

### **APANA Inc**

XB1301 FCC 15.247:2017 902 - 928 MHz Transceiver

Report # PECK0002.1





EAR-Controlled Data - This document contains technical data whose export and reexport/retransfer is subject to control by the U.S. Department of Commerce under the Export Administration Act and the Export Administration Regulations. The Department of Commerce's prior written approval may be required for the export or re-export/retransfer of such technical data to any foreign person, foreign entity or foreign organization whether in the United States or abroad.

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America. This Report shall not be reproduced, except in full without written approval of the laboratory.

## **CERTIFICATE OF TEST**



### Last Date of Test: May 11, 2017 APANA Inc Model: XB1301

## **Radio Equipment Testing**

 Standards
 Method

 FCC 15.207:2017
 ANSI C63.10:2013

Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	Yes	Pass	
6.5, 6.6, 11.12.1, 11.13.2	Spurious Radiated Emissions	Yes	Pass	
7.8.2	Carrier Frequency Separation	No	N/A	Not required for DTS devices.
7.8.3	Number of Hopping Frequencies	No	N/A	Not required for DTS devices.
7.8.4	Dwell Time	No	N/A	Not required for DTS devices.
7.8.6	Band Edge Compliance - Hopping Mode	No	N/A	Not required for DTS devices.
11.6	Duty Cycle	Yes	Pass	
11.8.2	Occupied Bandwidth	Yes	Pass	
11.9.2.2.4	Equivalent Isotropic Radiated Power (EIRP)	Yes	Pass	
11.9.2.2.4	Output Power	Yes	Pass	
11.10.5	Power Spectral Density	Yes	Pass	
11.11	Band Edge Compliance	Yes	Pass	
11.11	Spurious Conducted Emissions	Yes	Pass	

### **Deviations From Test Standards**

None

**Approved By:** 

Kyle Holgate, Operations Manager

Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information.

## **REVISION HISTORY**



Revision Number	Description	Date	Page Number
00	None		

# ACCREDITATIONS AND AUTHORIZATIONS



#### **United States**

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Accredited by A2LA to ISO / IEC 17065 as a product certifier. This allows Element to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

#### Canada

**ISED** - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with ISED.

#### European Union

European Commission – Validated by the European Commission as a Notified Body under the R&TTE Directive.

#### Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

#### Korea

MSIP / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

#### Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

#### Taiwan

**BSMI** – Recognized by BSMI as a CAB for the acceptance of test data.

NCC - Recognized by NCC as a CAB for the acceptance of test data.

#### Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

#### Israel

**MOC** – Recognized by MOC as a CAB for the acceptance of test data.

#### Hong Kong

OFCA - Recognized by OFCA as a CAB for the acceptance of test data.

#### Vietnam

**MIC** – Recognized by MIC as a CAB for the acceptance of test data.

### SCOPE

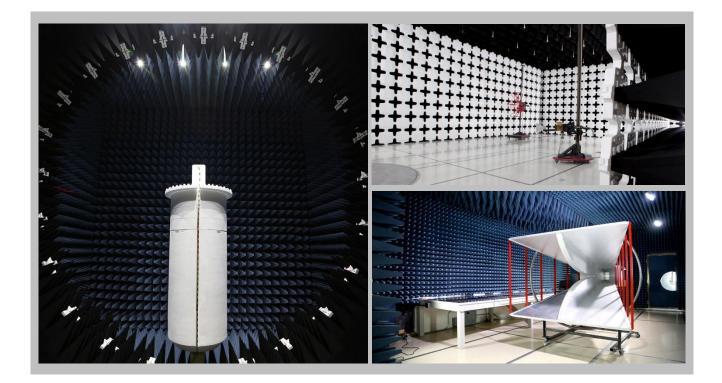
For details on the Scopes of our Accreditations, please visit: <u>http://portlandcustomer.element.com/ts/scope/scope.htm</u> <u>http://gsi.nist.gov/global/docs/cabs/designations.html</u>

## FACILITIES





<b>California</b> Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	Minnesota Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	<b>New York</b> Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214	Oregon Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	<b>Texas</b> Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Washington Labs NC01-05 19201 120 <sup>th</sup> Ave NE Bothell, WA 98011 (425)984-6600
		NV	LAP		
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0
Innovation, Science and Economic Development Canada					
2834B-1, 2834B-3	2834E-1	N/A	2834D-1, 2834D-2	2834G-1	2834F-1
		BS	МІ		
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
		VC	CI		
A-0029	A-0109	N/A	A-0108	A-0201	A-0110
Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA					
US0158	US0175	N/A	US0017	US0191	US0157



## **MEASUREMENT UNCERTAINTY**



### **Measurement Uncertainty**

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

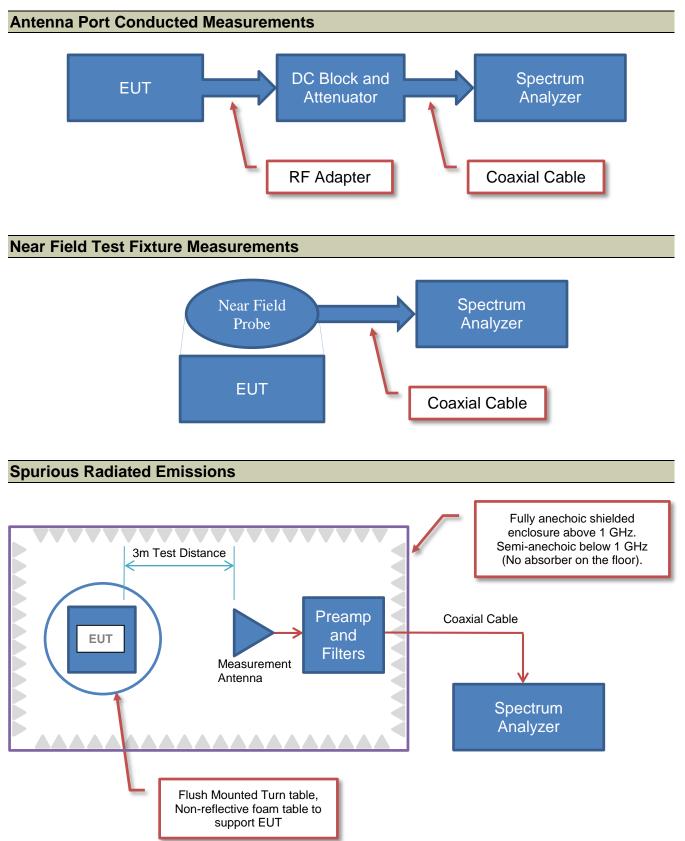
A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable test description page. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable), and are available upon request.

The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

Test	+ MU	- MU
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.2 dB	-5.2 dB
AC Powerline Conducted Emissions (dB)	2.4 dB	-2.4 dB

## **Test Setup Block Diagrams**





## **PRODUCT DESCRIPTION**



### **Client and Equipment Under Test (EUT) Information**

Company Name:	APANA Inc
Address:	4290 Pacific HWY, Ste A
City, State, Zip:	Bellingham, WA 98226
Test Requested By:	Canyon Peckham of Peckham Technology Inc
Model:	XB1301
First Date of Test:	April 19, 2017
Last Date of Test:	May 11, 2017
Receipt Date of Samples:	April 19, 2017
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

### Information Provided by the Party Requesting the Test

#### **Functional Description of the EUT:**

The APANA XB1301 plugs into a XBEE form factor socket, communicating using UART and/or USB to the host board. The radios on the APANA XB1301 are configured to receive multiple uplink channels in the 902 - 928 MHz range from remotely-located sensors (an "End Device" or "End Node"). Once the APANA XB1301 receives a wireless transmission from an end node, it responds on a downlink channel, which is also in the 902 to 928 MHz range. The APANA XB1301 would be considered a LoRaWAN concentrator, in addition to a concentrator for other proprietary-LoRa specs.

#### **Testing Objective:**

Seeking to demonstrate compliance under FCC 15.247:2017 for operation in the 902 - 928 MHz Band.

## **CONFIGURATIONS**



### Configuration PECK0002-1

Software/Firmware Running during test			
Description	Version		
RealTerm	3.0.0.30		

EUT					
Description	Manufacturer	Model/Part Number	Serial Number		
Radio Transmitter	APANA Inc	SX1301 SX1257	17		

Peripherals in test setup boundary				
Description Manufacturer Model/Part Number Serial Nu				
Laptop (Dell)	Dell	None	HQHP162	
Test Board	APANA Inc	XB1301-MULE	1	
AC/DC Adapter	Triad	WS2U050-2000	None	
AC/DC Adapter (Dell)	Dell	LA45NM140	None	

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC Power Cable	Yes	1.5m	No	AC/DC Adapter	Test Board
USB Cable	Yes	2.2m	No	Test Board	Laptop
DC Power Cable (Dell)	Unknown	2.1m	Yes	AC/DC Adapter	Laptop
AC Power Cable (Dell)	No	1.2m	No	AC Mains	AC/DC Adapter

## Configuration PECK0002-3

Software/Firmware Running during test			
Description	Version		
Picocom	V1.7		

EUT					
Description	Manufacturer	Model/Part Number	Serial Number		
Radio Transmitter	APANA Inc	SX1301 SX1257	17		
Antenna (Yagi) 12dBi	DMS Wireless	YA90012	None		

Peripherals in test setup boundary				
Description	Manufacturer	Model/Part Number	Serial Number	
DC Power Supply	TOPWARD Electronics	TPS 2000	TPD	

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC Power Cable	No	1.1m	No	DC Power Supply	Transmitter Module
Antenna Cable	No	10.0m	No	Antenna	Transmitter Module
U.FL cable (bulkhead)	No	.1m	No	Antenna	Transmitter Module
AC Power Cable	No	2.1m	No	DC Power Supply	AC mains

## **CONFIGURATIONS**



### Configuration PECK0002-5

Software/Firmware Running during test				
Description	Version			
Picocom	V1.7			

EUT					
Description	Manufacturer	Model/Part Number	Serial Number		
Radio Transmitter	APANA Inc	SX1301 SX1257	16		
Antenna (Yagi) 12dBi	DMS Wireless	YA90012	None		

Peripherals in test setup boundary				
Description Manufacturer Model/Part Number Serial Number				
Test Board	APANA Inc	XB1301-MULE	1	
AC/DC Adapter	Triad	WS2U050-2000	None	

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC Power Cable	Yes	1.5m	No	AC/DC Adapter	Test Board
Antenna Cable	No	10.0m	No	Antenna	Transmitter Module
U.FL cable (bulkhead)	No	.1m	No	Antenna	Transmitter Module

### Configuration PECK0002-6

Software/Firmware Running during test				
Description	Version			
Picocom	V1.7			

EUT				
Description	Manufacturer	Model/Part Number	Serial Number	
Radio Transmitter	APANA Inc	SX1301 SX1257	16	
Antenna (Dipole) 3.5 dBi	Taoglas	OMB.915.B03F21	None	

Peripherals in test setup boundary				
Description Manufacturer Model/Part Number Serial Number				
Test Board	APANA Inc	XB1301-MULE	1	
AC/DC Adapter	Triad	WS2U050-2000	None	

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC Power Cable	Yes	1.5m	No	AC/DC Adapter	Test Board
Antenna Cable	No	10.0m	No	Antenna	Transmitter Module
U.FL cable (bulkhead)	No	.1m	No	Antenna	Transmitter Module

## **CONFIGURATIONS**



### Configuration PECK0002-7

Software/Firmware Running during test				
Description	Version			
Picocom	V1.7			

EUT					
Description	Manufacturer	Model/Part Number	Serial Number		
Radio Transmitter	APANA Inc	SX1301 SX1257	16		
Antenna (Yagi) 12dBi	DMS Wireless	YA90012	None		

Peripherals in test setup boundary				
Description Manufacturer Model/Part Number Serial Number				
Test Board	APANA Inc	XB1301-MULE	1	
AC/DC Adapter	Triad	WS2U050-2000	None	

Cables							
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2		
DC Power Cable	Yes	1.5m	No	AC/DC Adapter	Test Board		
U.FL cable (bulkhead)	No	.1m	No	Antenna	Transmitter Module		

### Configuration PECK0002-8

Software/Firmware Running during test	
Description	Version
Picocom	V1.7

EUT							
Description	Manufacturer	Model/Part Number	Serial Number				
Radio Transmitter	APANA Inc	SX1301 SX1257	16				
Antenna (Dipole) 3.5 dBi	Taoglas	OMB.915.B03F21	None				

Peripherals in test setup boundary						
Description Manufacturer Model/Part Number Serial Number						
Test Board	APANA	XB1301-MULE	1			
AC/DC Adapter	Triad	WS2U050-2000	None			

Cables						
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2	
DC Power Cable	Yes	1.5m	No	AC/DC Adapter	Test Board	
U.FL cable (bulkhead)	No	.1m	No	Antenna	Transmitter Module	

## **MODIFICATIONS**



## **Equipment Modifications**

Item	Date	Test	Modification	Note	Disposition of EUT
1	4/19/2017	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
2	4/26/2017	Duty Cycle	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT was taken home by the client before the next scheduled test.
3	4/26/2017	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
4	4/26/2017	Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
5	4/26/2017	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
6	4/26/2017	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
7	4/29/2017	Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
8	5/11/2017	Equivalent Isotropic Radiated Power (EIRP)	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
9	5/11/2017	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.



#### **TEST DESCRIPTION**

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Per the standard, an insulating material was also added to ground plane between the EUT's power and remote I/O cables. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 500hm measuring port is terminated by a 500hm EMI meter or a 500hm resistive load. All 500hm measuring ports of the LISN are terminated by 500hm. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

#### **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Cable - Conducted Cable Assembly	Element	EVG, HHD, RKA	EVGA	4/13/2017	4/13/2018
LISN	Solar Electronics	9252-50-R-24-BNC	LIP	10/4/2016	10/4/2018
Receiver	Rohde & Schwarz	ESCI	ARH	3/27/2017	3/27/2018

#### **MEASUREMENT UNCERTAINTY**

Description		
Expanded k=2	2.4 dB	-2.4 dB

#### **CONFIGURATIONS INVESTIGATED**

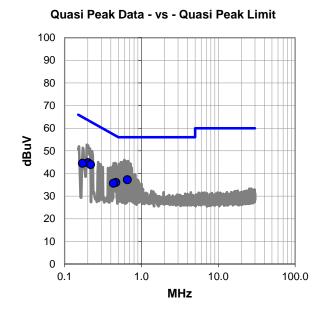
PECK0002-3

#### **MODES INVESTIGATED**

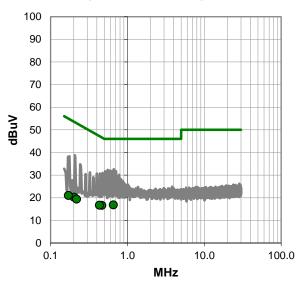
Tx, 914.2 MHz DTS, Yagi antenna



EUT:	XB1301				Work Order:	PECK0002		
Serial Number:	17				Date:	04/29/2017		
Customer:	APANA Inc				Temperature:	22.1°C		
Attendees:	None				Relative Humidity:	39.5%		
Customer Project:	None				Bar. Pressure:	1024 mb		
Tested By:	Brandon Hol	obs			Job Site:	EV07		
Power:	5 VDC Nomi	nal via 110	VAC/60Hz		Configuration:	PECK0002-3		
TEST SPECIFIC	CATIONS							
Specification:				Method:				
FCC 15.207:2017 ANSI C63.10				0:2013	:2013			
TEST PARAME	TERS							
Run #: 18		Line:	High Line	ŀ	dd. Ext. Attenuation (dB): 0			
COMMENTS								
The Yagi antenna w	vas used to po	pulate the a	antenna port.					
EUT OPERATING MODES								
Tx, 914.2 MHz DTS	5, Yagi antenna	a						
DEVIATIONS FROM TEST STANDARD								
None								



Average Data - vs - Average Limit





#### **RESULTS - Run #18**

Quasi Peak Data - vs - Quasi Peak Limit						
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)	
0.202	25.2	19.6	44.8	63.5	-18.7	
0.658	17.7	19.5	37.2	56.0	-18.8	
0.218	24.3	19.6	43.9	62.9	-19.0	
0.171	25.0	19.5	44.5	64.9	-20.4	
0.465	16.5	19.5	36.0	56.6	-20.6	
0.432	16.2	19.5	35.7	57.2	-21.5	

#### Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.658	-2.7	19.5	16.8	46.0	-29.2
0.465	-2.9	19.5	16.6	46.6	-30.0
0.432	-2.8	19.5	16.7	47.2	-30.5
0.202	0.6	19.6	20.2	53.5	-33.3
0.218	-0.2	19.6	19.4	52.9	-33.5
0.171	1.5	19.5	21.0	54.9	-33.9

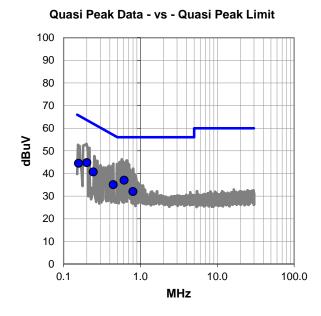
### CONCLUSION

Pass

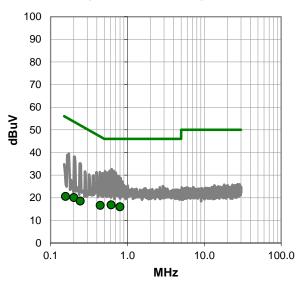
Tested By



EUT:	XB1301				Work Order:	PECK0002	
Serial Number:	17				Date:	04/29/2017	
Customer:	APANA Inc				Temperature:	22.1°C	
Attendees:	None				Relative Humidity:	39.5%	
Customer Project:	None				Bar. Pressure:	1024 mb	
Tested By:	Brandon Hol	obs			Job Site:	EV07	
Power:	5 VDC Nomi	nal via 110'	VAC/60Hz		Configuration:	PECK0002-3	
TEST SPECIFIC	CATIONS						
Specification:				Method:			
FCC 15.207:2017				ANSI C63.10	2013		
TEST PARAME	TERS						
Run #: 19		Line:	Neutral	A	dd. Ext. Attenuation (dB)	): 0	
COMMENTS							
The Yagi antenna v	vas used to po	pulate the a	antenna port.				
EUT OPERATII	NG MODES						
Tx, 914.2 MHz DTS	S, Yagi antenna	a					
DEVIATIONS F	ROM TEST	STANDA	ARD				
None							



Average Data - vs - Average Limit





#### **RESULTS - Run #19**

Q	uasi Peak	Data - vs	- Quasi P	eak Limit	
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.201	25.2	19.6	44.8	63.6	-18.8
0.615	17.5	19.5	37.0	56.0	-19.0
0.157	24.9	19.6	44.5	65.6	-21.1
0.243	21.1	19.6	40.7	62.0	-21.3
0.442	15.5	19.5	35.0	57.0	-22.0
0.800	12.5	19.5	32.0	56.0	-24.0

#### Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.615	-2.7	19.5	16.8	46.0	-29.2
0.800	-3.5	19.5	16.0	46.0	-30.0
0.442	-2.9	19.5	16.6	47.0	-30.4
0.201	0.5	19.6	20.1	53.6	-33.5
0.243	-1.1	19.6	18.5	52.0	-33.5
0.157	1.0	19.6	20.6	55.6	-35.0

### CONCLUSION

Pass

Tested By

## SPURIOUS RADIATED EMISSIONS



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

#### MODES OF OPERATION

Tx Continuous, DTS

#### CHANNELS OF OPERATION

Low Ch. 903 MHz	
Mid Ch. 914.2 MHz	
High Ch. 927.5 MHz	

#### ANTENNAS USED

Yagi Antenna, Final Power Setting, DAC: 4000, MXG: 8 (May be Lowered further for Conducted Testing) Dipole Antenna, Final Power Setting, DAC: 4000, MXG: 15 (May be Lowered further for Conducted Testing)

#### **CONFIGURATIONS INVESTIGATED**

PECK0002 - 8			
PECK0002 - 7			
PECK0002 - 6			
PECK0002 - 5			

#### FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz

Stop Frequency 12400 MHz

#### SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

#### **TEST EQUIPMENT**

Manufacturer	Model	ID	Last Cal.	Interva
Keysight	N9010A	AFN	4/13/2017	12 mo
None	Standard Gain Horns Cable	EVF	2/6/2017	12 mo
L-3 Narda-MITEQ	AMF-6F-08001200-30-10P	PAO	2/7/2017	12 mo
ETS Lindgren	3160-07	AHU	NCR	0 mo
Micro-Tronics	HPM50108	HFV	2/6/2017	12 mo
N/A	Double Ridge Horn Cables	EVB	2/6/2017	12 mo
Miteq	AMF-3D-00100800-32-13P	PAG	2/6/2017	12 mo
ETS Lindgren	3115	AIZ	2/3/2016	24 mo
K&L Microwave	3TNF-500/1000-N/N	HFT	1/4/2017	12 mo
Micro-Tronics	LPM50003	LFB	4/19/2017	12 mo
Coaxicom	3910-20	AXZ	4/19/2017	12 mo
N/A	Bilog Cables	EVA	2/6/2017	12 mo
Miteq	AM-1616-1000	AOL	2/6/2017	12 mo
Teseq	CBL 6141B	AXR	6/30/2016	24 mo
	Keysight None L-3 Narda-MITEQ ETS Lindgren Micro-Tronics N/A Miteq ETS Lindgren K&L Microwave Micro-Tronics Coaxicom N/A Miteq	KeysightN9010ANoneStandard Gain Horns CableL-3 Narda-MITEQAMF-6F-08001200-30-10PETS Lindgren3160-07Micro-TronicsHPM50108N/ADouble Ridge Horn CablesMiteqAMF-3D-00100800-32-13PETS Lindgren3115K&L Microwave3TNF-500/1000-N/NMicro-TronicsLPM50003Coaxicom3910-20N/ABilog CablesMiteqAM-1616-1000	KeysightN9010AAFNNoneStandard Gain Horns CableEVFL-3 Narda-MITEQAMF-6F-08001200-30-10PPAOETS Lindgren3160-07AHUMicro-TronicsHPM50108HFVN/ADouble Ridge Horn CablesEVBMiteqAMF-3D-00100800-32-13PPAGETS Lindgren3115AIZK&L Microwave3TNF-500/1000-N/NHFTMicro-TronicsLPM50003LFBCoaxicom3910-20AXZN/ABilog CablesEVAMiteqAM-1616-1000AOL	Keysight         N9010A         AFN         4/13/2017           None         Standard Gain Horns Cable         EVF         2/6/2017           L-3 Narda-MITEQ         AMF-6F-08001200-30-10P         PAO         2/7/2017           ETS Lindgren         3160-07         AHU         NCR           Micro-Tronics         HPM50108         HFV         2/6/2017           N/A         Double Ridge Horn Cables         EVB         2/6/2017           Miteq         AMF-3D-00100800-32-13P         PAG         2/6/2017           ETS Lindgren         3115         AIZ         2/3/2016           K&L Microwave         3TNF-500/1000-N/N         HFT         1/4/2017           Micro-Tronics         LPM50003         LFB         4/19/2017           Coaxicom         3910-20         AXZ         4/19/2017           N/A         Bilog Cables         EVA         2/6/2017

#### TEST DESCRIPTION

The highest gain antenna of each type to be used with the EUT was tested. The EUT was configured for the required transmit frequencies and the modes as showed in the data sheets.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. These "pre-scans" are not included in the report. Final measurements on individual emissions were then made and included in this test report.

The individual emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis if required, and adjusting the measurement antenna height and polarization (per ANSI C63.10). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector PK = Peak Detector AV = RMS Detector

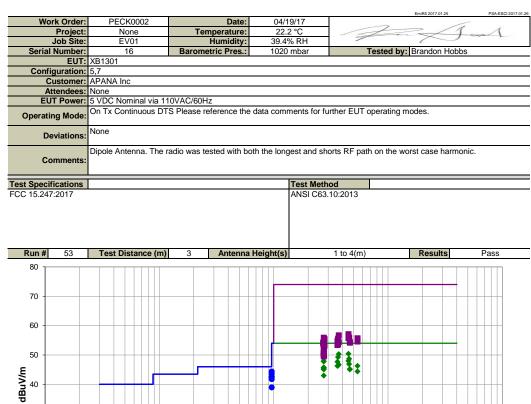
Measurements were made to satisfy the specific requirements of the test specification for out of band emissions as well as the restricted band requirements.

If there are no detectable emissions above the noise floor, the data included may show noise floor measurements for reference only.

Measurements at the edges of the allowable band may be presented in an alternative method as provided for in the ANSI C63.10 Marker-Delta method. This method involves performing an in-band fundamental measurement followed by a screen capture of the fundamental and out-of-band emission using reduced measurement instrumentation bandwidths. The amplitude delta measured on this screen capture is applied to the fundamental emission value to show the out-of-band emission level as applied to the limit.

### **SPURIOUS RADIATED EMISSIONS**





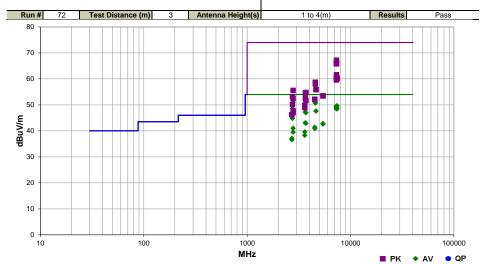
10	)		100			1000			10000			100000	
						MHz				PK	♦ AV	• QP	
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2742.595	51.0	1.6	1.0	91.0	3.0	0.0	Horz	AV	0.0	52.6	54.0	-1.4	Mid Ch.914.2 MHz, Port A, EUT Vert
2782.495	50.3	1.8	1.0	93.0	3.0	0.0	Horz	AV	0.0	52.1	54.0	-1.9	High Ch.927.5 MHz ,Port A, EUT Vert
2742.580	49.2	1.6	1.2	231.0	3.0	0.0	Vert	AV	0.0	50.8	54.0	-3.2	Mid Ch.914.2 MHz ,Port A, EUT Horz
2709.025	48.9	1.6	1.0	85.0	3.0	0.0	Horz	AV	0.0	50.5	54.0	-3.5	Low Ch.903 MHz ,Port A, EUT Vert
4514.935	40.2	10.2	1.0	14.0	3.0	0.0	Horz	AV	0.0	50.4	54.0	-3.6	Low Ch.903 MHz ,Port A, EUT Vert
3709.915	42.9	7.4	2.3	327.0	3.0	0.0	Horz	AV	0.0	50.3	54.0	-3.7	High Ch.927.5 MHz ,Port A, EUT Vert
2742.675	48.7	1.6	1.0	260.0	3.0	0.0	Horz	AV	0.0	50.3	54.0	-3.7	Mid Ch.914.2 MHz, Port A, EUT On Side with 10m cable
2742.505	48.5	1.6	1.2	21.0	3.0	0.0	Horz	AV	0.0	50.1	54.0	-3.9	Mid Ch.914.2 MHz ,Port A, EUT On Side
2708.985	48.4	1.6	4.0	188.0	3.0	0.0	Vert	AV	0.0	50.0	54.0	-4.0	Low Ch.903 MHz ,Port A, EUT Horz
2742.595	48.3	1.6	1.0	28.0	3.0	0.0	Vert	AV	0.0	49.9	54.0	-4.1	Mid Ch.914.2 MHz .Port A. EUT Vert
2742.465	48.1	1.6	1.0	343.0	3.0	0.0	Horz	AV	0.0	49.7	54.0	-4.3	Mid Ch.914.2 MHz ,Port A, EUT Horz
3656.770	42.2	7.1	1.0	342.0	3.0	0.0	Horz	AV	0.0	49.3	54.0	-4.7	Mid Ch.914.2 MHz ,Port A, EUT Vert
2782.430	47.5	1.8	1.0	324.0	3.0	0.0	Vert	AV	0.0	49.3	54.0	-4.7	High Ch.927.5 MHz ,Port A, EUT Horz
4570.840	38.5	10.2	1.0	6.0	3.0	0.0	Horz	AV	0.0	48.7	54.0	-5.3	Mid Ch.914.2 MHz ,Port A, EUT Vert
4515.050	37.8	10.2	1.0	313.0	3.0	0.0	Vert	AV	0.0	48.0	54.0	-6.0	Low Ch.903 MHz .Port A, EUT Horz
2742.690	46.3	1.6	1.2	18.0	3.0	0.0	Vert	AV	0.0	47.9	54.0	-6.1	Mid Ch.914.2 MHz ,Port A, EUT On Side
2742.650	46.2	1.6	1.0	290.0	3.0	0.0	Vert	AV	0.0	47.8	54.0	-6.2	Mid Ch.914.2 MHz, Port A, EUT On Side with 10m cable
3611.965	40.8	6.9	4.0	303.0	3.0	0.0	Vert	AV	0.0	47.7	54.0	-6.3	Low Ch.903 MHz .Port A, EUT Horz
4570.840	36.7	10.2	1.0	311.0	3.0	0.0	Vert	AV	0.0	46.9	54.0	-7.1	Mid Ch.914.2 MHz .Port A. EUT Horz
3710.010	39.3	7.4	1.0	283.0	3.0	0.0	Vert	AV	0.0	46.7	54.0	-7.3	High Ch.927.5 MHz ,Port A, EUT Horz
3656.775	39.3	7.1	1.0	287.0	3.0	0.0	Vert	AV	0.0	46.4	54.0	-7.6	Mid Ch.914.2 MHz ,Port A, EUT Horz
3612,100	39.4	6.9	1.0	327.0	3.0	0.0	Horz	AV	0.0	46.3	54.0	-7.7	Low Ch.903 MHz ,Port A, EUT Vert
5418.090	34.4	11.9	1.0	0.0	3.0	0.0	Horz	AV	0.0	46.3	54.0	-7.7	Low Ch.903 MHz ,Port A, EUT Vert
2742.605	44.2	1.6	1.0	60.0	3.0	0.0	Horz	AV	0.0	45.8	54.0	-8.2	Mid Ch.914.2 MHz, Port A, EUT Vert with 10m cable
2742.565	44.1	1.6	1.0	227.0	3.0	0.0	Vert	AV	0.0	45.7	54.0	-8.3	Mid Ch.914.2 MHz, Port A, EUT Vert with 10m cable
2742.635	44.0	1.6	1.0	94.0	3.0	0.0	Horz	AV	0.0	45.6	54.0	-8.4	Mid Ch.914.2 MHz ,Port B, EUT Vert
2742.640	43.7	1.6	1.0	68.0	3.0	0.0	Horz	AV	0.0	45.3	54.0	-8.7	Mid Ch.914.2 MHz, Port A, EUT Horz with 10m cable
4637.390	34.8	10.4	2.5	184.0	3.0	0.0	Vert	AV	0.0	45.2	54.0	-8.8	High Ch.927.5 MHz ,Port A, EUT Horz
4637.625	34.7	10.4	1.0	8.0	3.0	0.0	Horz	AV	0.0	45.1	54.0	-8.9	High Ch.927.5 MHz ,Port A, EUT Vert
2742.655	43.5	1.6	1.0	238.0	3.0	0.0	Vert	AV	0.0	45.1	54.0	-8.9	Mid Ch.914.2 MHz, Port A, EUT Horz with 10m cable
5417.950	32.5	11.9	1.0	24.0	3.0	0.0	Vert	AV	0.0	44.4	54.0	-9.6	Low Ch.903 MHz ,Port A, EUT Horz
960.008	24.0	10.4	1.5	157.0	3.0	10.0	Horz	QP	0.0	44.4	54.0	-9.6	High Ch. 927.5 MHz, Port A, EUT On Side
960.006	23.2	10.4	1.0	270.0	3.0	10.0	Vert	QP	0.0	43.6	54.0	-10.4	High Ch. 927.5 MHz, Port A, EUT Vert
2742.655	41.4	1.6	1.0	30.0	3.0	0.0	Vert	ÂV	0.0	43.0	54.0	-11.0	Mid Ch.914.2 MHz .Port B. EUT Horz
960.009	22.2	10.4	1.0	24.0	3.0	10.0	Vert	QP	0.0	42.6	54.0	-11.4	High Ch. 927.5 MHz, Port A, EUT On Side

