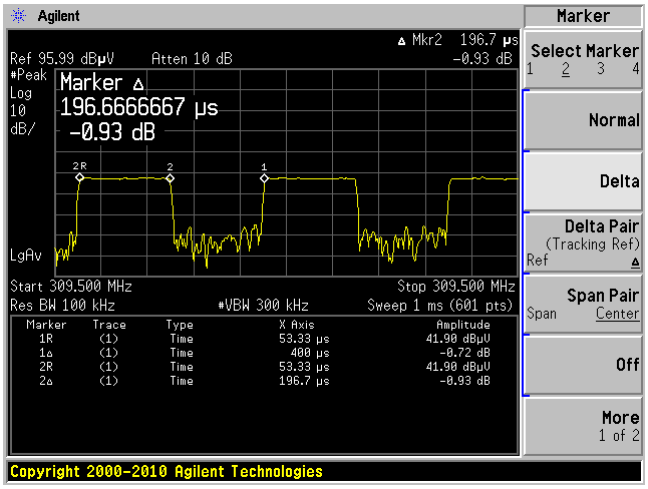
Duty Cycle factor = 20 * log (Ton/Tp) = 20 * log (196.7us/400us) = -6.16511 dB



100ms plots



10ms Plots shows the Cycle time.



1ms plot shows detail Ton and Tp time.

Ton = 196.7 us
Tp = 400 us

Mode 4: 309.5075 MHz FSK

Field Strength of Peak Emission

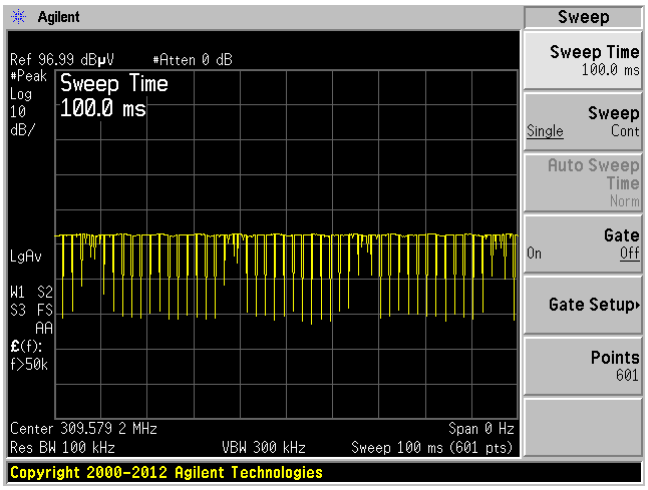
Freq. (MHz)	S.A. Reading (dBuV)	Turntable Azimuth Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	FCC/IC		
			Height (cm)	Polar. (H/V)	Factor (dB/m)				Limit (dBuV/m)	Margin (dB)	Comment
310	62.12	323	100	H	17	1.17	25.44	54.85	95.32	-40.47	Peak/Fund.
310	60.03	172	100	V	17	1.17	25.44	52.76	95.32	-42.56	Peak/Fund.
620	35.76	0	100	H	22.4	1.8	25.25	34.71	75.32	-40.61	Peak/Harm
620	35.19	0	100	V	22.4	1.8	25.25	34.14	75.32	-41.18	Peak/Harm
1240	39.01	0	100	H	26.32	2.56	27.63	40.26	74	-33.74	Peak/Harm
1240	38.87	0	100	V	26.32	2.56	27.63	40.12	74	-33.88	Peak/Harm
1550	35.65	0	100	H	28.07	3.02	27.7	39.04	74	-34.96	Peak/Harm
1550	35.23	0	100	V	28.07	3.02	27.7	38.62	74	-35.38	Peak/Harm
3100	34.36	0	100	H	32.32	4.23	27.9	43.01	75.32	-32.31	Peak/Harm
3100	34.15	0	100	V	32.32	4.23	27.9	42.8	75.32	-32.52	Peak/Harm

Field Strength of Average Emission

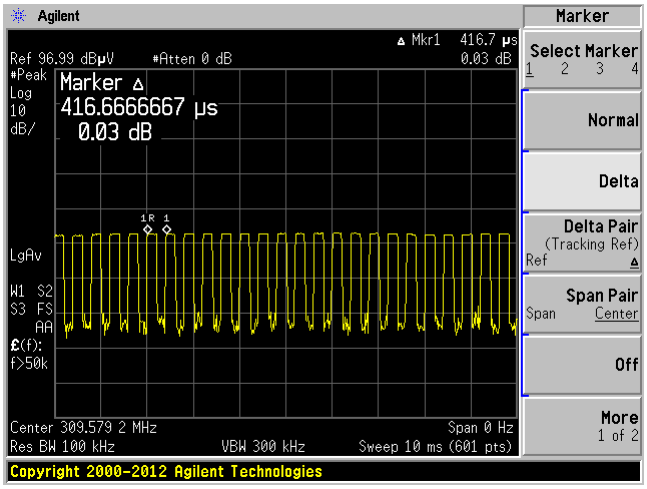
Freq. (MHz)	Peak Measurement at 3m (dBuV/m)	Polar (H/V)	Duty Cycle Correlation Factor (dB)	Corrected Amplitude (dBµV/m)	FCC/IC		
					Limit (dBuV/m)	Margin (dB)	Comment
310	54.85	H	-6.27957	48.57043	75.32	-26.7496	Ave/Fund.
310	52.76	V	-6.27957	46.48043	75.32	-28.8396	Ave/Fund.
620	34.71	H	-6.27957	28.43043	55.32	-26.88957	Ave/Harm
620	34.14	V	-6.27957	27.86043	55.32	-27.45957	Ave/Harm
1240	40.26	H	-6.27957	33.98043	54	-20.0196	Ave/Harm
1240	40.12	V	-6.27957	33.84043	54	-20.1596	Ave/Harm
1550	39.04	H	-6.27957	32.76043	54	-21.2396	Ave/Harm
1550	38.62	V	-6.27957	32.34043	54	-21.6596	Ave/Harm
3100	43.01	H	-6.27957	36.73043	55.32	-18.5896	Ave/Harm
3100	42.8	V	-6.27957	36.52043	55.32	-18.7996	Ave/Harm

Duty Cycle factor was calculated by the following function and plots:

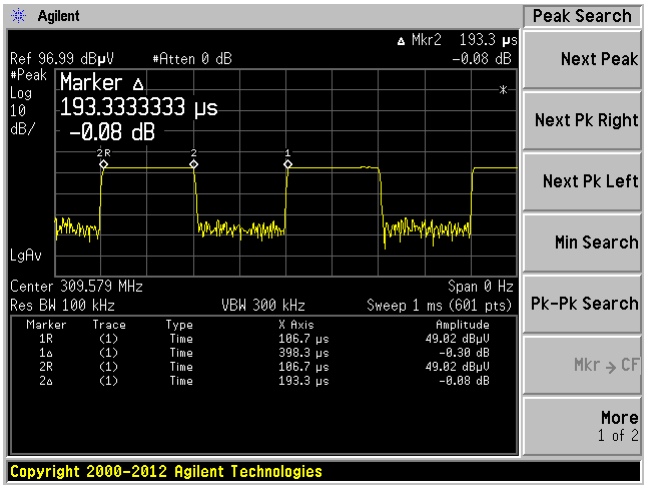
Duty Cycle factor = 20 * log (Ton/Tp) = 20 * log (193.3us/398.3us) = -6.27957 dB



100ms plots



10ms Plots shows the Cycle time.