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	
()													Comments
960.014	22.2	10.4	1.5	315.0	3.0	10.0	Horz	QP	0.0	42.6	54.0	-11.4	High Ch. 927.5 MHz, Port A, EUT Horz
960.009	21.4	10.4	1.0	135.0	3.0	10.0	Horz	QP	0.0	41.8	54.0	-12.2	High Ch. 927.5 MHz, Port A, EUT Vert
960.003	18.6	10.4	1.0	270.0	3.0	10.0	Vert	QP	0.0	39.0	54.0	-15.0	High Ch. 927.5 MHz, Port A, EUT Horz
4514.460	46.9	10.2	1.0	14.0	3.0	0.0	Horz	PK	0.0	57.1	74.0	-16.9	Low Ch.903 MHz ,Port A, EUT Vert
3710.055	49.3	7.4	2.3	327.0	3.0	0.0	Horz	PK	0.0	56.7	74.0	-17.3	High Ch.927.5 MHz ,Port A, EUT Vert
2742.625	54.3	1.6	1.0	91.0	3.0	0.0	Horz	PK	0.0	55.9	74.0	-18.1	Mid Ch.914.2 MHz ,Port A, EUT Vert
4571.215	45.7	10.2	1.0	6.0	3.0	0.0	Horz	PK	0.0	55.9	74.0	-18.1	Mid Ch.914.2 MHz ,Port A, EUT Vert
4514.430	45.6	10.2	1.0	313.0	3.0	0.0	Vert	PK	0.0	55.8	74.0	-18.2	Low Ch.903 MHz ,Port A, EUT Horz
4570.990	45.5	10.2	1.0	311.0	3.0	0.0	Vert	PK	0.0	55.7	74.0	-18.3	Mid Ch.914.2 MHz ,Port A, EUT Horz
5418.360	43.8	11.9	1.0	0.0	3.0	0.0	Horz	PK	0.0	55.7	74.0	-18.3	Low Ch.903 MHz ,Port A, EUT Vert
3656.515	48.5	7.1	1.0	342.0	3.0	0.0	Horz	PK	0.0	55.6	74.0	-18.4	Mid Ch.914.2 MHz ,Port A, EUT Vert
2782.515	53.6	1.8	1.0	93.0	3.0	0.0	Horz	PK	0.0	55.4	74.0	-18.6	High Ch.927.5 MHz ,Port A, EUT Vert
3611.750	47.9	6.9	4.0	303.0	3.0	0.0	Vert	PK	0.0	54.8	74.0	-19.2	Low Ch.903 MHz ,Port A, EUT Horz
5417.530	42.7	11.9	1.0	24.0	3.0	0.0	Vert	PK	0.0	54.6	74.0	-19.4	Low Ch.903 MHz ,Port A, EUT Horz
2742.490	52.9	1.6	1.2	231.0	3.0	0.0	Vert	PK	0.0	54.5	74.0	-19.5	Mid Ch.914.2 MHz ,Port A, EUT Horz
4638.065	44.0	10.4	1.0	8.0	3.0	0.0	Horz	PK	0.0	54.4	74.0	-19.6	High Ch.927.5 MHz ,Port A, EUT Vert
3709.995	47.0	7.4	1.0	283.0	3.0	0.0	Vert	PK	0.0	54.4	74.0	-19.6	High Ch.927.5 MHz ,Port A, EUT Horz
2709.080	52.6	1.6	1.0	85.0	3.0	0.0	Horz	PK	0.0	54.2	74.0	-19.8	Low Ch.903 MHz ,Port A, EUT Vert
4637.695	43.8	10.4	2.5	184.0	3.0	0.0	Vert	PK	0.0	54.2	74.0	-19.8	High Ch.927.5 MHz ,Port A, EUT Horz
2742.425	52.3	1.6	1.0	343.0	3.0	0.0	Horz	PK	0.0	53.9	74.0	-20.1	Mid Ch.914.2 MHz ,Port A, EUT Horz
2708.835	52.3	1.6	4.0	188.0	3.0	0.0	Vert	PK	0.0	53.9	74.0	-20.1	Low Ch.903 MHz ,Port A, EUT Horz
2743.190	52.2	1.6	1.0	260.0	3.0	0.0	Horz	PK	0.0	53.8	74.0	-20.2	Mid Ch.914.2 MHz, Port A, EUT On Side with 10m cable
2742.310	52.1	1.6	1.2	21.0	3.0	0.0	Horz	PK	0.0	53.7	74.0	-20.3	Mid Ch.914.2 MHz ,Port A, EUT On Side
3656.715	46.6	7.1	1.0	287.0	3.0	0.0	Vert	PK	0.0	53.7	74.0	-20.3	Mid Ch.914.2 MHz ,Port A, EUT Horz
2742.775	52.0	1.6	1.0	28.0	3.0	0.0	Vert	PK	0.0	53.6	74.0	-20.4	Mid Ch.914.2 MHz ,Port A, EUT Vert
3611.995	46.5	6.9	1.0	327.0	3.0	0.0	Horz	PK	0.0	53.4	74.0	-20.6	Low Ch.903 MHz ,Port A, EUT Vert
2782.280	51.5	1.8	1.0	324.0	3.0	0.0	Vert	PK	0.0	53.3	74.0	-20.7	High Ch.927.5 MHz ,Port A, EUT Horz
2742.830	50.8	1.6	1.2	18.0	3.0	0.0	Vert	PK	0.0	52.4	74.0	-21.6	Mid Ch.914.2 MHz ,Port A, EUT On Side
2742.775	50.4	1.6	1.0	290.0	3.0	0.0	Vert	PK	0.0	52.0	74.0	-22.0	Mid Ch.914.2 MHz, Port A, EUT On Side with 10m cable
2742.055	49.1	1.6	1.0	60.0	3.0	0.0	Horz	PK	0.0	50.7	74.0	-23.3	Mid Ch.914.2 MHz, Port A, EUT Vert with 10m cable
2742.690	48.9	1.6	1.0	94.0	3.0	0.0	Horz	PK	0.0	50.5	74.0	-23.5	Mid Ch.914.2 MHz ,Port B, EUT Vert
2742.050	48.9	1.6	1.0	227.0	3.0	0.0	Vert	PK	0.0	50.5	74.0	-23.5	Mid Ch.914.2 MHz, Port A, EUT Vert with 10m cable
2742.980	48.7	1.6	1.0	68.0	3.0	0.0	Horz	PK	0.0	50.3	74.0	-23.7	Mid Ch.914.2 MHz, Port A, EUT Horz with 10m cable
2742.815	48.3	1.6	1.0	238.0	3.0	0.0	Vert	PK	0.0	49.9	74.0	-24.1	Mid Ch.914.2 MHz, Port A, EUT Horz with 10m cable
2742.390	47.9	1.6	1.0	30.0	3.0	0.0	Vert	PK	0.0	49.5	74.0	-24.5	Mid Ch.914.2 MHz ,Port B, EUT Horz

### SPURIOUS RADIATED EMISSIONS



				EmiR5 2017.01.25 PSA-ESCI 2017.01.
Work Order:	PECK0002	Date:	04/19/17	~ /.
Project:	None	Temperature:	22.8 °C	1 Jan
Job Site:	EV01	Humidity:	38.8% RH	
Serial Number:	16	Barometric Pres.:	1007 mbar	Tested by: Brandon Hobbs
EUT:	XB1301			
Configuration:	6,8			
Customer:	APANA Inc			
Attendees:	None			
EUT Power:	5 VDC Nominal via 11	0VAC/60Hz		
Operating Mode:	On Tx Continuous DT	S Please reference the	data comments for	or further EUT operating modes.
Deviations:	None			
Comments:	Yagi antenna. The rad	dio was tested with both	the longest and sh	shorts RF path on the worst case harmonic.
Test Specifications			Test Met	ethod
FCC 15.247:2017			ANSI C63	63.10:2013



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2782.480	49.2	1.8	1.0	37.0	3.0	0.0	Horz	AV	0.0	51.0	54.0	-3.0	High Ch. 927.5 MHz, Port A, DAC 0, MG 10, EUT On Side
4570.985	40.7	10.2	1.0	151.0	3.0	0.0	Horz	AV	0.0	50.9	54.0	-3.1	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT On Side
4571.010	40.5	10.2	1.0	118.0	3.0	0.0	Vert	AV	0.0	50.7	54.0	-3.3	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT Vert
7312.415	30.9	18.7	1.7	141.0	3.0	0.0	Vert	AV	0.0	49.6	54.0	-4.4	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT Vert
7420.000	30.3	19.3	1.6	175.0	3.0	0.0	Horz	AV	0.0	49.6	54.0	-4.4	High Ch. 927.5 MHz, Port A, DAC 0, MG 10, EUT On Side
7314.880	30.5	18.8	1.3	201.0	3.0	0.0	Vert	AV	0.0	49.3	54.0	-4.7	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT On Side
7313.655	30.4	18.8	2.8	198.0	3.0	0.0	Vert	AV	0.0	49.2	54.0	-4.8	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT Horz
7313.540	30.0	18.8	1.0	227.0	3.0	0.0	Horz	AV	0.0	48.8	54.0	-5.2	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT On Side
7312.280	29.9	18.7	1.0	104.0	3.0	0.0	Horz	AV	0.0	48.6	54.0	-5.4	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT Vert
2742.625	47.0	1.6	1.0	169.0	3.0	0.0	Horz	AV	0.0	48.6	54.0	-5.4	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT On Side
7313.625	29.7	18.8	1.1	188.0	3.0	0.0	Horz	AV	0.0	48.5	54.0	-5.5	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT Horz
7421.020	29.2	19.3	1.6	100.0	3.0	0.0	Vert	AV	0.0	48.5	54.0	-5.5	High Ch. 927.5 MHz, Port A, DAC 0, MG 10, EUT Vert
4637.610	37.2	10.4	1.0	149.0	3.0	0.0	Horz	AV	0.0	47.6	54.0	-6.4	High Ch. 927.5 MHz, Port A, DAC 0, MG 10, EUT On Side
4637.540	37.2	10.4	1.0	106.0	3.0	0.0	Vert	AV	0.0	47.6	54.0	-6.4	High Ch. 927.5 MHz, Port A, DAC 0, MG 10, EUT Vert
2782.585	45.5	1.8	1.0	88.0	3.0	0.0	Vert	AV	0.0	47.3	54.0	-6.7	High Ch. 927.5 MHz, Port A, DAC 0, MG 10, EUT Vert
7313.750	48.4	18.8	2.9	193.0	3.0	0.0	Vert	PK	0.0	67.2	74.0	-6.8	Mid Ch. 914.2 MHz, Port A, DAC 2300, MG 10, EUT Horz
3656.820	40.1	7.1	1.0	37.0	3.0	0.0	Horz	AV	0.0	47.2	54.0	-6.8	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT On Side
3710.050	39.6	7.4	1.0	39.0	3.0	0.0	Horz	AV	0.0	47.0	54.0	-7.0	High Ch. 927.5 MHz, Port A, DAC 0, MG 10, EUT On Side
7313.830	48.0	18.8	1.7	141.0	3.0	0.0	Vert	PK	0.0	66.8	74.0	-7.2	Mid Ch. 914.2 MHz, Port A, DAC 2300, MG 10, EUT On Side
7313.385	47.6	18.8	1.0	202.0	3.0	0.0	Vert	PK	0.0	66.4	74.0	-7.6	Mid Ch. 914.2 MHz, Port A, DAC 2300, MG 10, EUT Vert
7313.535	47.0	18.8	1.0	202.0	3.0	0.0	Horz	PK	0.0	65.9	74.0	-7.6	Mid Ch. 914.2 MHz, Port A, DAC 2300, MG 10, EUT On Side
7313.800	47.1	18.8	1.0	129.0	3.0	0.0		PK	0.0	65.9	74.0	-8.1	Mid Ch. 914.2 MHz, Port A, DAC 2300, MG 10, EUT On Side Mid Ch. 914.2 MHz, Port A, DAC 2300, MG 10, EUT Vert
	47.1	18.8	2.0	129.0	3.0	0.0	Horz	PK	0.0	65.8	74.0	-8.1	
7313.625							Horz						Mid Ch. 914.2 MHz, Port A, DAC 2300, MG 10, EUT Horz
2742.625	43.2	1.6	1.0	282.0	3.0	0.0	Vert	AV	0.0	44.8	54.0	-9.2	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT Vert
3656.805	36.0	7.1	1.0	123.0	3.0	0.0	Vert	AV	0.0	43.1	54.0	-10.9	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT Vert
3709.965	35.5	7.4	1.0	103.0	3.0	0.0	Vert	AV	0.0	42.9	54.0	-11.1	High Ch. 927.5 MHz, Port A, DAC 0, MG 10, EUT Vert
5417.825	30.9	11.9	1.5	114.0	3.0	0.0	Horz	AV	0.0	42.8	54.0	-11.2	Low Ch. 903 MHz, Port A, DAC 4000, MG 8, EUT On Side
5417.933	30.7	11.9	1.0	94.0	3.0	0.0	Vert	AV	0.0	42.6	54.0	-11.4	Low Ch. 903 MHz, Port A, DAC 4000, MG 8, EUT Vert
7314.575	42.8	18.8	1.7	141.0	3.0	0.0	Vert	PK	0.0	61.6	74.0	-12.4	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT Vert
4515.040	31.2	10.2	1.0	99.0	3.0	0.0	Vert	AV	0.0	41.4	54.0	-12.6	Low Ch. 903 MHz, Port A, DAC 4000, MG 8, EUT Vert
2782.450	39.2	1.8	1.0	0.0	3.0	0.0	Horz	AV	0.0	41.0	54.0	-13.0	High Ch. 927.5 MHz, Port A, DAC 4000, MG 8, EUT On Side with RF cable attached
4515.145	30.7	10.2	1.0	125.0	3.0	0.0	Horz	AV	0.0	40.9	54.0	-13.1	Low Ch. 903 MHz, Port A, DAC 4000, MG 8, EUT On Side
7313.970	41.8	18.8	1.3	201.0	3.0	0.0	Vert	PK	0.0	60.6	74.0	-13.4	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT On Side
7419.965	40.9	19.3	1.6	175.0	3.0	0.0	Horz	PK	0.0	60.2	74.0	-13.8	High Ch. 927.5 MHz, Port A, DAC 0, MG 10, EUT On Side
7421.165	40.9	19.3	1.6	100.0	3.0	0.0	Vert	PK	0.0	60.2	74.0	-13.8	High Ch. 927.5 MHz, Port A, DAC 0, MG 10, EUT Vert
7314.070	41.2	18.8	1.0	227.0	3.0	0.0	Horz	PK	0.0	60.0	74.0	-14.0	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT On Side
7313.955	41.2	18.8	1.1	188.0	3.0	0.0	Horz	PK	0.0	60.0	74.0	-14.0	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT Horz
7313.675	41.2	18.8	2.8	198.0	3.0	0.0	Vert	PK	0.0	60.0	74.0	-14.0	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT Horz
7313.775	40.8	18.8	1.0	104.0	3.0	0.0	Horz	PK	0.0	59.6	74.0	-14.4	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT Vert
3611.940	32.7	6.9	1.0	151.0	3.0	0.0	Horz	AV	0.0	39.6	54.0	-14.4	Low Ch. 903 MHz, Port A, DAC 4000, MG 8, EUT On Side
2782.495	37.7	1.8	1.0	28.0	3.0	0.0	Horz	AV	0.0	39.5	54.0	-14.5	High Ch. 927.5 MHz, Port B, DAC 4000, MG 8, EUT On Side
4571.120	48.5	10.2	1.0	151.0	3.0	0.0	Horz	PK	0.0	58.7	74.0	-15.3	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT On Side
3612.030	31.4	6.9	1.0	53.0	3.0	0.0	Vert	AV	0.0	38.3	54.0	-15.7	Low Ch. 903 MHz, Port A, DAC 4000, MG 8, EUT Vert
4571.050	47.8	10.2	1.0	118.0	3.0	0.0	Vert	PK	0.0	58.0	74.0	-16.0	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT Vert
2709.005	35.5	1.6	1.0	83.0	3.0	0.0	Vert	AV	0.0	37.1	54.0	-16.9	Low Ch. 903 MHz, Port A, DAC 4000, MG 8, EUT Vert
2709.045	35.0	1.6	1.0	249.0	3.0	0.0	Horz	AV	0.0	36.6	54.0	-17.4	Low Ch. 903 MHz, Port A. DAC 4000, MG 8, EUT On Side
4637.565	45.5	10.4	1.0	149.0	3.0	0.0	Horz	PK	0.0	55.9	74.0	-18.1	High Ch. 927.5 MHz, Port A, DAC 0, MG 10, EUT On Side
4637.510	45.5	10.4	1.0	106.0	3.0	0.0	Vert	PK	0.0	55.9	74.0	-18.1	High Ch. 927.5 MHz, Port A, DAC 0, MG 10, EUT Vert
4037.310	-3.5	10.4	1.0	100.0	3.0	0.0	ven	1°K	0.0	55.5	74.0	- 10.1	

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2782.415	53.8	1.8	1.0	37.0	3.0	0.0	Horz	PK	0.0	55.6	74.0	-18.4	High Ch. 927.5 MHz, Port A, DAC 0, MG 10, EUT On Side
3710.040	47.4	7.4	1.0	39.0	3.0	0.0	Horz	PK	0.0	54.8	74.0	-19.2	High Ch. 927.5 MHz, Port A, DAC 0, MG 10, EUT On Side
3656.740	47.4	7.1	1.0	37.0	3.0	0.0	Horz	PK	0.0	54.5	74.0	-19.5	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT On Side
5417.895	41.6	11.9	1.5	114.0	3.0	0.0	Horz	PK	0.0	53.5	74.0	-20.5	Low Ch. 903 MHz, Port A, DAC 4000, MG 8, EUT On Side
5417.758	41.5	11.9	1.0	94.0	3.0	0.0	Vert	PK	0.0	53.4	74.0	-20.6	Low Ch. 903 MHz, Port A, DAC 4000, MG 8, EUT Vert
2742.800	51.6	1.6	1.0	169.0	3.0	0.0	Horz	PK	0.0	53.2	74.0	-20.8	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT On Side
2782.500	50.7	1.8	1.0	88.0	3.0	0.0	Vert	PK	0.0	52.5	74.0	-21.5	High Ch. 927.5 MHz, Port A, DAC 0, MG 10, EUT Vert
3656.595	45.3	7.1	1.0	123.0	3.0	0.0	Vert	PK	0.0	52.4	74.0	-21.6	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT Vert
4514.195	42.0	10.2	1.0	99.0	3.0	0.0	Vert	PK	0.0	52.2	74.0	-21.8	Low Ch. 903 MHz, Port A, DAC 4000, MG 8, EUT Vert
4515.545	41.9	10.2	1.0	125.0	3.0	0.0	Horz	PK	0.0	52.1	74.0	-21.9	Low Ch. 903 MHz, Port A, DAC 4000, MG 8, EUT On Side
3710.145	44.3	7.4	1.0	103.0	3.0	0.0	Vert	PK	0.0	51.7	74.0	-22.3	High Ch. 927.5 MHz, Port A, DAC 0, MG 10, EUT Vert
2742.655	48.6	1.6	1.0	282.0	3.0	0.0	Vert	PK	0.0	50.2	74.0	-23.8	Mid Ch. 914.2 MHz, Port A, DAC 0, MG 10, EUT Vert
3612.515	43.0	6.9	1.0	151.0	3.0	0.0	Horz	PK	0.0	49.9	74.0	-24.1	Low Ch. 903 MHz, Port A, DAC 4000, MG 8, EUT On Side
3611.785	42.0	6.9	1.0	53.0	3.0	0.0	Vert	PK	0.0	48.9	74.0	-25.1	Low Ch. 903 MHz, Port A, DAC 4000, MG 8, EUT Vert
2782.715	46.0	1.8	1.0	0.0	3.0	0.0	Horz	PK	0.0	47.8	74.0	-26.2	High Ch. 927.5 MHz, Port A, DAC 4000, MG 8, EUT On Side with RF cable attached
2782.275	45.2	1.8	1.0	28.0	3.0	0.0	Horz	PK	0.0	47.0	74.0	-27.0	High Ch. 927.5 MHz, Port B, DAC 4000, MG 8, EUT On Side
2708.815	44.6	1.6	1.0	83.0	3.0	0.0	Vert	PK	0.0	46.2	74.0	-27.8	Low Ch. 903 MHz, Port A, DAC 4000, MG 8, EUT Vert
2709.090	44.6	1.6	1.0	249.0	3.0	0.0	Horz	PK	0.0	46.2	74.0	-27.8	Low Ch. 903 MHz, Port A, DAC 4000, MG 8, EUT On Side



XMit 2017.02.08

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

#### **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	10/27/2015	10/27/2018
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-8-2-SCT/AC	TBI	NCR	NCR
Thermometer	Omegaette	HH311	DTY	1/21/2015	1/21/2018
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	6/7/2016	6/7/2017
Attenuator	S.M. Electronics	SA26B-20	AUY	6/27/2016	6/27/2017
Block - DC	Fairview Microwave	SD3379	AMQ	6/8/2016	6/8/2017
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFP	8/10/2016	8/10/2017

#### TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The Duty Cycle (x) of the single channel operation of the radio as controlled by the provided test software was measured for each of the EUT operating modes.

There is no compliance requirement to be met by this test, so therefore no Pass / Fail criteria.

The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. The transmit power was set to its default maximum.

The duty cycle was calculated by dividing the transmission pulse duration (T) by the total period of a single on and total off time.

If the transmit duty cycle < 98 percent, burst gating may have been used during some of the other tests in this report to only take the measurement during the burst duration.

In accordance with power settings stated herein, the power applied to each antenna is different. The approximate output power for each antenna is listed below.

Yagi antenna: ≈ 24 dBm
Dipole antenna: ≈ 30 dBm



							TbtTx 2017.01.27	XMit 201
EUT: XB	1301					Work Order:		
Serial Number: 17							04/26/17	
	ANA Inc					Temperature:		
Attendees: No						Humidity:		
Project: No					E	Barometric Pres.:		
Tested by: Bra			Power: 5 VDC Nominal via	110VAC/60Hz		Job Site:	EV06	
EST SPECIFICATIONS	S		Test Method					
CC 15.247:2017			ANSI C63.10:2013					
OMMENTS								
		na data listed below are as follows: DAC =						
		t's request. Power limit for the Yagi anten	na was lowered to accomm	odate for an anter	ina gain greater than	6dBi. A terminat	on was placed on	the unused
ntenna port while und								
EVIATIONS FROM TE	SI SIANDARD							
one								
onfiguration #	1	12	= 1 1					
oninguration #	'	Signature	Zant					
		Signature			Number of	Value	Limit	
			Pulse Width	Period	Pulses	(%)	(%)	Results
agi Antenna			i uise width	renou	1 01363	(78)	(78)	Results
Por	-t Δ							
1 01	500 kHz Bandwidth							
		ding Factor 7						
	oprode	Low Channel 903 MHz	41.903 ms	43.939 ms	1	95.4	N/A	N/A
		Low Channel 903 MHz	N/A	N/A	5	N/A	N/A	N/A
		Mid Channel 914.2 MHz	41.903 ms	43.939 ms	1	95.4	N/A	N/A
		Mid Channel 914.2 MHz	N/A	N/A	6	N/A	N/A	N/A
		High Channel 927.5 MHz	41.976 ms	44.049 ms	1	95.3	N/A	N/A
		High Channel 927.5 MHz	N/A	N/A	6	N/A	N/A	N/A
Por	rt B	<b>3</b>						
	500 kHz Bandwidth							
	Spread	ding Factor 7						
		Low Channel 903 MHz	41.903 ms	43.939 ms	1	95.4	N/A	N/A
		Low Channel 903 MHz	N/A	N/A	5	N/A	N/A	N/A
		Mid Channel 914.2 MHz	41.878 ms	43.927 ms	1	95.3	N/A	N/A
		Mid Channel 914.2 MHz	N/A	N/A	5	N/A	N/A	N/A
		High Channel 927.5 MHz	41.903 ms	43.927 ms	1	95.4	N/A	N/A
		High Channel 927.5 MHz	N/A	N/A	6	N/A	N/A	N/A
ipole Antenna								
Por								
	500 kHz Bandwidth							
	Spread	ding Factor 7	40.005	44.040		05.4	N1/A	N1/A
		Low Channel 903 MHz	42.025 ms	44.049 ms	1	95.4	N/A	N/A
		Low Channel 903 MHz Mid Channel 914.2 MHz	N/A 42.025 ms	N/A 44.049 ms	5 1	N/A 95.4	N/A N/A	N/A N/A
		Mid Channel 914.2 MHz Mid Channel 914.2 MHz	42.025 ms N/A	44.049 ms N/A	6	95.4 N/A	N/A N/A	N/A N/A
		High Channel 914.2 MHz	N/A 42.013 ms	N/A 44.049 ms	6 1	N/A 95.4	N/A N/A	N/A N/A
		High Channel 927.5 MHz High Channel 927.5 MHz	42.013 ms N/A	44.049 ms N/A	6	95.4 N/A	N/A N/A	N/A N/A
Por	t B		IN/A	IN/A	U	IN/A	IN/A	IN/A
FUI	500 kHz Bandwidth							
		ling Factor 7						
	opread	Low Channel 903 MHz	42.025 ms	44.049 ms	1	95.4	N/A	N/A
		Low Channel 903 MHz	42.025 ms N/A	N/A	6	N/A	N/A	N/A
		Mid Channel 914.2 MHz	42.025 ms	44.062 ms	1	95.4	N/A	N/A
		Mid Channel 914.2 MHz	N/A	N/A	6	N/A	N/A	N/A
		High Channel 927.5 MHz	42.013 ms	44.049 ms	1	95.4	N/A	N/A
		High Channel 927.5 MHz	N/A	N/A	5	N/A	N/A	N/A



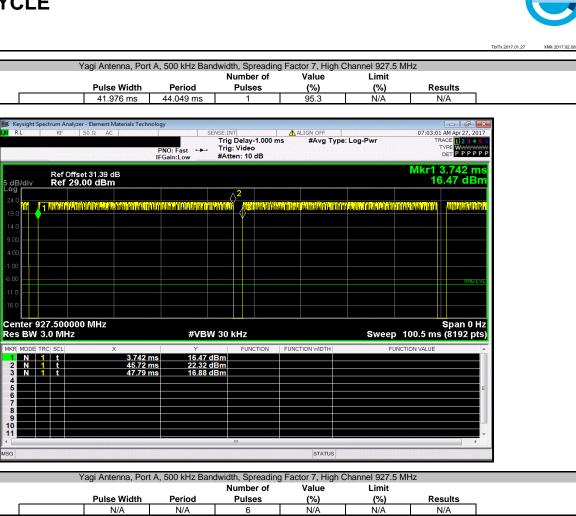
			Number of	Value	Limit	_ ·
	Pulse Width 41.903 ms	Period 43.939 ms	Pulses 1	<b>(%)</b> 95.4	<b>(%)</b> N/A	Results N/A
Keysight Spectrum Analyzer	50 Ω AC		NSE:INT Trig Delay-1.000 n Trig: Video #Atten: 10 dB	ALIGN OFF	a: Log-Pwr	06:20:10 AM Apr.27, 2017 TRACE 123450 TYPE WWWW DET PPPPP
Ref Offse 5 dB/div Ref 29.0	t 31.39 dB					Mkr1 15.20 ms 17.09 dBm
24.0 19.0 14.0		NT MORTON WAR AND AND A			New York Constraints Constraints And	
4.00 -1.00 -6.00 -11.0 -16.0						TRIOLVL
Center 903.000000 Res BW 3.0 MHz	MHz	#VBW	30 kHz		Sweep 1	Span 0 Hz 00.5 ms (8192 pts)
MKR         MODE         TCL         SCL           1         N         1         t         2         N         1         t           2         N         1         t         2         N         1         t           3         N         1         t         4         5         5         6         6         7         7         8         9         9         10         11         10         11         10         11	× 15.20 m 57.10 m 59.14 m	s 16.44 d	Bm	FUNCTION WIDTH		E E
MSG						
				STATUS		
	Yagi Antenna, Port	t A, 500 kHz Ba	ndwidth, Spreadi Number of		Channel 903 MH Limit	Z
	Yagi Antenna, Port Pulse Width N/A	t A, 500 kHz Bar Period N/A		ng Factor 7, Low		z Results N/A
Keysight Spectrum Analyzer	Pulse Width N/A	Period N/A	Number of Pulses	ng Factor 7, Low Value (%)	Limit (%) N/A	Results
Keysight Spectrum Analyzer	Pulse Width N/A	Period N/A	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results N/A
Keysight Spectrum Analyzer	Pulse Width N/A	Period N/A	Number of Pulses 5 NSE:INT Trig: Video	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results N/A
Ref Offset       January Street S	Pulse Width N/A	Period N/A	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results N/A
Keysight Spectrum Analyzer RL RF 5 C dB/div Ref Offse C dB/div Ref 29.0	Pulse Width N/A	Period N/A	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results N/A
Ref Offse       00     RL       8     Ref Offse       9     14.0       9.00     14.0	Pulse Width N/A	Period N/A	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results N/A
Keysight Spectrum Analyzer           RL         RF           SdB/div         Ref Offsee           24.0         Ref 29.0           14.0         9.00           4.00         9.00           -1.00         -1.00	Pulse Width N/A	Period N/A	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results N/A