1ms plot shows detail Ton and Tp time.

Ton = 193.3 us
Tp = 398.3 us

Mode 5: 319 MHz ASK

Field Strength of Peak Emission

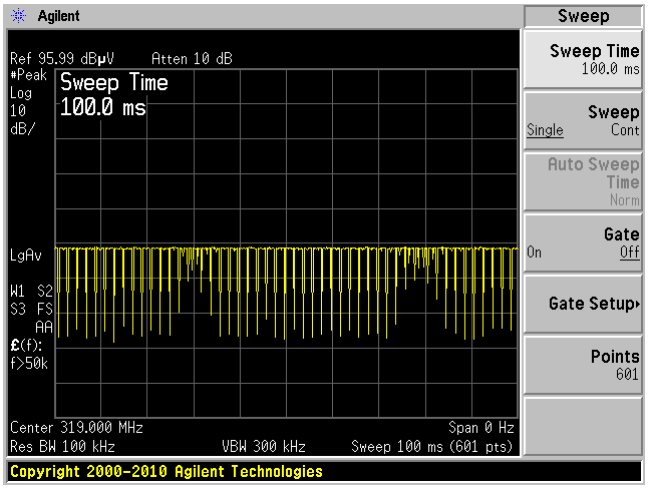
Freq. (MHz)	S.A. Reading (dBuV)	Turntable Azimuth Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	FCC/IC		
			Height (cm)	Polar. (H/V)	Factor (dB/m)				Limit (dBuV/m)	Margin (dB)	Comment
319	62.92	220	100	H	17	1.17	25.44	55.65	95.86	-40.21	Peak/Fund.
319	61.9	208	100	V	17	1.17	25.44	54.63	95.86	-41.23	Peak/Fund.
638	38.29	320	100	H	22.4	1.8	25.25	37.24	75.86	-38.62	Peak/Harm
638	39.06	175	100	V	22.4	1.8	25.25	38.01	75.86	-37.85	Peak/Harm
1276	40.53	0	100	H	26.32	2.56	27.63	41.78	75.86	-34.08	Peak/Harm
1276	40.31	0	100	V	26.32	2.56	27.63	41.56	75.86	-34.3	Peak/Harm
1595	47.28	13	100	H	28.07	3.02	27.7	50.67	74	-23.33	Peak/Harm
1595	44.78	320	100	V	28.07	3.02	27.7	48.17	74	-25.83	Peak/Harm
3190	33.54	0	100	H	32.32	4.23	27.9	42.19	75.86	-33.67	Peak/Harm
3190	33.73	0	100	V	32.32	4.23	27.9	42.38	75.86	-33.48	Peak/Harm

Field Strength of Average Emission

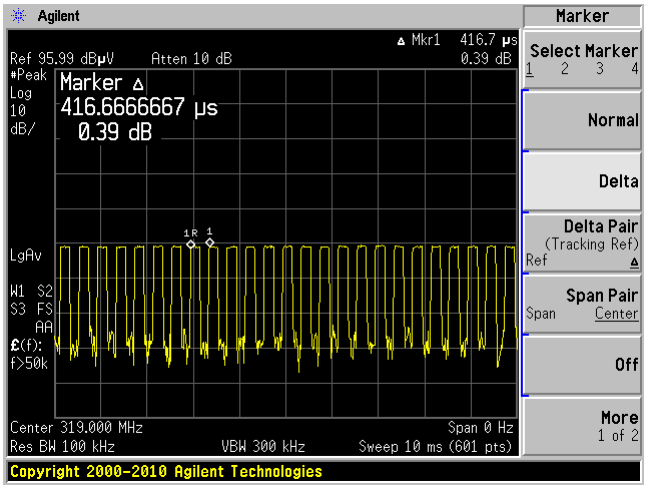
Freq. (MHz)	Peak Measurement at 3m (dBuV/m)	Polar (H/V)	Duty Cycle Correlation Factor (dB)	Corrected Amplitude (dBµV/m)	FCC/IC		
					Limit (dBuV/m)	Margin (dB)	Comment
319	55.65	H	-6.27957	49.37043	75.86	-26.4896	Ave/Fund.
319	54.63	V	-6.27957	48.35043	75.86	-27.5096	Ave/Fund.
638	37.24	H	-6.27957	30.96043	55.86	-24.8996	Ave/Harm
638	38.01	V	-6.27957	31.73043	55.86	-24.1296	Ave/Harm
1276	41.78	H	-6.27957	35.50043	55.86	-20.3596	Ave/Harm
1276	41.56	V	-6.27957	35.28043	55.86	-20.5796	Ave/Harm
1595	50.67	H	-6.27957	44.39043	54	-9.60957	Ave/Harm
1595	48.17	V	-6.27957	41.89043	54	-12.10957	Ave/Harm
3190	42.19	H	-6.27957	35.91043	55.86	-19.9496	Ave/Harm
3190	42.38	V	-6.27957	36.10043	55.86	-19.7596	Ave/Harm

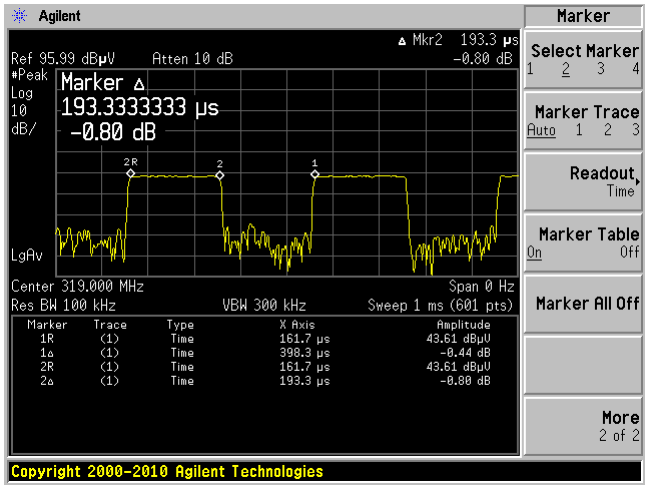
Duty Cycle factor was calculated by the following function and plots:

Duty Cycle factor = 20 * log (Ton/Tp) = 20 * log (193.3us/398.3us) = -6.27957 dB



100ms plots





10ms Plots shows the Cycle time.