	Yagi Antenna, Port	,					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
	41.903 ms	43.939 ms	1	95.4	N/Á	N/A	
Keysight Spectrum Analyz	er - Element Materials Techn	ology					x
	50 Ω AC		SENSE:INT Trig Delay-1.000 r	ALIGN OFF	e: Log-Pwr	06:38:19 AM Apr 27, 20	017
		PNO: Fast +++	Trig: Video #Atten: 10 dB			TRACE 1 2 3 4 TYPE WWWW DET P P P P	P P
Rof Off	set 31.39 dB	II Guilleow				Mkr1 22.82 m	ns
5 dB/div Ref 29	0.00 dBm					14.49 dB	m
24.0		tiller for the state of the sta		nininininini "Ana			Altra -
19.0	1			·····			
9.00							
4.00							
-1.00							
-6.00						TRIG L	.∀E
-11.0							
Center 914.20000						Span 0 F	
Res BW 3.0 MHz	AGE WITH Z	#VB	W 30 kHz		Sweep	Span 0 F 100.5 ms (8192 pt	
MKR MODE TRC SCL	× 22.82 n	Y	FUNCTION	FUNCTION WIDTH	FUI	NCTION VALUE	Á
2 N 1 t 3 N 1 t	64.72 n 66.76 n	ns 14.49 ns 15.98 ns 18.10	dBm dBm				
4 5							
6 7							
8							
			II.				
9 10			111	STATUS		•	
9 10 11	Vaci Antenna Port	4 500 kHz Ba			Channel 914 2	→ MH2	
9 10 11	Yagi Antenna, Port		andwidth, Spreadin Number of	ng Factor 7, Mid ( Value	Limit		
9 10 11	Yagi Antenna, Port Pulse Width N/A	: A, 500 kHz Ba Period N/A	andwidth, Spreadir	ng Factor 7, Mid (		MHz Results N/A	
9 10 11 MSG	Pulse Width N/A	Period N/A	andwidth, Spreadii Number of Pulses	ng Factor 7, Mid ( Value (%)	Limit (%)	Results N/A	
9 10 11 MSG	Pulse Width	Period N/A	andwidth, Spreadii Number of Pulses	ng Factor 7, Mid ( Value (%) N/A	Limit (%) N/A	Results N/A	017
9 10 11 * [ MSG Keysight Spectrum Analyz	Pulse Width N/A	Period N/A	andwidth, Spreadin Number of Pulses 6 sense:INT Trig: Video	ng Factor 7, Mid ( Value (%) N/A	Limit (%)	Results N/A 06:38:25 AM Apr 27, 20 TRACE 2 3 4 TYPE	017 56
9 10 11 MSG Keysight Spectrum Analyz Keysight Spectrum Analyz Keysight Spectrum Analyz	Pulse Width N/A See - Element Materials Techni 50 Ω AC	Period N/A	andwidth, Spreadin Number of Pulses 6 sense:int	ng Factor 7, Mid ( Value (%) N/A	Limit (%) N/A	Results N/A 06:38:25 AM Apr 27, 20 TRACE 1234	017 56
9 10 11 MSG Keysight Spectrum Analyz RL RF S dB/dly Ref Offs 5 dB/dly Ref 29	Pulse Width N/A	Period N/A	andwidth, Spreadin Number of Pulses 6 sense:INT Trig: Video	ng Factor 7, Mid ( Value (%) N/A	Limit (%) N/A	Results N/A 06:38:25 AM Apr 27, 20 TRACE 2 3 4 TYPE	017 56
9 10 11 Keysight Spectrum Analyz R L RF Ref Offs	Pulse Width N/A ter - Element Materials Technol 50 Ω AC	Period N/A	andwidth, Spreadin Number of Pulses 6 sense:INT Trig: Video	ng Factor 7, Mid ( Value (%) N/A	Limit (%) N/A	Results N/A 06:38:25 AM Apr 27, 20 TRACE 2 3 4 TYPE	017 56
9 10 11 MSG Keysight Spectrum Analyz W RL RF 5 dB/div Ref Offs Log	Pulse Width N/A er - Element Materials Technol 50 Ω AC	Period N/A	Andwidth, Spreadin Number of Pulses 6 SENSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Mid ( Value (%) N/A Align off #Avg Typ	Limit (%) N/A	Results N/A 06:38:25 AM Apr 27, 20 TRACE 1, 23 4 TYPE WWWW DET P P P	017 56
9 10 11 MSG Keysight Spectrum Analyz W RL RF 5 dB/div Ref Offs Log	Pulse Width N/A ter - Element Materials Technol 50 Ω AC	Period N/A	Andwidth, Spreadin Number of Pulses 6 SENSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Mid ( Value (%) N/A Align off #Avg Typ	Limit (%) N/A	Results N/A 06:38:25 AM Apr 27, 20 TRACE 2 3 4 TYPE	017 56
9 10 11 MSG MSG Keysight Spectrum Analyz 20 RL RF 5 dB/div Ref 29 24.0 19.0 19.0	Pulse Width N/A er - Element Materials Technol 50 Ω AC	Period N/A	Andwidth, Spreadin Number of Pulses 6 SENSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Mid ( Value (%) N/A Align off #Avg Typ	Limit (%) N/A	Results N/A 06:38:25 AM Apr 27, 20 TRACE 1, 23 4 TYPE WWWW DET P P P	017 56
9 10 11 Keysight Spectrum Analyz R L RF 5 dB/div Ref 29 24.0 min and the second	Pulse Width N/A er - Element Materials Technol 50 Ω AC	Period N/A	Andwidth, Spreadin Number of Pulses 6 SENSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Mid ( Value (%) N/A Align off #Avg Typ	Limit (%) N/A	Results N/A 06:38:25 AM Apr 27, 20 TRACE 1, 23 4 TYPE WWWW DET P P P	017 56
9 10 11 MSG MSG Keysight Spectrum Analyz 20 RL RF 5 dB/div Ref 29 24.0 19.0 19.0	Pulse Width N/A er - Element Materials Technol 50 Ω AC	Period N/A	Andwidth, Spreadin Number of Pulses 6 SENSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Mid ( Value (%) N/A Align off #Avg Typ	Limit (%) N/A	Results N/A 06:38:25 AM Apr 27, 20 TRACE 1, 23 4 TYPE WWWW DET P P P	017 56
9 10 11 MSG Keysight Spectrum Analyz M RL RF 5 dB/div Ref 29 0 g 24.0 14.0 9.00	Pulse Width N/A er - Element Materials Technol 50 Ω AC	Period N/A	Andwidth, Spreadin Number of Pulses 6 SENSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Mid ( Value (%) N/A Align off #Avg Typ	Limit (%) N/A	Results N/A 06:38:25 AM Apr 27, 20 TRACE 1, 23 4 TYPE WWWW DET P P P	017 56
9 10 11 MSG Keysight Spectrum Analyz C RL RF 5 dB/div Ref 29 24.0 Provide the set of the set	Pulse Width N/A er - Element Materials Technol 50 Ω AC	Period N/A	Andwidth, Spreadin Number of Pulses 6 SENSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Mid ( Value (%) N/A	Limit (%) N/A	Results N/A 06:38:25 AM Apr 27, 20 TRACE 1, 23 4 TYPE WWWW DET P P P	017 56
9 10 11 MSG Keysight Spectrum Analyz M RL RF 5 dB/div Ref 29 0 g 24.0 14.0 9.00	Pulse Width N/A er - Element Materials Technol 50 Ω AC	Period N/A	Andwidth, Spreadin Number of Pulses 6 SENSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Mid ( Value (%) N/A	Limit (%) N/A	Results N/A 06:38:25 AM Apr 27, 20 TRACE 1, 23 4 TYPE WWWW DET P P P	017 56
9 10 11 10 11 MSG Keysight Spectrum Analyz 5 dB/div Ref Offs 5 dB/div Ref 29 24.0 14.0 19.0 4.00 -1.00	Pulse Width N/A er - Element Materials Technol 50 Ω AC	Period N/A	Andwidth, Spreadin Number of Pulses 6 SENSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Mid ( Value (%) N/A	Limit (%) N/A	Results N/A	017 56
9 10 11 Keysight Spectrum Analyz R L RF 5 dB/div Ref 29 24.0 14.0 9.00 4.00	Pulse Width N/A er - Element Materials Technol 50 Ω AC	Period N/A	Andwidth, Spreadin Number of Pulses 6 SENSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Mid ( Value (%) N/A	Limit (%) N/A	Results N/A 06:38:25 AM Apr 27, 20 TRACE 1, 23 4 TYPE WWWW DET P P P	017 56
9 10 11 10 11 MSG Keysight Spectrum Analyz 5 dB/div Ref Offs 5 dB/div Ref 29 24.0 14.0 19.0 4.00 -1.00	Pulse Width N/A er - Element Materials Technol 50 Ω AC	Period N/A	Andwidth, Spreadin Number of Pulses 6 SENSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Mid ( Value (%) N/A	Limit (%) N/A	Results N/A	017 56
9	Pulse Width N/A er - Element Materials Technol 50 Ω AC	Period N/A	Andwidth, Spreadin Number of Pulses 6 SENSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Mid ( Value (%) N/A	Limit (%) N/A	Results N/A	017 56
9	Pulse Width N/A er - Element Materials Technol 50 Ω AC	Period N/A	Andwidth, Spreadin Number of Pulses 6 SENSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Mid ( Value (%) N/A	Limit (%) N/A	Results N/A	017 56
9	Pulse Width N/A N/A set 31.39 dB O dBm	Period N/A	Andwidth, Spreadin Number of Pulses 6 SENSE:INT Trig: Video #Atten: 10 dB	ng Factor 7, Mid ( Value (%) N/A	Limit (%) N/A	Results N/A	

RL

5 dB/d Log



RL	RF 50 Ω	AC			SENSE:INT	<u>A</u>	ALIGN OFF		07:03:	07 AM Apr 27, 20
							#Avg Type	e: Log-Pwr		TRACE 1 2 3 4
			PNO: Fa	ast 🔸	. Trig: Vide					DET P P P P
			IFGain:L	.ow	#Atten: 10	dB				DET P P P P
	Ref Offset 31.	39 dB								
dB/div	Ref 29.00 d	Bm								
<sup>og</sup> [										
4.0										
								والنجاعة فأرأ		الأكل الأكانية
ير الماسلية الله	الرابية ومعارفهم والم	أرز بالاله ولغا لوحيا العا	أساره لفقع حوام الرار	والمتحد والملاحة		والمتعادية والمتلك والمتعادية	فارا وجرابها والكا أماك لو	lilled, dilation de la		al diter and describe
9.0										
4.0			-							
.00										
.00										
.00										
00										
00										
										TRIG
.0										
5.0										
5.0										
enter 927	.500000 MH	Z								Span 0 I
es BW 3.0	0 MHz			#VB	W 30 kHz			Swe	ep 198.2 m	is (8192 p
G							STATUS			





	Dules Mr. Ht	Declard	Number of	Value	Limit	Desition
	Pulse Width 41.903 ms	Period 43.939 ms	Pulses 1	<b>(%)</b> 95.4	(%) N/A	Results N/A
🍺 Keysight Spectrum Analyze	er - Element Materials Technol	logy				
	50 Ω AC		SENSE:INT Trig Delay-1.000 m	ALIGN OFF	: Log-Pwr	04:15:59 AM Apr 27, 201 TRACE 1 2 3 4 5
		PNO: Fast + IFGain:Low	Trig: Video #Atten: 10 dB			TYPE WWWWW DET P P P P P
Ref Offs 5 dB/div Ref 29.	et 31.39 dB . <b>00 dBm</b>					Mkr1 30.90 ms 16.61 dBn
Log	IT ANY ADDITION AND ADDITION ADDITION		ALLAN ANALAN ANALAN ANALAN ANA		anan sulanananan	TATIVY A MANUSARA DALAMANA DA
19.0	at bolandinom kondan datali paronana la dara		and te marinal fail that an it for an the factor fo	alen na sen a la mandra a la mana de la sen de la s	A 2	i la na cl'avert, te entri nat den verânt de clear.
9.00						
4.00						
-1.00						TRIG LV
-11.0						
-16.0						
Center 903.00000 Res BW 3.0 MHz	UIVIHZ	#VB	W 30 kHz		Sweep 1	Span 0 H: 00.5 ms (8192 pts
MKR MODE TRC SCL	X 30.90 m	s <u>16.61</u>	FUNCTION dBm	FUNCTION WIDTH	FUNCTI	ON VALUE
2 N 1 t 3 N 1 t 4	30.90 m 72.80 m 74.84 m	s 16.61 s 10.86 s 18.10	dBm			
5 6 7						
8						
10 11						
			m	STATUS		
11	Yagi Antenna, Port	: B, 500 kHz B	andwidth, Spreadii	ng Factor 7, Low		2
11	Pulse Width	Period	andwidth, Spreadi Number of Pulses	ng Factor 7, Low Value (%)	Limit (%)	Results
11	-		andwidth, Spreadii Number of	ng Factor 7, Low Value	Limit	
11     Keysight Spectrum Analyze	Pulse Width	Period N/A	andwidth, Spreadi Number of Pulses	ng Factor 7, Low Value (%)	Limit (%)	Results N/A
11     Keysight Spectrum Analyze	Pulse Width N/A r - Element Materials Technol 50 Ω AC	PRO: Fast	andwidth, Spreadin Number of Pulses 5 SENSE:INT	ng Factor 7, Low Value (%) N/A	Limit (%) N/A	Results N/A
11       Keysight Spectrum Analyze       Keysight RL	Pulse Width N/A sr - Element Materials Technol 50 Ω AC	Period N/A	andwidth, Spreadi Number of Pulses 5 SENSE: INT	ng Factor 7, Low Value (%) N/A	Limit (%) N/A	Results N/A
11       *       MSG       Ø RL       RF	Pulse Width N/A r - Element Materials Technol 50 Ω AC	PRO: Fast	andwidth, Spreadin Number of Pulses 5 SENSE:INT	ng Factor 7, Low Value (%) N/A	Limit (%) N/A	Results N/A
11       MSG       MSG       Keysight Spectrum Analyze       W RL       RF       S dB/div       Ref Offsr       24.0	Pulse Width N/A r - Element Materials Technol 50 Q AC at 31.39 dB 00 dBm	Period N/A	andwidth, Spreadin Number of Pulses 5 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results N/A
11       Msg       Msg       Keysight Spectrum Analyze       RL       RE       S dB/div       Ref Offset       24.0       Allticity       Allticity       Allticity       Msg	Pulse Width N/A r - Element Materials Technol 50 Q AC at 31.39 dB 00 dBm	Period N/A	andwidth, Spreadin Number of Pulses 5 SENSE:INT	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results N/A
11       Keysight Spectrum Analyze       Keysight Spectrum Analyze       Keysight Spectrum Analyze       Keysight Ref Offsec       S dB/div       Ref Offsec       24.0       Hitcher Holding       19.0	Pulse Width N/A r - Element Materials Technol 50 Q AC at 31.39 dB 00 dBm	Period N/A	andwidth, Spreadin Number of Pulses 5 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results N/A
11       Msg       Msg       Keysight Spectrum Analyze       RL       RE       S dB/div       Ref Offset       24.0       Allticity       Allticity       Allticity       Msg	Pulse Width N/A r - Element Materials Technol 50 Q AC at 31.39 dB 00 dBm	Period N/A	andwidth, Spreadin Number of Pulses 5 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results N/A
11       Keysight Spectrum Analyze       Keysight Spectrum Analyze       Keysight Spectrum Analyze       Keysight Ref Offsec       S dB/div       Ref Offsec       24.0       Hitcher Holding       19.0	Pulse Width N/A r - Element Materials Technol 50 Q AC at 31.39 dB 00 dBm	Period N/A	andwidth, Spreadin Number of Pulses 5 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results N/A
11       MSG       Image: Secture Analyze       Image: Secture Analyze	Pulse Width N/A r - Element Materials Technol 50 Q AC at 31.39 dB 00 dBm	Period N/A	andwidth, Spreadin Number of Pulses 5 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results N/A
11       MSG       IMKSG	Pulse Width N/A r - Element Materials Technol 50 Q AC at 31.39 dB 00 dBm	Period N/A	andwidth, Spreadin Number of Pulses 5 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results N/A
11	Pulse Width N/A r - Element Materials Technol 50 Q AC at 31.39 dB 00 dBm	Period N/A	andwidth, Spreadin Number of Pulses 5 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results N/A
11           MSG           MSG           Ref Offset           24.0           All bits           14.0           9.00	Pulse Width N/A r - Element Materials Technol 50 Q AC at 31.39 dB 00 dBm	Period N/A	andwidth, Spreadin Number of Pulses 5 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results N/A
11	Pulse Width N/A r - Element Materials Technol 50 Q AC at 31.39 dB 00 dBm	Period N/A	andwidth, Spreadin Number of Pulses 5 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results           N/A           04:16:07 AM Apr27, 2017           TRACE         2 3 4 5           TYPE         DET           DET         P P P P P
11	Pulse Width N/A r - Element Materials Technol 50 Q AC at 31.39 dB 00 dBm	Period N/A	andwidth, Spreadin Number of Pulses 5 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results           N/A           04:16:07 AM Apr27, 2017           TRACE         2 3 4 5           TYPE         DET           DET         P P P P P
11	Pulse Width N/A  r - Element Materials Technol 50 Ω AC  st 31.39 dB 00 dBm	Period N/A	andwidth, Spreadin Number of Pulses 5 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results           N/A           04:16:07 AM Apr27, 2017           TRACE         2 3 4 5           TYPE         DET           DET         P P P P P



			dwidth, Spreadin Number of	Value	Limit	
	Pulse Width 41.878 ms	Period 43.927 ms	Pulses 1	<b>(%)</b> 95.3	(%) N/A	Results N/A
	zer - Element Materials Techno 50 Ω AC		NSE:INT Trig Delay-1.000 m	ALIGN OFF	u Log Pur	04:42:54 AM Apr 27, 2017
		PNO: Fast ++- IFGain:Low	Trig: Video #Atten: 10 dB	is #Avg type	. Log-Fwi	TRACE 1 2 3 4 5 TYPE WWWWW DET P P P P P
Ref Offs	set 31.39 dB	- Guineon				Mkr1 8.636 ms
Log	).00 dBm		2			20.92 dBm
24.0 <b>19.0</b>	INTERNATION CONTRACTOR IN A DESCRIPTION OF	AND ANY				A DER VALLANDER DER VALLEN VERSCHALT
14.0						
9.00						
-1.00						
-6.00						TRIGLVL
-16.0						
Center 914.20000	00 MHz					Span 0 Hz
Res BW 3.0 MHz		#VBW	30 kHz			00.5 ms (8192 pts)
MKR MODE TRC SCL 1 N 1 t 2 N 1 t	× 8.636 m 50.51 m 52.56 m	y 20.92 d is 21.40 d is 15.78 d	FUNCTION Bm Bm	FUNCTION WIDTH	FUNCT	ION VALUE
3 N 1 t	52.56 m	is 15.78 d	Bm			
6 7						E
8						
10						
			111 111			•
MSG				STATUS		
MSG	Yagi Antenna, Port	B, 500 kHz Ban	dwidth, Spreadin		Channel 914.2 MF	Ηz
MSG	Yagi Antenna, Port		Number of	g Factor 7, Mid C Value	Limit	
MSG	Yagi Antenna, Port Pulse Width N/A	B, 500 kHz Ban <b>Period</b> N/A		g Factor 7, Mid C		Hz Results N/A
	Pulse Width N/A	Period N/A	Number of Pulses 5	g Factor 7, Mid C Value (%) N/A	Limit (%)	Results N/A
	Pulse Width N/A	Period N/A	Number of Pulses 5	g Factor 7, Mid C Value (%)	Limit (%) N/A	Results N/A
	Pulse Width N/A	Period N/A	Number of Pulses 5	g Factor 7, Mid C Value (%) N/A	Limit (%) N/A	Results N/A
Keysight Spectrum Analyz	Pulse Width N/A See - Element Materials Technol 50 Ω AC	Period N/A	Number of Pulses 5 NSE:INT	g Factor 7, Mid C Value (%) N/A	Limit (%) N/A	Results N/A
Keysight Spectrum Analyz RL RF	Pulse Width N/A	Period N/A	Number of Pulses 5 NSE:INT	g Factor 7, Mid C Value (%) N/A	Limit (%) N/A	Results N/A
Keysight Spectrum Analyz RL RF 5 dB/div Ref 29	Pulse Width N/A ser - Element Materials Technol 50 Ω AC set 31,39 dB .00 dBm	Period N/A	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	g Factor 7, Mid C Value (%) N/A ALIGN OFF	Limit (%) N/A	Results           N/A           04:43:05 AM Apr.27, 2017           TRACE         2.3.4           TYPE         WWWWDET           DET         P.P.P.P.P
Keysight Spectrum Analyz RL RF 5 dB/div Ref Offs Log	Pulse Width N/A ser - Element Materials Technol 50 Ω AC set 31,39 dB .00 dBm	Period N/A	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	g Factor 7, Mid C Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Results           N/A           04:43:05 AM Apr.27, 2017           TRACE         2.3.4           TYPE         WWWWDET           DET         P.P.P.P.P
Keysight Spectrum Analyz RL RF S dB/div Ref Offs 24.0 24.0 24.0 24.0	Pulse Width N/A ser - Element Materials Technol 50 Ω AC set 31,39 dB .00 dBm	Period N/A	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	g Factor 7, Mid C Value (%) N/A ALIGN OFF	Limit (%) N/A	Results           N/A           04:43:05 AM Apr.27, 2017           TRACE         2.3.4           TYPE         WWWWDET           DET         P.P.P.P.P
Keysight Spectrum Analyz RL RF 5 dB/div Ref 29	Pulse Width N/A ser - Element Materials Technol 50 Ω AC set 31,39 dB .00 dBm	Period N/A	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	g Factor 7, Mid C Value (%) N/A ALIGN OFF	Limit (%) N/A	Results N/A
Keysight Spectrum Analyz RL RF S dB/div Ref Offs C g 24.0 24.0 24.0 24.0	Pulse Width N/A ser - Element Materials Technol 50 Ω AC set 31,39 dB .00 dBm	Period N/A	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	g Factor 7, Mid C Value (%) N/A ALIGN OFF	Limit (%) N/A	Results N/A
Keysight Spectrum Analyz RL RF 5 dB/div Ref Offs 24.0 24.0 14.0	Pulse Width N/A ser - Element Materials Technol 50 Ω AC set 31,39 dB .00 dBm	Period N/A	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	g Factor 7, Mid C Value (%) N/A ALIGN OFF	Limit (%) N/A	Results N/A
Keysight Spectrum Analyz       Ref Offs       GdB/div     Ref Offs       24.0	Pulse Width N/A ser - Element Materials Technol 50 Ω AC set 31,39 dB .00 dBm	Period N/A	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	g Factor 7, Mid C Value (%) N/A ALIGN OFF	Limit (%) N/A	Results N/A
Keysight Spectrum Analyz       RL     RF       S dB/div     Ref Offs       24.0     Ref Offs       19.0     Ref Offs       14.0     Ref Offs       -1.00     Ref Offs	Pulse Width N/A ser - Element Materials Technol 50 Ω AC set 31,39 dB .00 dBm	Period N/A	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	g Factor 7, Mid C Value (%) N/A ALIGN OFF	Limit (%) N/A	Results N/A
Keysight Spectrum Analyz RL RF S dB/div Ref 29 Cog 24.0 14.0 9.00	Pulse Width N/A ser - Element Materials Technol 50 Ω AC set 31,39 dB .00 dBm	Period N/A	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	g Factor 7, Mid C Value (%) N/A ALIGN OFF	Limit (%) N/A	Results N/A
Keysight Spectrum Analyz       RL     RF       S dB/div     Ref Offs       24.0     Ref Offs       19.0     Ref Offs       14.0     Ref Offs       -1.00     Ref Offs	Pulse Width N/A ser - Element Materials Technol 50 Ω AC set 31,39 dB .00 dBm	Period N/A	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	g Factor 7, Mid C Value (%) N/A ALIGN OFF	Limit (%) N/A	Results           N/A           04:43:05 AM Apr27, 2017           TRACE         12 3 4 5           TYPE         TYPE           DET         P P P P
Keysight Spectrum Analyz           RL         RF           Gld/div         Ref Offs           24.0         Ref Offs           actual Workshow         Ref Offs           9.00         14.0           9.00         14.0           6.00         100	Pulse Width N/A ser - Element Materials Technol 50 Ω AC set 31,39 dB .00 dBm	Period N/A	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	g Factor 7, Mid C Value (%) N/A ALIGN OFF	Limit (%) N/A	Results           N/A           04:43:05 AM Apr27, 2017           TRACE         12 3 4 5           TYPE         TYPE           DET         P P P P
Reysight Spectrum Analyz           Ref Offs           CdB/div         Ref Offs           CdB/div         Ref Offs           24.0	Pulse Width N/A ser - Element Materials Technol 50 Ω AC set 31,39 dB .00 dBm	Period N/A	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	g Factor 7, Mid C Value (%) N/A ALIGN OFF	Limit (%) N/A	Results           N/A           04:43:05 AM Apr27, 2017           TRACE         12 3 4 5           TYPE         TYPE           DET         P P P P
Ceysight Spectrum Analyz RL RF B/div Ref Offs B/div Ref 29	Pulse Width N/A N/A Sec - Element Materials Technol 50 Ω AC Sec 31.39 dB Od dBm	Period N/A	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	g Factor 7, Mid C Value (%) N/A ALIGN OFF	Limit (%) N/A	Results           N/A           04:43:05 AM Apr27, 2017           TRACE         12 3 4 5           TYPE         TYPE           DET         P P P P



	Pulse Width	Period	Number of Pulses	Value	Limit (%)	Results
	41.903 ms	43.927 ms	1	<b>(%)</b> 95.4	(%) N/A	N/A
See a						
Keysight Spectrum Analyzer	r - Element Materials Techno 50 Ω AC		SENSE:INT	ALIGN OFF		04:53:58 AM Apr 27, 201
		PNO: Fast	Trig Delay-1.000 r Trig: Video #Atten: 10 dB	ns #Avg Type: I	Log-Pwr	TRACE 1 2 3 4 5 TYPE WWWWW DET P P P P P
		IFGain:Low	#Atten: 10 dB			Mkr1 15.73 m
5 dB/div Ref 28.0	et 31.39 dB 00 dBm					17.63 dBn
23.0 <b></b>			YANG MANANANA MANANA MANANA		Y MATTANA MATANA MA	ANNE ANN MANY ANY ANY ANY ANY ANY ANY ANY ANY ANY
18.0		il en level ever en	an a			
13.0				×2) <sup>3</sup>		
3.00						
-2.00						
-7.00						TRIG LV
-12.0						
Center 927.500000	Ball-					Onen 6 H
Res BW 3.0 MHz		#VB	W 30 kHz		Sweep	Span 0 H 100.5 ms (8192 pts
MKR MODE TRC SCL	X 45.73 m	Y	FUNCTION	FUNCTION WIDTH	FUN	CTION VALUE
2 N 1 t 3 N 1 t	<u>15.73 m</u> 57.63 m 59.65 m	s 17.65 s 5.66 s 7.55	dBm dBm dBm			
4						
6 7						
8						
9						
9 10 11						
10			m	STATUS		
10 11 MSG	∕agi Antenna, Port I	B, 500 kHz Ba	m andwidth, Spreadir		nannel 927.5 I	MHz
10 11 MSG			Number of	ng Factor 7, High Ch Value	Limit	
10 11 MSG	′agi Antenna, Port I Pulse Width N/A	B, 500 kHz Ba Period N/A		ig Factor 7, High Ch		MHz Results N/A
10 11 MSG Y	Pulse Width N/A	Period N/A	Number of Pulses	ig Factor 7, High Ch Value (%)	Limit (%)	Results N/A
10 11 MSG Y Keysight Spectrum Analyzer	Pulse Width N/A	Period N/A	Number of Pulses	ng Factor 7, High Ch Value (%) N/A	Limit (%) N/A	Results N/A
10 11 MSG Y Keysight Spectrum Analyzer	Pulse Width N/A - Element Materials Techno 50 Ω AC	PNO: Fast	Number of Pulses 6 SENSE:INT	ng Factor 7, High Ch Value (%) N/A	Limit (%) N/A	Results N/A
10 11 MSG Y Keysight Spectrum Analyzer X RL RF	Pulse Width N/A -Element Materials Techno 50  Q AC	Period N/A	Number of Pulses 6	ng Factor 7, High Ch Value (%) N/A	Limit (%) N/A	Results N/A 04:54:07 AM Apr 27, 201 TRACE 24 24 34
10 11 MSG Y Keysight Spectrum Analyzer X RL RF	Pulse Width N/A	PNO: Fast	Number of Pulses 6 SENSE:INT	ng Factor 7, High Ch Value (%) N/A	Limit (%) N/A	Results N/A 04:54:07 AM Apr 27, 201 TRACE 24 24 34
10 11 MSG WSG Y Keysight Spectrum Analyzer Keysight Spectrum Analyzer Ref Offse 5 dB/div Ref 28.0	Pulse Width N/A	PNO: Fast	Number of Pulses 6 SENSE:INT	ng Factor 7, High Ch Value (%) N/A	Limit (%) N/A	Results N/A 04:54:07 AM Apr 27, 201 TRACE 24 24 34
10 11 MSG WSG Y Keysight Spectrum Analyzer Keysight Spectrum Analyzer Ref Offse 5 dB/div Ref 28.0	Pulse Width N/A	PNO: Fast	Number of Pulses 6 sense:INT . Trig: Video #Atten: 10 dB	Ig Factor 7, High Ch Value (%) N/A N/A ALIGN OFF #Avg Type: I	Limit (%) N/A	Results           N/A           04:54:07 AM Apr 27, 201           TRACE           TRACE           DET           P           P
10 11 MSG WSG Keysight Spectrum Analyzer Keysight Spectrum Analyzer Ref Offse 5 dB/div Ref 28.0	Pulse Width N/A	PNO: Fast	Number of Pulses 6 sense:INT . Trig: Video #Atten: 10 dB	ng Factor 7, High Ch Value (%) N/A	Limit (%) N/A	Results           N/A           04:54:07 AM Apr 27, 201           TRACE           TRACE           DET           P           P
10 11 MSG MSG Y W Keysight Spectrum Analyzer X Ref Offse 5 dB/div Ref 28.0 23 0 Allulululululu analyzer 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Pulse Width N/A	PNO: Fast	Number of Pulses 6 sense:INT . Trig: Video #Atten: 10 dB	Ig Factor 7, High Ch Value (%) N/A N/A ALIGN OFF #Avg Type: I	Limit (%) N/A	Results           N/A           04:54:07 AM Apr 27, 201           TRACE           TRACE           DET           P           P
10       11       MSG       Y       Image: Spectrum Analyzer       <	Pulse Width N/A	PNO: Fast	Number of Pulses 6 sense:INT . Trig: Video #Atten: 10 dB	Ig Factor 7, High Ch Value (%) N/A N/A ALIGN OFF #Avg Type: I	Limit (%) N/A	Results           N/A           04:54:07 AM Apr 27, 201           TRACE           TRACE           DET           P           P
10 11 MSG MSG Y W Keysight Spectrum Analyzer X Ref Offse 5 dB/div Ref 28.0 23 0 Allulululululu analyzer 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Pulse Width N/A	PNO: Fast	Number of Pulses 6 sense:INT . Trig: Video #Atten: 10 dB	Ig Factor 7, High Ch Value (%) N/A N/A ALIGN OFF #Avg Type: I	Limit (%) N/A	Results           N/A           04:54:07 AM Apr 27, 201           TRACE           TRACE           DET           P           P
10 11 11 MSG MSG W RL Ref Offse 5 dB/div Ref 28.0 23 0 13 0 13 0	Pulse Width N/A	PNO: Fast	Number of Pulses 6 sense:INT . Trig: Video #Atten: 10 dB	Ig Factor 7, High Ch Value (%) N/A N/A ALIGN OFF #Avg Type: I	Limit (%) N/A	Results           N/A           04:54:07 AM Apr 27, 201           TRACE           TRACE           DET           P           P
10         Image: Constraint of the sector of the sect	Pulse Width N/A	PNO: Fast	Number of Pulses 6 sense:INT . Trig: Video #Atten: 10 dB	Ig Factor 7, High Ch Value (%) N/A N/A ALIGN OFF #Avg Type: I	Limit (%) N/A	Results           N/A           04:54:07 AM Apr 27, 201           TRACE           TRACE           DET           P           P
10         11           MSG         Y           MSG         Y           Image: Spectrum Analyzer         Y           Image:	Pulse Width N/A	PNO: Fast	Number of Pulses 6 sense:INT . Trig: Video #Atten: 10 dB	Ig Factor 7, High Ch Value (%) N/A N/A ALIGN OFF #Avg Type: I	Limit (%) N/A	Results           N/A           04:54:07 AM Apr 27, 201           TRACE           TRACE           DET           P           P
10         Image: Constraint of the sector of the sect	Pulse Width N/A	PNO: Fast	Number of Pulses 6 sense:INT . Trig: Video #Atten: 10 dB	Ig Factor 7, High Ch Value (%) N/A N/A ALIGN OFF #Avg Type: I	Limit (%) N/A	Results           N/A           04:54:07 AM Apr 27, 201           TRACE           DET           PPPPP
10	Pulse Width N/A	PNO: Fast	Number of Pulses 6 sense:INT . Trig: Video #Atten: 10 dB	Ig Factor 7, High Ch Value (%) N/A N/A ALIGN OFF #Avg Type: I	Limit (%) N/A	Results           N/A           04:54:07 AM Apr 27, 201           TRACE           TRACE           DET           P           P
10 11 MSG MSG X Keysight Spectrum Analyzer Keysight Spectrum Analyzer Ref Offse 5 dB/div Ref 28.0 23 0 Allulululululut, to, eq 1441 18 0 3.00 -2.00	Pulse Width N/A	PNO: Fast	Number of Pulses 6 sense:INT . Trig: Video #Atten: 10 dB	Ig Factor 7, High Ch Value (%) N/A N/A ALIGN OFF #Avg Type: I	Limit (%) N/A	Results           N/A           04:54:07 AM Apr 27, 201           TRACE           DET           PPPPP
10	Pulse Width N/A	PNO: Fast	Number of Pulses 6 sense:INT . Trig: Video #Atten: 10 dB	Ig Factor 7, High Ch Value (%) N/A N/A ALIGN OFF #Avg Type: I	Limit (%) N/A	Results           N/A           04:54:07 AM Apr 27, 201           TRACE           DET           PPPPP
10         Image: Constraint of the sector of the sect	Pulse Width N/A  - Element Materials Techno 50 Ω AC  - S0 Ω AC  - S0 Ω AC  - S0 Ω AC	PNO: Fast	Number of Pulses 6 sense:INT . Trig: Video #Atten: 10 dB	Ig Factor 7, High Ch Value (%) N/A N/A ALIGN OFF #Avg Type: I	Limit (%) N/A	Results           N/A           04:54:07 AM Apr 27, 201           TRACE           DET           PPPPP