1ms plot shows detail Ton and Tp time.

Ton = 193.3 us
Tp = 398.3 us

Mode 6: 319 MHz FSK

Field Strength of Peak Emission

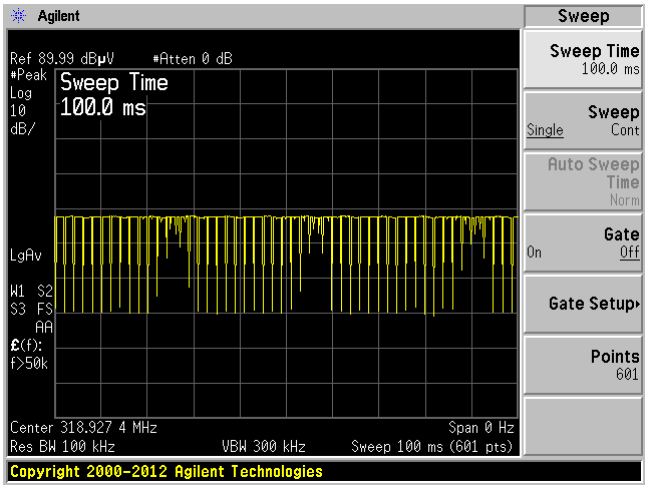
Freq. (MHz)	S.A. Reading (dBuV)	Turntable Azimuth Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC/IC		
			Height (cm)	Polar. (H/V)	Factor (dB/m)				Limit (dBuV/m)	Margin (dB)	Comment
319	62.86	233	100	H	17	1.17	25.44	55.59	95.86	-40.27	Peak/Fund.
319	61.89	212	100	V	17	1.17	25.44	54.62	95.86	-41.24	Peak/Fund.
638	39.68	280	100	H	22.4	1.8	25.25	38.63	75.86	-37.23	Peak/Harm
638	38.72	132	100	V	22.4	1.8	25.25	37.67	75.86	-38.19	Peak/Harm
1276	37.7	0	100	H	26.32	2.56	27.63	38.95	75.86	-36.91	Peak/Harm
1276	37.56	0	100	V	26.32	2.56	27.63	38.81	75.86	-37.05	Peak/Harm
1595	47.14	0	100	H	28.07	3.02	27.7	50.53	74	-23.47	Peak/Harm
1595	46.05	298	100	V	28.07	3.02	27.7	49.44	74	-24.56	Peak/Harm
3190	33.96	0	100	H	32.32	4.23	27.9	42.61	75.86	-33.25	Peak/Harm
3190	34.36	0	100	V	32.32	4.23	27.9	43.01	75.86	-32.85	Peak/Harm

Field Strength of Average Emission

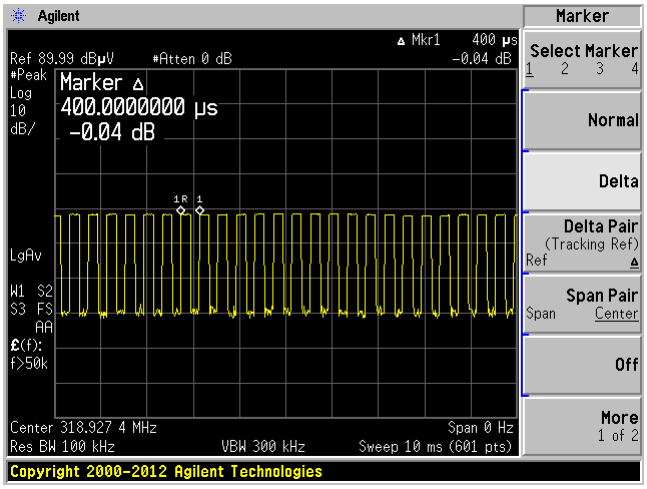
Freq. (MHz)	Peak Measurement at 3m (dBuV/m)	Polar (H/V)	Duty Cycle Correlation Factor (dB)	Corrected Amplitude (dBμV/m)	FCC/IC		
					Limit (dBuV/m)	Margin (dB)	Comment
319	55.59	H	-6.20195	49.38805	75.86	-26.472	Ave/Fund.
319	54.62	V	-6.20195	48.41805	75.86	-27.442	Ave/Fund.
638	38.63	H	-6.20195	32.42805	55.86	-23.432	Ave/Harm
638	37.67	V	-6.20195	31.46805	55.86	-24.392	Ave/Harm
1276	38.95	H	-6.20195	32.74805	55.86	-23.112	Ave/Harm
1276	38.81	V	-6.20195	32.60805	55.86	-23.252	Ave/Harm
1595	50.53	H	-6.20195	44.32805	54	-9.67195	Ave/Harm
1595	49.44	V	-6.20195	43.23805	54	-10.76195	Ave/Harm
3190	42.61	H	-6.20195	36.40805	55.86	-19.452	Ave/Harm
3190	43.01	V	-6.20195	36.80805	55.86	-19.052	Ave/Harm

Duty Cycle factor was calculated by the following function and plots:

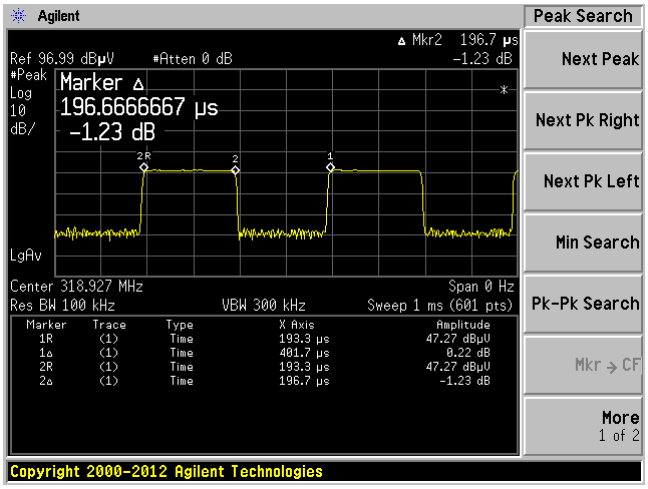
Duty Cycle factor = 20 * log (Ton/Tp) = 20 * log (196.7us/401.7us) = -6.20195 dB



100ms plots



10ms Plots shows the Cycle time.



1ms plot shows detail Ton and Tp time.