TbtTx 2017.01.27 XMit 2017.02.08

	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	42.025 ms	44.049 ms	1	95.4	N/A	N/A
📕 Keysight Spectrum Analyze		blogy				
LX/RL RF	50 Ω AC		Trig Delay-1.000	ALIGN OFF	be: Log-Pwr	09:31:02 AM Apr 26, 2017 TRACE 1 2 3 4 5 6
		PNO: Fast +++ IFGain:Low	Trig: Video #Atten: 10 dB			TYPE WWWWWW DET PPPPP
Ref Offs 5 dB/div Ref 31.	et 31.39 dB . <b>39 dBm</b>					Mkr1 16.31 ms 22.17 dBm
26.4	מהראותואיירווותואייני 1				การความสาวารราก เกษาการความหาก	
21.4	-  <b>*</b>			¥		
16.4						
6.39				\$ <sup>2</sup>		
-3.61						
-8.61						
-13.6						
Center 903.00000 Res BW 3.0 MHz	0 MHz	#VBW	/ 30 kHz		Sweep	Span 0 Hz 100.5 ms (8192 pts)
MKR MODE TRC SCL	X	Y	FUNCTION	FUNCTION WIDTH		TION VALUE
2 N 1 t 3 N 1 t	16.31 m 58.34 m 60.36 m	ns 22.17 d ns 6.27 d ns 22.74 d	Bm Bm			
4 5 6						E
7 8						
9 10 11						
			III.	STATUS		~
10 11 MSG						•
10 11 MSG	Dipole Antenna, Po		Number of	ding Factor 7, Lo Value	Limit	
10 11 MSG	Dipole Antenna, Po Pulse Width N/A	ort A, 500 kHz Ba Period N/A		ding Factor 7, Lo		Hz Results N/A
10 11 MSG	Pulse Width	Period N/A	Number of Pulses	ding Factor 7, Lc Value (%)	Limit (%)	Results N/A
MSG Keysight Spectrum Analyze	Pulse Width	Period N/A	Number of Pulses	ding Factor 7, Lc Value (%) N/A	Limit (%) N/A	Results           N/A           09:31:16 AM Apr 26, 2017           TRACE
MSG Keysight Spectrum Analyze	Pulse Width           N/A           r - Element Materials Techno           50 Ω         AC	Period N/A	Number of Pulses 5	ding Factor 7, Lc Value (%) N/A	Limit (%)	Results N/A
10       11       MSG         MSG         Keysight Spectrum Analyze       X     RL         Ref Offs	Pulse Width N/A r - Element Materials Techno 50 Ω AC	Period N/A	Number of Pulses 5 NSE:INT Trig: Video	ding Factor 7, Lc Value (%) N/A	Limit (%) N/A	Results N/A
MSG MSG Keysight Spectrum Analyze MSG Keysight Spectrum Analyze Ref 31.	Pulse Width N/A r - Element Materials Techno 50 Q AC st 31.39 dB 39 dBm	PNO: Fast	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	ding Factor 7, Lc Value (%) N/A N/A	Limit (%) N/A	Results           N/A           09:31:16 AM Apr 26, 2017           TRACE           2345 G           TYPE           DET           PPPPP
10       11       MSG         MSG         Keysight Spectrum Analyze       X     RL         Ref Offs	Pulse Width N/A r - Element Materials Techno 50 Q AC st 31.39 dB 39 dBm	Period N/A	Number of Pulses 5 NSE:INT Trig: Video	ding Factor 7, Lc Value (%) N/A N/A	Limit (%) N/A	Results           N/A           09:31:16 AM Apr 26, 2017           TRACE           2345 G           TYPE           DET           PPPPP
MSG Keysight Spectrum Analyze Keysight Spectrum Analyz	Pulse Width N/A r - Element Materials Techno 50 Q AC st 31.39 dB 39 dBm	PNO: Fast	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	ding Factor 7, Lc Value (%) N/A N/A	Limit (%) N/A	Results           N/A           09:31:16 AM Apr 26, 2017           TRACE           2345 G           TYPE           DET           PPPPP
10 11 MSG MSG MSG MSG MSG MSG MSG MSG	Pulse Width N/A r - Element Materials Techno 50 Q AC st 31.39 dB 39 dBm	PNO: Fast	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	ding Factor 7, Lc Value (%) N/A N/A	Limit (%) N/A	Results           N/A           09:31:16 AM Apr 26, 2017           TRACE           2345 G           TYPE           DET           PPPPP
10       11       MSG         Ref Offset         SdB/div         Ref Offset         26.4         26.4         16.4	Pulse Width N/A r - Element Materials Techno 50 Q AC st 31.39 dB 39 dBm	PNO: Fast	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	ding Factor 7, Lc Value (%) N/A N/A	Limit (%) N/A	Results           N/A           09:31:16 AM Apr 26, 2017           TRACE           2345 G           TYPE           DET           PPPPP
10 11 MSG MSG MSG MSG MSG MSG MSG MSG	Pulse Width N/A r - Element Materials Techno 50 Q AC st 31.39 dB 39 dBm	PNO: Fast	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	ding Factor 7, Lc Value (%) N/A N/A	Limit (%) N/A	Results           N/A           09:31:16 AM Apr 26, 2017           TRACE           2345 G           TYPE           DET           PPPPP
10       11       MSG         Ref Offset         SdB/div         Ref Offset         26.4         26.4         16.4	Pulse Width N/A r - Element Materials Techno 50 Q AC st 31.39 dB 39 dBm	PNO: Fast	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	ding Factor 7, Lc Value (%) N/A N/A	Limit (%) N/A	Results           N/A           09:31:16 AM Apr 26, 2017           TRACE           2345 G           TYPE           DET           PPPPP
10 11 MSG MSG MSG MSG MSG MSG MSG MSG	Pulse Width N/A r - Element Materials Techno 50 Q AC st 31.39 dB 39 dBm	PNO: Fast	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	ding Factor 7, Lc Value (%) N/A N/A	Limit (%) N/A	Results           N/A           09:31:16 AM Apr 26, 2017           TRACE           2345 G           TYPE           DET           PPPPP
Initial         Initial <thinitial< th=""> <th< td=""><td>Pulse Width N/A r - Element Materials Techno 50 Q AC st 31.39 dB 39 dBm</td><td>PNO: Fast</td><td>Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB</td><td>ding Factor 7, Lc Value (%) N/A N/A</td><td>Limit (%) N/A</td><td>Results           N/A           09:31:16 AM Apr 26, 2017           TRACE           2345 G           TYPE           DET           PPPPP</td></th<></thinitial<>	Pulse Width N/A r - Element Materials Techno 50 Q AC st 31.39 dB 39 dBm	PNO: Fast	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	ding Factor 7, Lc Value (%) N/A N/A	Limit (%) N/A	Results           N/A           09:31:16 AM Apr 26, 2017           TRACE           2345 G           TYPE           DET           PPPPP
10         11           MSG         MSG	Pulse Width N/A r - Element Materials Techno 50 Q AC st 31.39 dB 39 dBm	PNO: Fast	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	ding Factor 7, Lc Value (%) N/A N/A	Limit (%) N/A	Results N/A 09:31:16 AM Apr26, 2017 TRACE (2:34 5 6 TYPE (2:34 5 6 DET (2:34 5 6 DET (2:34 5 6) DET (2:34 5 6)
Image: Section of the sectio	Pulse Width N/A r - Element Materials Techno 50 Q AC st 31.39 dB 39 dBm	PNO: Fast	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	ding Factor 7, Lc Value (%) N/A N/A	Limit (%) N/A	Results N/A 09:31:16 AM Apr26, 2017 TRACE (2:34 5 6 TYPE (2:34 5 6 DET (
Image: Section of the sectio	Pulse Width N/A r - Element Materials Techno 50 Q AC st 31.39 dB 39 dBm	PNO: Fast	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	ding Factor 7, Lc Value (%) N/A N/A	Limit (%) N/A	Results N/A 09:31:16 AM Apr26, 2017 TRACE (2:34 5 6 TYPE (2:34 5 6 DET (
Initial Initiali Initiali Initial Initial Initial Initial Initial Initial Initi	Pulse Width N/A  r - Element Materials Techno 50 Ω AC  st 31.39 dB 39 dB 39 dB 39 dB 39 dB 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	PNO: Fast	Number of Pulses 5 NSE:INT Trig: Video #Atten: 10 dB	ding Factor 7, Lc Value (%) N/A N/A	Limit (%) N/A	Results N/A 09:31:16 AM Apr26, 2017 TRACE (2:34 5 6 TYPE (2:34 5 6 DET (

STATUS



TbtTx 2017.01.27 XMit 2017.02.08

	Dipole Antenna, Po	rt A, 500 kHz Ba				Ηz	
	Dules Mister	Deriad	Number of	Value	Limit	Booults	
	Pulse Width 42.025 ms	Period 44.049 ms	Pulses 1	(%) 95.4	(%) N/A	Results N/A	
	.2.020 1110		· · ·	00.1			
Keysight Spectrum A	nalyzer - Element Materials Technology 50 Ω AC		ENSE:INT	ALIGN OFF		09:53:32 AM Apr 26, 2017	
KL RF	50 52 AC		Trig Delay-1.000 ms Trig: Video		: Log-Pwr	TRACE 1 2 3 4 5	<mark>6</mark>
		PNO: Fast +++ IFGain:Low	#Atten: 10 dB			DET PPPP	
Ref	Offset 31.39 dB					Mkr1 32.78 ms	
5 dB/div Ref	31.39 dBm	1			∆3	25.38 dBm	
26.4	n se fall de frederie i fallen i fallen i de la de se de francés de la destruction de la destruction de la dest		ANNOUS IN THE REAL PROPERTY OF THE REAL PROPERTY OF THE				
21.4							
16.4							
6.39					2		
1.39					+¥		
-3.61						TRIG LVL	
-8.61							
-13.6							
Center 914.20		40 ( <b>5</b> )				Span 0 Hz	
Res BW 3.0 MI		#VBV	V 30 kHz		-	00.5 ms (8192 pts	4
MKR MODE TRC SCL	× 32.78 n	ns 25.38 c	FUNCTION	FUNCTION WIDTH	FUNCTION	ON VALUE	
2 N 1 t 3 N 1 t	32.78 n 74.80 n 76.83 n	ns 25.38 d ns 3.59 d ns 25.64 d	dBm dBm				
4 5							
6							
8							
8 9 9 10 9 11 9							
8 9 10			m	STATUS			
8 9 10 11 •							
8 9 10 11 •	Dipole Antenna, Po	rt A, 500 kHz Ba	andwidth, Spreading	g Factor 7, Mid		Hz	
8 9 10 11 •	Dipole Antenna, Po Pulse Width	rt A, 500 kHz Ba Period			Channel 914.2 M Limit (%)	Hz Results	
8 9 10 11 11			andwidth, Spreadin Number of	g Factor 7, Mid Value	Limit		
8 9 10 11 11 *	Pulse Width	Period N/A	andwidth, Spreading Number of Pulses	g Factor 7, Mid Value (%)	Limit (%)	Results N/A	
8 9 10 11 11 *	Pulse Width N/A	Period N/A	andwidth, Spreading Number of Pulses	) Factor 7, Mid Value (%) N/A	Limit (%) N/A	Results N/A	695
8 9 10 11 11 11 11 11 11 11 11 11 11 11 11	Pulse Width N/A	Period N/A	andwidth, Spreading Number of Pulses 6 ENSE:INT	g Factor 7, Mid Value (%) N/A	Limit (%) N/A	Results N/A 09:53:52 AM Apr 26, 2017 TRACE 1234 5 TYPE	6 ¥
8 9 10 11 11 11 11 11 11 11 11 11 11 11 11	Pulse Width N/A analyzer - Element Materials Techni 50 Ω AC	Period N/A	andwidth, Spreading Number of Pulses 6	) Factor 7, Mid Value (%) N/A	Limit (%) N/A	Results N/A	6 ¥
8 9 10 11 10 11 10 11 10 10 11 10 10 10 10	Pulse Width N/A Inalyzer - Element Materials Techno 50 Q AC	Period N/A	andwidth, Spreading Number of Pulses 6 ENSE:INT	) Factor 7, Mid Value (%) N/A	Limit (%) N/A	Results N/A 09:53:52 AM Apr 26, 2017 TRACE 1234 5 TYPE	6 ¥
8 9 9 10 11 10 11 10 11 10 10 11 10 10 11 10 10	Pulse Width N/A analyzer - Element Materials Techni 50 Ω AC	Period N/A	andwidth, Spreading Number of Pulses 6 ENSE:INT	) Factor 7, Mid Value (%) N/A	Limit (%) N/A	Results N/A 09:53:52 AM Apr 26, 2017 TRACE 1234 5 TYPE	<mark>6</mark> ¥
8 9 10 11 10 11 10 11 10 10 11 10 10 10 10	Pulse Width N/A Inalyzer - Element Materials Techno 50 Q AC	Period N/A	andwidth, Spreading Number of Pulses 6 ENSE:INT	) Factor 7, Mid Value (%) N/A	Limit (%) N/A	Results N/A 09:53:52 AM Apr 26, 2017 TRACE 1234 5 TYPE	6 ¥
Keysight Spectrum A     Keysight Spectrum A     RL RF	Pulse Width N/A Inalyzer - Element Materials Techno 50 Q AC	Period N/A	andwidth, Spreading Number of Pulses 6 ENSE:INT	) Factor 7, Mid Value (%) N/A	Limit (%) N/A	Results N/A 09:53:52 AM Apr 26, 2017 TRACE 1234 5 TYPE	<mark>6</mark> ¥
Keysight Spectrum A     Keysight Spectrum A     RL RF	Pulse Width N/A Inalyzer - Element Materials Techno 50 Q AC	Period N/A	andwidth, Spreading Number of Pulses 6 ENSE:INT	) Factor 7, Mid Value (%) N/A	Limit (%) N/A	Results N/A 09:53:52 AM Apr 26, 2017 TRACE 1234 5 TYPE	6 ¥
Keysight Spectrum A MSG X RL RF S dB/div Ref 26.4 21.4	Pulse Width N/A Inalyzer - Element Materials Techno 50 Q AC	Period N/A	andwidth, Spreading Number of Pulses 6 ENSE:INT	) Factor 7, Mid Value (%) N/A	Limit (%) N/A	Results N/A 09:53:52 AM Apr 26, 2017 TRACE 1234 5 TYPE	6 ¥
8 9 10 11 MSG MSG MSG MSG MSG MSG MSG MSG MSG MSG	Pulse Width N/A Inalyzer - Element Materials Techno 50 Q AC	Period N/A	andwidth, Spreading Number of Pulses 6 ENSE:INT	) Factor 7, Mid Value (%) N/A	Limit (%) N/A	Results N/A 09:53:52 AM Apr 26, 2017 TRACE 1234 5 TYPE	<mark>6</mark> ¥
Keysight Spectrum A MSG X RL RF S dB/div Ref 26.4 21.4	Pulse Width N/A Inalyzer - Element Materials Techno 50 Q AC	Period N/A	andwidth, Spreading Number of Pulses 6 ENSE:INT	) Factor 7, Mid Value (%) N/A	Limit (%) N/A	Results N/A 09:53:52 AM Apr 26, 2017 TRACE 1234 5 TYPE	6 ¥
8         9         10           10         11         11           MSG         11         11	Pulse Width N/A Inalyzer - Element Materials Techno 50 Q AC	Period N/A	andwidth, Spreading Number of Pulses 6 ENSE:INT	) Factor 7, Mid Value (%) N/A	Limit (%) N/A	Results N/A 09:53:52 AM Apr 26, 2017 TRACE 1234 5 TYPE	6 ¥
8         9         10           10         11         11           MSG         11         11	Pulse Width N/A Inalyzer - Element Materials Techno 50 Q AC	Period N/A	andwidth, Spreading Number of Pulses 6 ENSE:INT	) Factor 7, Mid Value (%) N/A	Limit (%) N/A	Results N/A 09:53:52 AM Apr 26, 2017 TRACE 1234 5 TYPE	6 ¥
8         9         10           10         11         11           MSG         11         11	Pulse Width N/A Inalyzer - Element Materials Techno 50 Q AC	Period N/A	andwidth, Spreading Number of Pulses 6 ENSE:INT	) Factor 7, Mid Value (%) N/A	Limit (%) N/A	Results N/A 09:53:52 AM Apr 26, 2017 TRACE 1234 5 TYPE	6 ¥
8         9         9           11         1         1           MSG         11         1           MSG         11         1           MSG         11         1           MSG         1         1	Pulse Width N/A Inalyzer - Element Materials Techno 50 Q AC	Period N/A	andwidth, Spreading Number of Pulses 6 ENSE:INT	) Factor 7, Mid Value (%) N/A	Limit (%) N/A	Results N/A 09:53:52 AM Apr 26, 2017 TRACE 1234 5 TYPE	<mark>6</mark> ¥-