Ton = 196.7 us
Tp = 401.7 us

Mode 7: 433.92MHz ASK

Field Strength of Peak Emission

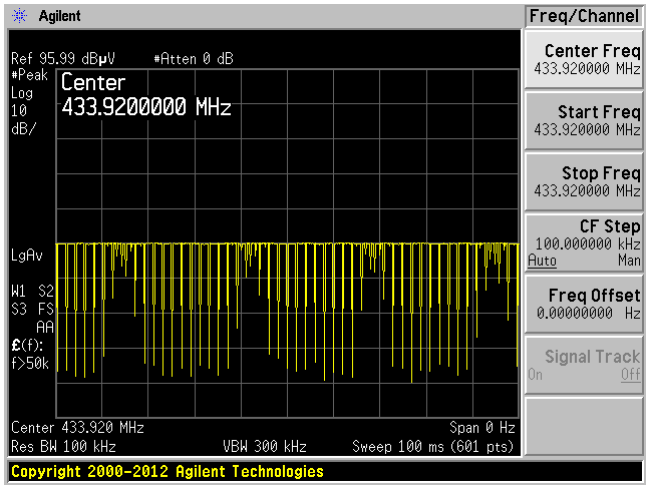
Freq. (MHz)	S.A. Reading (dBuV)	Turntable Azimuth Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	FCC/IC		
			Height (cm)	Polar. (H/V)	Factor (dB/m)				Limit (dBuV/m)	Margin (dB)	Comment
433	63.8	190	100	H	17	1.17	25.44	56.53	100.79	-44.26	Peak/Fund.
433	61.92	288	100	V	17	1.17	25.44	54.65	100.79	-46.14	Peak/Fund.
866	37	56	100	H	22.4	1.8	25.25	35.95	80.79	-44.84	Peak/Harm
866	39.23	312	100	V	22.4	1.8	25.25	38.18	80.79	-42.61	Peak/Harm
1732	38.52	268	100	H	26.32	2.56	27.63	39.77	80.79	-41.02	Peak/Harm
1732	39.58	188	100	V	26.32	2.56	27.63	40.83	80.79	-39.96	Peak/Harm
2165	37.15	0	100	H	28.07	3.02	27.7	40.54	80.79	-40.25	Peak/Harm
2165	36.97	0	100	V	28.07	3.02	27.7	40.36	80.79	-40.43	Peak/Harm
4330	32.89	0	100	H	32.32	4.23	27.9	41.54	74	-32.46	Peak/Harm
4330	32.77	0	100	V	32.32	4.23	27.9	41.42	74	-32.58	Peak/Harm

Field Strength of Average Emission

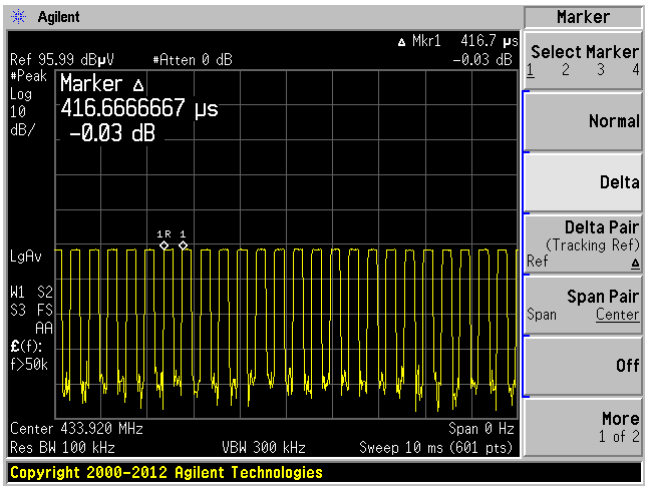
Freq. (MHz)	Peak Measurement at 3m (dBuV/m)	Polar (H/V)	Duty Cycle Correlation Factor (dB)	Corrected Amplitude (dBµV/m)	FCC/IC		
					Limit (dBuV/m)	Margin (dB)	Comment
433	56.53	H	-6.24051	50.28949	80.79	-30.5005	Ave/Fund.
433	54.65	V	-6.24051	48.40949	80.79	-32.3805	Ave/Fund.
866	35.95	H	-6.24051	29.70949	60.79	-31.0805	Ave/Harm
866	38.18	V	-6.24051	31.93949	60.79	-28.8505	Ave/Harm
1732	39.77	H	-6.24051	33.52949	60.79	-27.2605	Ave/Harm
1732	40.83	V	-6.24051	34.58949	60.79	-26.2005	Ave/Harm
2165	40.54	H	-6.24051	34.29949	60.79	-26.4905	Ave/Harm
2165	40.36	V	-6.24051	34.11949	60.79	-26.6705	Ave/Harm
4330	41.54	H	-6.24051	35.29949	54	-18.7005	Ave/Harm
4330	41.42	V	-6.24051	35.17949	54	-18.8205	Ave/Harm

Duty Cycle factor was calculated by the following function and plots:

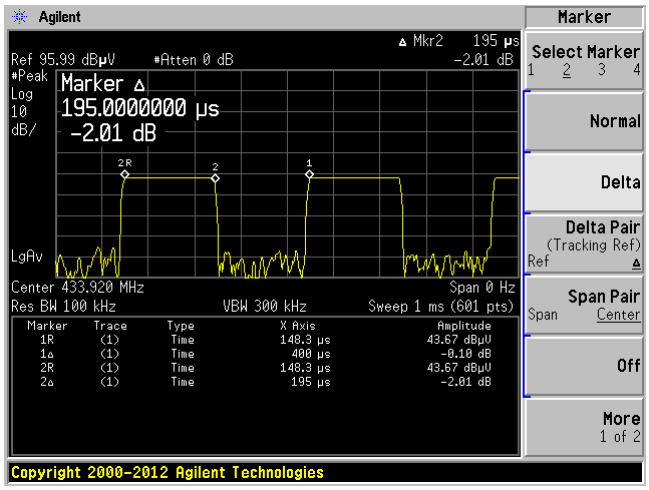
Duty Cycle factor = 20 * log (Ton/Tp) = 20 * log (195us/400us) = -6.24051 dB



100ms plots



10ms Plots shows the Cycle time.



1ms plot shows detail Ton and Tp time.

Ton = 195 us
Tp = 400 us

Mode 8: 433.92MHz FSK

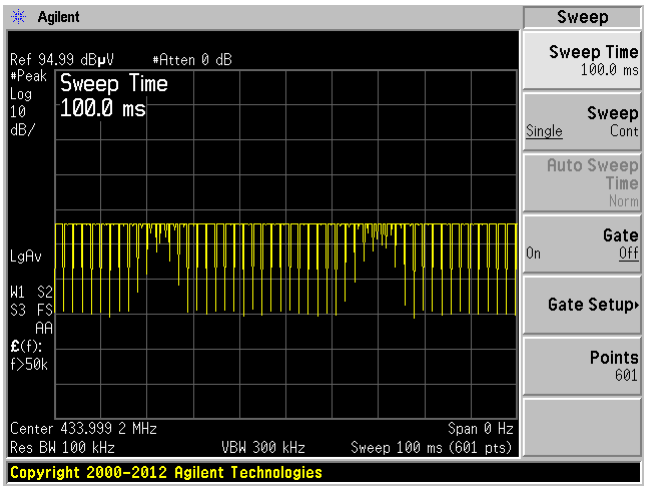
Freq. (MHz)	S.A. Reading (dBuV)	Turntable Azimuth Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC/IC		
			Height (cm)	Polar. (H/V)	Factor (dB/m)				Limit (dBuV/m)	Margin (dB)	Comment
433	63.71	177	100	H	17	1.17	25.44	56.44	100.79	-44.35	Peak/Fund.
433	61.86	320	100	V	17	1.17	25.44	54.59	100.79	-46.2	Peak/Fund.
866	39.11	311	100	H	22.4	1.8	25.25	38.06	80.79	-42.73	Peak/Harm
866	38.84	170	100	V	22.4	1.8	25.25	37.79	80.79	-43	Peak/Harm
1732	35.36	0	100	H	26.32	2.56	27.63	36.61	80.79	-44.18	Peak/Harm
1732	34.93	0	100	V	26.32	2.56	27.63	36.18	80.79	-44.61	Peak/Harm
2165	36.28	0	100	H	28.07	3.02	27.7	39.67	80.79	-41.12	Peak/Harm
2165	36.17	0	100	V	28.07	3.02	27.7	39.56	80.79	-41.23	Peak/Harm
4330	33.89	0	100	H	32.32	4.23	27.9	42.54	74	-31.46	Peak/Harm
4330	33.18	0	100	V	32.32	4.23	27.9	41.83	74	-32.17	Peak/Harm

Field Strength of Average Emission

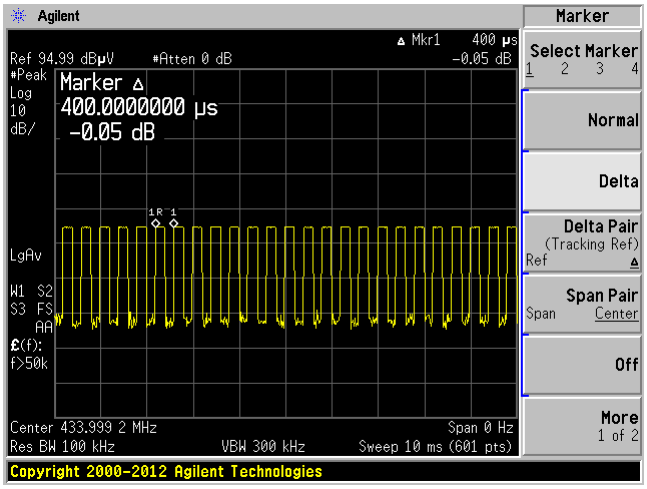
Freq. (MHz)	Peak Measurement at 3m (dBuV/m)	Polar (H/V)	Duty Cycle Correlation Factor (dB)	Corrected Amplitude (dBμV/m)	FCC/IC		
					Limit (dBuV/m)	Margin (dB)	Comment
433	56.44	H	-6.31187	50.12813	80.79	-30.6619	Ave/Fund.
433	54.59	V	-6.31187	48.27813	80.79	-32.5119	Ave/Fund.
866	38.06	H	-6.31187	31.74813	60.79	-29.0419	Ave/Harm
866	37.79	V	-6.31187	31.47813	60.79	-29.3119	Ave/Harm
1732	36.61	H	-6.31187	30.29813	60.79	-30.4919	Ave/Harm
1732	36.18	V	-6.31187	29.86813	60.79	-30.9219	Ave/Harm
2165	39.67	H	-6.31187	33.35813	60.79	-27.4319	Ave/Harm
2165	39.56	V	-6.31187	33.24813	60.79	-27.5419	Ave/Harm
4330	42.54	H	-6.31187	36.22813	54	-17.7719	Ave/Harm
4330	41.83	V	-6.31187	35.51813	54	-18.4819	Ave/Harm

Duty Cycle factor was calculated by the following function and plots:

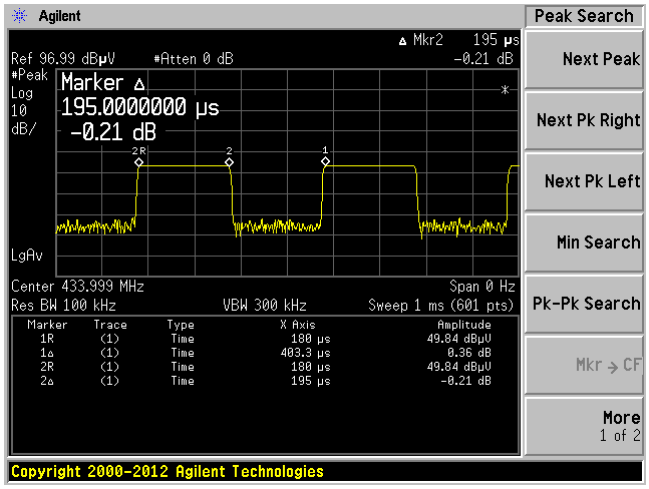
Duty Cycle factor = 20 * log (Ton/Tp) = 20 * log (195us/403.3us) = -6.31187 dB



100ms plots



10ms Plots shows the Cycle time.



1ms plot shows detail Ton and Tp time.

Ton = 195 us
Tp = 403.3 us

6 FCC §15.231(a) & IC RSS-210 §A1.1.1 – Deactivate Time

6.1 Applicable Standard Requirement

FCC Part 15.231

(a) The provisions of this section are restricted to periodic operation within the band 40.66–40.70 MHz and above 70 MHz. Except as shown in paragraph (e) of this section, the intentional radiator is restricted to the transmission of a control signal such as those used with alarm systems, door openers, remote switches, etc. Continuous transmissions, voice, video and the radio control of toys are not permitted. Data is permitted to be sent with a control signal. The following conditions shall be met to comply with the provisions for this periodic operation:

(1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.
(2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.
(3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.
(4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition
(5) Transmission of set-up information for security systems may exceed the transmission duration limits in paragraphs (a)(1) and (a)(2) of this section, provided such transmissions are under the control of a professional installer and do not exceed ten seconds after a manually operated switch is released or a transmitter is activated automatically. Such set-up information may include data.

RSS-210 A1.1.1 Types of Momentary Signals

The following conditions shall be met to comply with the provisions for momentary operation:

1. A manually operated transmitter shall be equipped with a push-to-operate switch and be under manual control at all transmission times. When released, the transmitter shall cease transmission (holdover time of up to 5 seconds is permitted).
2. A transmitter activated automatically shall cease transmission within 5 seconds after activation (i.e. maximum 5 seconds of operation).
3. Periodic transmissions at regular predetermined intervals are not permitted, except as provided in Section A.1.1.5. However, polling or supervision transmissions to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmission does not exceed 2 seconds per hour for each transmitter.
4. Intentional radiators employed for radio control purposes during emergencies involving fire, security of goods (e.g. burglar alarms), and safety-of-life, when activated to signal an alarm, may operate during the interval of the alarm condition.

6.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Cycle
Agilent	Spectrum Analyzer	E4446A	MY48250238	2013-08-29	1 year

Statement of Traceability: BACL attests that all calibrations have been performed per the A2LA requirements, traceable to NIST.

6.3 Test Environmental Conditions

Temperature:	24° C
Relative Humidity:	47 %
ATM Pressure:	101.94 kPa

The testing was performed by Ken Bai on 2014-03-13 at RF Site.

6.4 Test Results

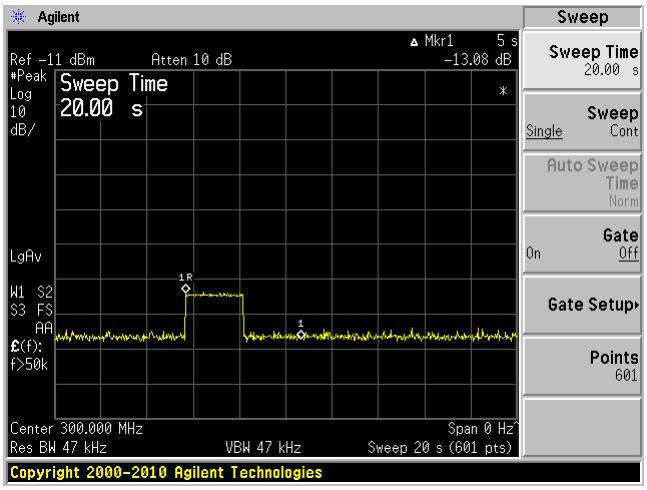
Pass; please refer to the following table and plot:

Periodic Operation Time

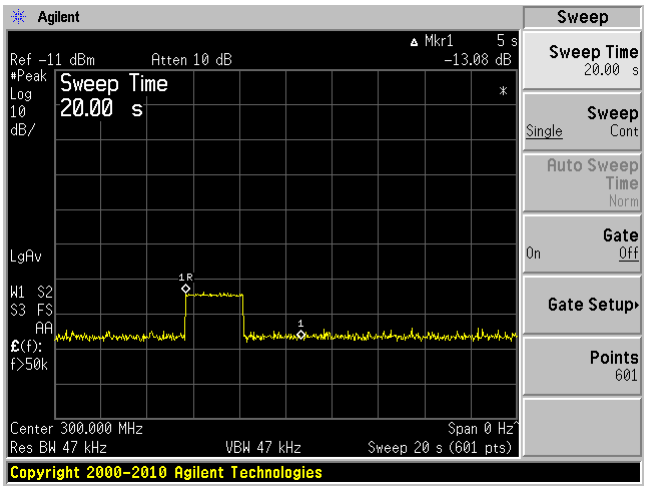
Frequency (MHz)	Modulation Mode	FCC/IC Result		
		Transition Time (s)	Limit (s)	Result
300	ASK Mode 1	< 5	5	Compliance
300	FSK Mode 2	< 5	5	Compliance
309.5	ASK Mode 3	< 5	5	Compliance
309.5	FSK Mode 4	< 5	5	Compliance
319	ASK Mode 5	< 5	5	Compliance
319	FSK Mode 6	< 5	5	Compliance
433.92	ASK Mode 7	< 5	5	Compliance
433.92	FSK Mode 8	< 5	5	Compliance

EUT is a manually operate transmitter which fully compliance with section a (1)

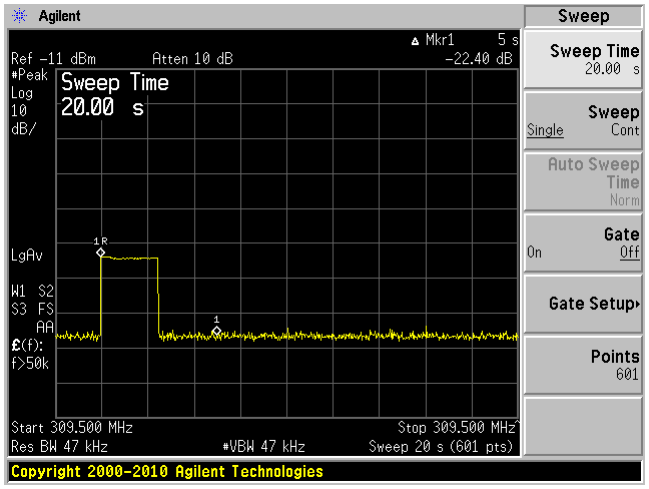
300 MHz Mode 1 ASK



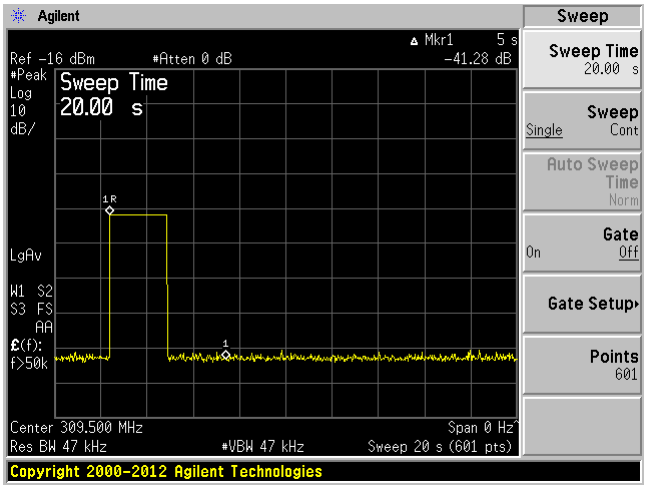
300 MHz Mode 2 FSK



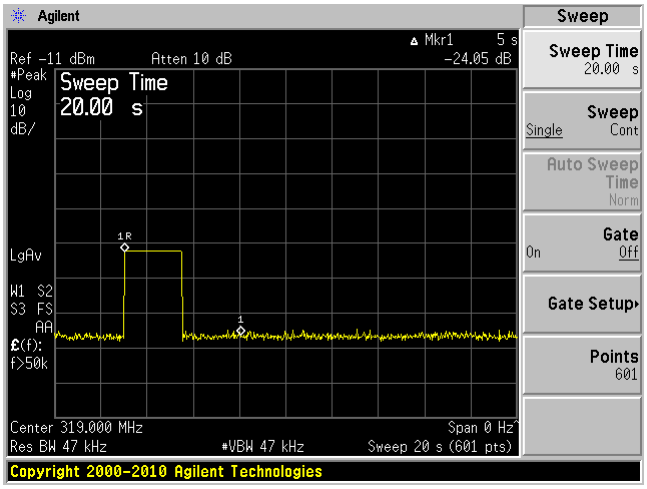
309.5 MHz Mode 1 ASK



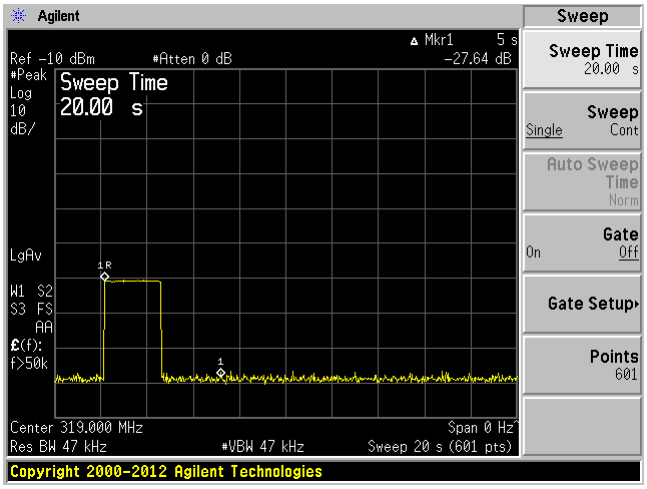
309.5 MHz Mode 2 FSK



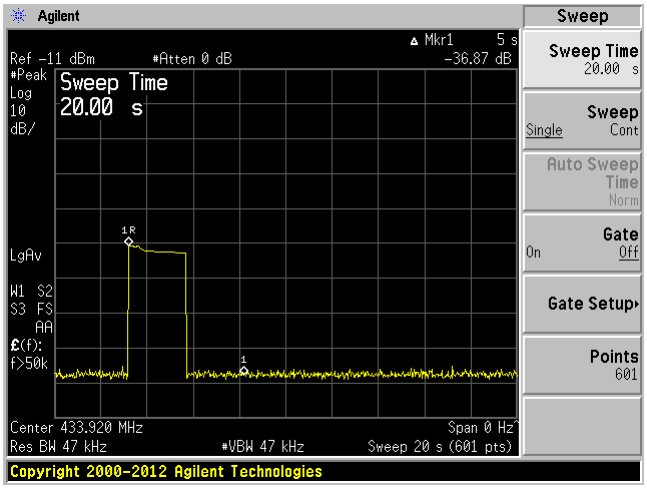
319 MHz Mode 3 ASK



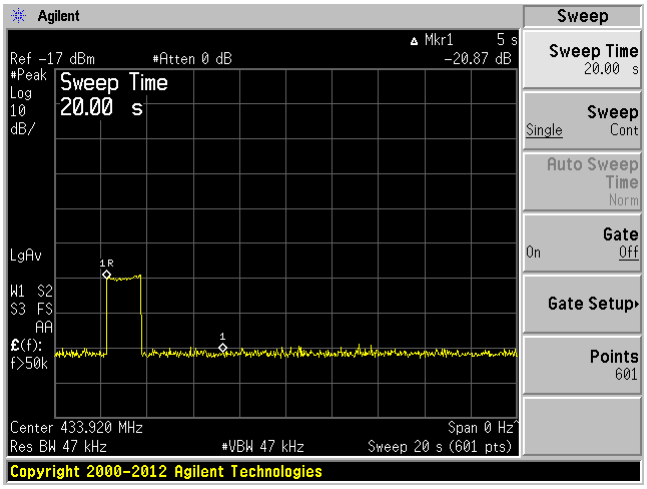
319 MHz Mode 4 FSK



433.92 MHz Mode 5 ASK



433.92 MHz Mode 6 FSK



7 FCC §15.231(c) & IC RSS-210 §A1.1.3 – Emissions Bandwidth

7.1 Applicable Standard Requirement

FCC §15.231(c)

(c) 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.

RSS-210 A1.1.3

For the purpose of Section A1.1, the 99% bandwidth shall be no wider than 0.25% of the centre frequency for devices operating between 70 MHz and 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the centre frequency.

7.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Cycle
Agilent	Spectrum Analyzer	E4446A	MY48250238	2013-08-29	1 year

Statement of Traceability: BACL attests that all calibrations have been performed per the A2LA requirements, traceable to NIST.

7.3 Test Environmental Conditions

Temperature:	24° C
Relative Humidity:	47 %
ATM Pressure:	101.94 kPa

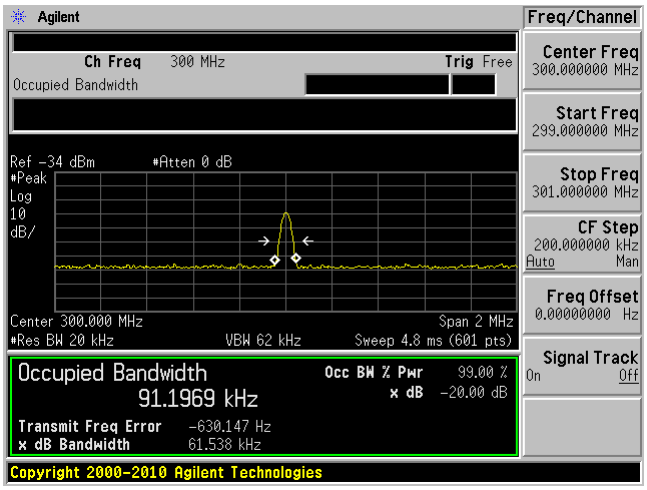
The testing was performed by Ken Bai on 2014-03-13 at RF Site.

7.4 Test Results

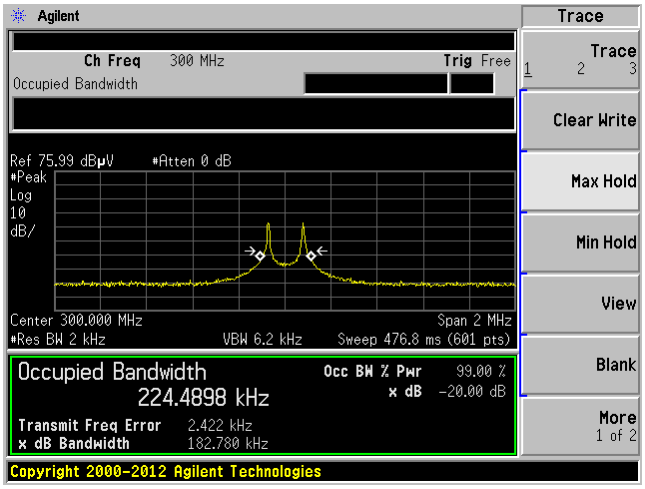
Frequency	Modulation Mode	FCC/IC Result			
		20 dB Bandwidth (kHz)	99% Occupied Bandwidth (kHz)	Limit (kHz)	Result
300	ASK Mode 1	61.538	91.196	750	Compliance
300	FSK Mode 2	182.780	224.489	750	Compliance
309.5	ASK Mode 3	61.793	107.759	773.75	Compliance
309.5	FSK Mode 4	185.909	227.736	773.75	Compliance
319	ASK Mode 5	61.758	84.038	797.5	Compliance
319	FSK Mode 6	186.004	212.254	797.5	Compliance
433.92	ASK Mode 7	61.668	90.817	1084.8	Compliance
433.92	FSK Mode 8	182.880	213.702	1084.8	Compliance

Note : 300 MHz FCC/IC Limit = Fundamental Frequency X 0.25% = 300 MHz×0.25%= 750 kHz
309.5 MHz FCC/IC Limit = Fundamental Frequency X 0.25% = 309.5 MHz×0.25%= 773.75 kHz
319 MHz FCC/IC Limit = Fundamental Frequency X 0.25% = 319 MHz×0.25%= 797.5 kHz
433.92 MHz FCC/IC Limit = Fundamental Frequency X 0.25% = 433.92 MHz×0.25%= 1084.8 kHz

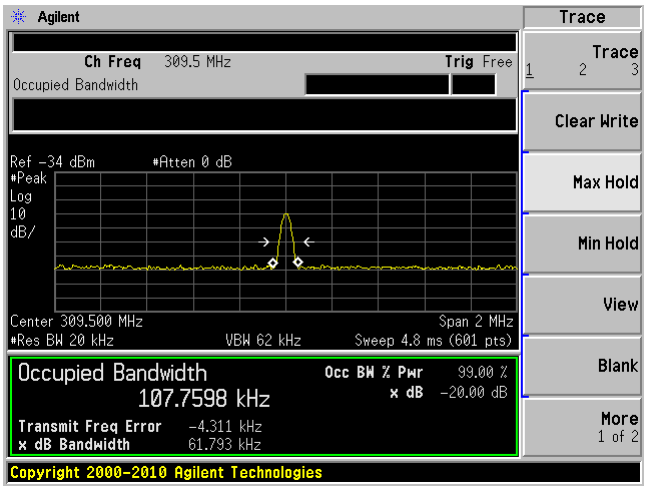
300 MHz Mode 1 ASK



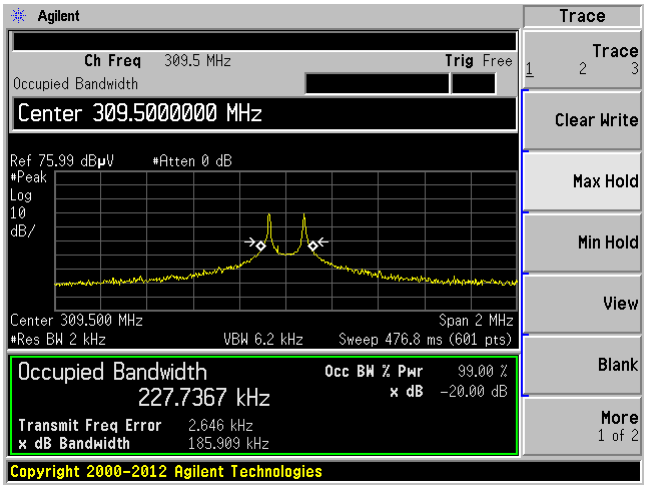
300 MHz Mode 2 FSK



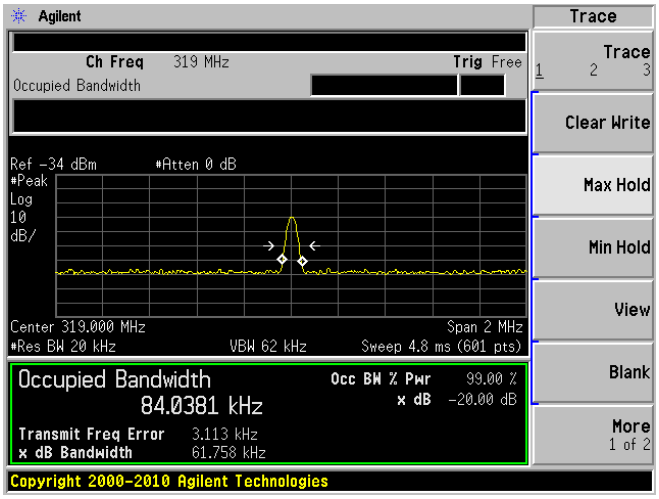
309.5 MHz Mode 1 ASK



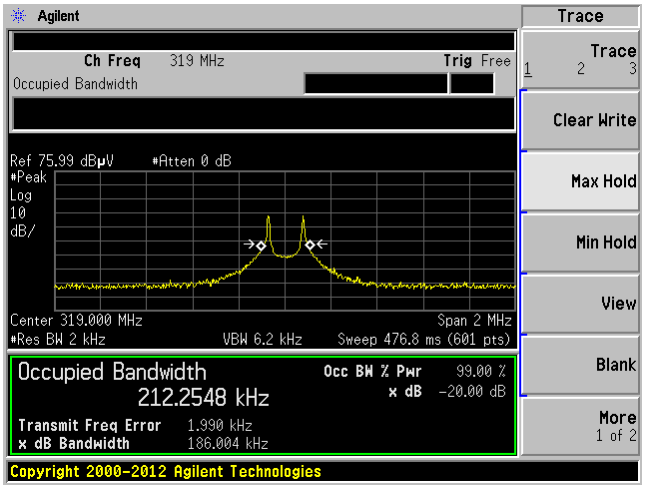
309.5 MHz Mode 2 FSK



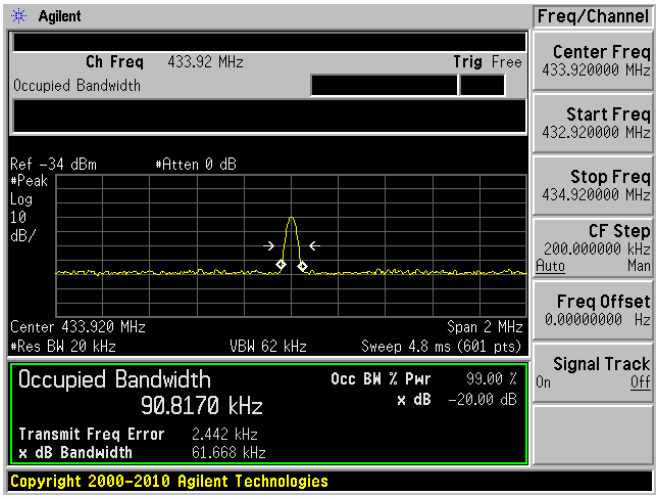
319 MHz Mode 3 ASK



319 MHz Mode 4 FSK



433.92 MHz Mode 5 ASK



433.92 MHz Mode 6 FSK