#VBW 30 kHz

STATUS

Center 914.200000 MHz Res BW 3.0 MHz Span 0 Hz Sweep 198.8 ms (8192 pts)



TbtTx 2017.01.27 XMit 2017.02.08

	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	42.013 ms	44.049 ms	1	95.4	(76) N/A	N/A
Kevsight Spectrum Analyz	zer - Element Materials Techno	loav				
	50 Ω AC		ISE:INT Trig Delay-1.000 m	ALIGN OFF	Log-Pwr	10:05:37 AM Apr 26, 2017 TRACE 1 2 3 4 5 6
		PNO: Fast +++ IFGain:Low	Trig: Video #Atten: 10 dB			DET PPPPP
Ref Offs	set 31.39 dB					Mkr1 24.13 ms
Log	1.39 dBm			2_ 3		22.24 dBm
26.4 21.4		ta kopila, da nikologi birda balata inda bağı piladalı	an allanda bi ale in Ulian Cashill Arail I. U		alla la ga la facilita de la casa	
16.4						
11.4						
6.39						
-3.61						TRIG LVL
-8.61						
-13.6						
Center 927.50000 Res BW 3.0 MHz	JU WIRZ	#VBW	30 kHz		Sweep	Span 0 Hz 100.5 ms (8192 pts)
MKR MODE TRC SCL	× 24.13 m	y s 22.24 dE		FUNCTION WIDTH	FUN	CTION VALUE
2 N 1 t 3 N 1 t	66.14 m 68.18 m	s 24.05 dE	3m			
4 5 6						E
7 8						
9						
11			m			•
			II	STATUS		~
MSG	Dipole Antenna, Port	: A, 500 kHz Ban	dwidth, Spreadin	g Factor 7, High (		• MHz
MSG	Pulse Width	Period	dwidth, Spreadin Number of Pulses	g Factor 7, High ( Value (%)	Limit (%)	Results
MSG			dwidth, Spreadin Number of	g Factor 7, High ( Value	Limit	
11 MSG   Keysight Spectrum Analyz	Pulse Width N/A	Period N/A	dwidth, Spreadin Number of <u>Pulses</u> 6	g Factor 7, High ( Value (%) N/A	Limit (%)	Results N/A
11 MSG   Keysight Spectrum Analyz	Pulse Width N/A Zer - Element Materials Techno 50 Ω AC	Period N/A	dwidth, Spreadin Number of Pulses 6 KE:INT	g Factor 7, High ( Value (%)	Limit (%) N/A	Results N/A
11       Keysight Spectrum Analyz       Keysight Spectrum Relay	Pulse Width N/A Zer - Element Materials Techno 50 Ω AC	Period N/A	dwidth, Spreadin Number of Pulses 6	g Factor 7, High ( Value (%) N/A	Limit (%) N/A	Results N/A
11       MSG       Image: Sector of the	Pulse Width N/A Zer - Element Materials Techno 50 Ω AC	Period N/A	dwidth, Spreadin Number of Pulses 6 KE:INT	g Factor 7, High ( Value (%) N/A	Limit (%) N/A	Results N/A
11       MSG       Image: Section of the section o	Pulse Width N/A zer - Element Materials Techno 50 Q AC set 31,39 dB .39 dBm	Period N/A	dwidth, Spreadin Number of Pulses 6 ise:INT Trig: Video #Atten: 10 dB	g Factor 7, High ( Value (%) N/A	Limit (%) N/A Log-Pwr	Results N/A 10:05:47 AM Apr 26, 2017 TRACE   2:3:45 6 TYPE WAY
11       MsG       Image: Spectrum Analyz	Pulse Width N/A 2er - Element Materials Techno 50 Ω AC	Period N/A	dwidth, Spreadin Number of Pulses 6 ise:INT Trig: Video #Atten: 10 dB	g Factor 7, High ( Value (%) N/A	Limit (%) N/A Log-Pwr	Results N/A
11       MSG       Image: Section of the section o	Pulse Width N/A zer - Element Materials Techno 50 Q AC set 31,39 dB .39 dBm	Period N/A	dwidth, Spreadin Number of Pulses 6 ise:INT Trig: Video #Atten: 10 dB	g Factor 7, High ( Value (%) N/A	Limit (%) N/A Log-Pwr	Results N/A 10:05:47 AM Apr 26, 2017 TRACE   2:3:45 6 TYPE WAY
11       MSG       Image: Section of the section o	Pulse Width N/A zer - Element Materials Techno 50 Q AC set 31,39 dB .39 dBm	Period N/A	dwidth, Spreadin Number of Pulses 6 ise:INT Trig: Video #Atten: 10 dB	g Factor 7, High ( Value (%) N/A	Limit (%) N/A Log-Pwr	Results N/A 10:05:47 AM Apr 26, 2017 TRACE   2:3:45 6 TYPE WAY
11       MSG       Image: Sector of the	Pulse Width N/A zer - Element Materials Techno 50 Q AC set 31,39 dB .39 dBm	Period N/A	dwidth, Spreadin Number of Pulses 6 ise:INT Trig: Video #Atten: 10 dB	g Factor 7, High ( Value (%) N/A	Limit (%) N/A Log-Pwr	Results N/A 10:05:47 AM Apr 26, 2017 TRACE   2:3:45 6 TYPE WAY
11       MsG       Image: Section of the section o	Pulse Width N/A zer - Element Materials Techno 50 Ω AC set 31,39 dB .39 dBm	Period N/A	dwidth, Spreadin Number of Pulses 6 ise:INT Trig: Video #Atten: 10 dB	g Factor 7, High ( Value (%) N/A	Limit (%) N/A Log-Pwr	Results N/A 10:05:47 AM Apr 26, 2017 TRACE   2:3:45 6 TYPE WAY
11       MSG       Image: Sector of the	Pulse Width N/A zer - Element Materials Techno 50 Ω AC set 31,39 dB .39 dBm	Period N/A	dwidth, Spreadin Number of Pulses 6 ise:INT Trig: Video #Atten: 10 dB	g Factor 7, High ( Value (%) N/A	Limit (%) N/A Log-Pwr	Results N/A 10:05:47 AM Apr 26, 2017 TRACE   2:3:45 6 TYPE WAY
11       Msc       Image: Sector of the	Pulse Width N/A zer - Element Materials Techno 50 Ω AC set 31,39 dB .39 dBm	Period N/A	dwidth, Spreadin Number of Pulses 6 ise:INT Trig: Video #Atten: 10 dB	g Factor 7, High ( Value (%) N/A	Limit (%) N/A Log-Pwr	Results N/A 10:05:47 AM Apr 26, 2017 TRACE   2:3:45 6 TYPE WAY
11	Pulse Width N/A zer - Element Materials Techno 50 Ω AC set 31,39 dB .39 dBm	Period N/A	dwidth, Spreadin Number of Pulses 6 ise:INT Trig: Video #Atten: 10 dB	g Factor 7, High ( Value (%) N/A	Limit (%) N/A Log-Pwr	Results           N/A           10:05:47 AM Apr 26, 2017           TRACE           DET           PP PP P           DET           PACKAW/SWICZ (SUCK W)
11	Pulse Width N/A zer - Element Materials Techno 50 Ω AC set 31,39 dB .39 dBm	Period N/A	dwidth, Spreadin Number of Pulses 6 ise:INT Trig: Video #Atten: 10 dB	g Factor 7, High ( Value (%) N/A	Limit (%) N/A Log-Pwr	Results N/A 10:05:47 AM Apr 26, 2017 TRACE   2:3:45 6 TYPE WAY
11	Pulse Width N/A zer - Element Materials Techno 50 Ω AC set 31,39 dB .39 dBm	Period N/A	dwidth, Spreadin Number of Pulses 6 ise:INT Trig: Video #Atten: 10 dB	g Factor 7, High ( Value (%) N/A	Limit (%) N/A Log-Pwr	Results           N/A           10:05:47 AM Apr 26, 2017           TRACE           DET           PP PP P           DET           PACKAW/SWICZ (SUCK W)
11	Pulse Width N/A zer - Element Materials Techno 50 Ω AC set 31,39 dB .39 dBm	Period N/A	dwidth, Spreadin Number of Pulses 6 ise:INT Trig: Video #Atten: 10 dB	g Factor 7, High ( Value (%) N/A	Limit (%) N/A Log-Pwr	Results           N/A           10:05:47 AM Apr 26, 2017           TRACE           DET           PP PP P           DET           PACKAW/SWICZ (SUCK W)
11         Image: Construct of the second secon	Pulse Width N/A zer - Element Materials Techno 50 Ω AC set 31,39 dB .39 dBm	Period N/A	dwidth, Spreadin Number of Pulses 6 ise:INT Trig: Video #Atten: 10 dB	g Factor 7, High ( Value (%) N/A	Limit (%) N/A Log-Pwr	Results           N/A           10:05:47 AM Apr 26, 2017           TRACE           DET           PP PP P           DET           PACKAW/SWICZ (SUCK W)

STATUS

MSG



TbtTx 2017.01.27 XMit 2017.02.08

	Dia	ala Antonna Da		Bandwidth, Spreadir		Channel 000 MI	1-	
	Dip	pole Antenna, Po	rt B, 500 KHZ	Number of	ig Factor 7, Low Value	Limit	12	
	<u> </u>	Pulse Width	Period	Pulses	(%)	(%)	Results	
		42.025 ms	44.049 ms	1	95.4	N/A	N/A	
🎉 Keysight Spectr	rum Analyzer - E	Element Materials Techno	logy					×
LXI RL		Ω AC		SENSE:INT Trig Delay-1.000 ms	ALIGN OFF #Avg Type	: Log-Pwr	02:54:01 AM Apr 27, 201	7
			PNO: Fast ++-				TRACE 1 2 3 4 5 TYPE WWWW DET P P P P	P
	Ref Offset 3	31.39 dB	II Guill.Cow				Mkr1 26.78 m	s
Log	Ref 31.39	dBm					22.61 dBr	
26.4						<b>∆</b> <sup>3</sup>		
21.4 16.4								
11.4						2		
6.39					Y			
1.39								
-3.61							TRIG LA	
-8.61								
Center 903 Res BW 3.0		VIHz	#\/B	W 30 kHz		Sween_1	Span 0 H 00.5 ms (8192 pts	
MKR MODE TRC		X	жур Т		FUNCTION WIDTH	-		-
1 N 1	t l	26.78 m	s 22.61	dBm dBm				
2 N 1 3 N 1 4	t	68.80 m 70.83 m	is 21.32	dBm				
5 6								E
7 8								
9 10								
								*
11 ·				m			•	
				m	STATUS		ŀ	
•	Dip	pole Antenna, Po	rt B, 500 kHz	" Bandwidth, Spreadir		Channel 903 Mł		
•	Dip			Number of	ng Factor 7, Low Value	Limit	łz	
•	Dip	pole Antenna, Po Pulse Width N/A	rt B, 500 kHz Period N/A		ng Factor 7, Low			
MSG		Pulse Width N/A	Period N/A	Number of Pulses	ng Factor 7, Low Value (%)	Limit (%)	łz Results	
MSG	rum Analyzer - E	Pulse Width	Period N/A	Number of Pulses	ng Factor 7, Low Value (%)	Limit (%)	Iz Results N/A	7
Keysight Spectr	rum Analyzer - E	Pulse Width N/A	Period N/A	Number of Pulses 6	ng Factor 7, Low Value (%) N/A	Limit (%) N/A	Iz Results N/A 02:54:12 AM Apr 27, 201 TRACE 0.23 44 TYPE	7 6
Keysight Spectr	rum Analyzer - E	Pulse Width N/A  Element Materials Technol Ω AC	Period N/A	Number of Pulses 6	Ing Factor 7, Low Value (%) N/A	Limit (%) N/A	Iz Results N/A	7 6
Keysight Spectr	rum Analyzer - E	Pulse Width N/A	Period N/A	Number of Pulses 6	Ing Factor 7, Low Value (%) N/A	Limit (%) N/A	Iz Results N/A 02:54:12 AM Apr 27, 201 TRACE 0.23 44 TYPE	7 6
Keysight Spectr	rum Analyzer - E RF 50 Ref Offset 3	Pulse Width N/A	Period N/A	Number of Pulses 6	Ing Factor 7, Low Value (%) N/A	Limit (%) N/A	Iz Results N/A 02:54:12 AM Apr 27, 201 TRACE 0.23 44 TYPE	7 6
Keysight Spectr	rum Analyzer - E RF 50 Ref Offset 3 Ref 31.39	Pulse Width N/A	Period N/A	Number of Pulses 6	Ing Factor 7, Low Value (%) N/A	Limit (%) N/A	Iz Results N/A 02:54:12 AM Apr 27, 201 TRACE 0.23 44 TYPE	7 6
Keysight Spectr S dB/div S dB/div 26 4	rum Analyzer - E RF 50 Ref Offset 3 Ref 31.39	Pulse Width N/A	Period N/A logy PNO: Fast IFGain:Low	Number of Pulses 6 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Iz Results N/A 02:54:12 AM Apr 27, 201 TRACE 0.23 45 TYPE DET PPPP	7 6
Keysight Spectr	rum Analyzer - E RF 50 Ref Offset 3 Ref 31.39	Pulse Width N/A	Period N/A logy PNO: Fast IFGain:Low	Number of Pulses 6 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Iz Results N/A 02:54:12 AM Apr 27, 201 TRACE 0.23 45 TYPE DET PPPP	7 6 W/
Keysight Spectr S dB/div S dB/div 26 4	rum Analyzer - E RF 50 Ref Offset 3 Ref 31.39	Pulse Width N/A	Period N/A logy PNO: Fast IFGain:Low	Number of Pulses 6 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Iz Results N/A 02:54:12 AM Apr 27, 201 TRACE 0.23 45 TYPE DET PPPP	7 6
Keysight Spectr	rum Analyzer - E RF 50 Ref Offset 3 Ref 31.39	Pulse Width N/A	Period N/A logy PNO: Fast IFGain:Low	Number of Pulses 6 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Iz Results N/A 02:54:12 AM Apr 27, 201 TRACE 0.23 45 TYPE DET PPPP	7 6 W/
S dB/div	rum Analyzer - E RF 50 Ref Offset 3 Ref 31.39	Pulse Width N/A	Period N/A logy PNO: Fast IFGain:Low	Number of Pulses 6 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Iz Results N/A 02:54:12 AM Apr 27, 201 TRACE 0.23 45 TYPE DET PPPP	7 6
Keysight Spectr           5 dB/div           26 4           26 4           16 4           11 4	rum Analyzer - E RF 50 Ref Offset 3 Ref 31.39	Pulse Width N/A	Period N/A logy PNO: Fast IFGain:Low	Number of Pulses 6 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Iz Results N/A 02:54:12 AM Apr 27, 201 TRACE 0.23 45 TYPE DET PPPP	7 6
Keysight Spectr	rum Analyzer - E RF 50 Ref Offset 3 Ref 31.39	Pulse Width N/A	Period N/A logy PNO: Fast IFGain:Low	Number of Pulses 6 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Iz Results N/A 02:54:12 AM Apr 27, 201 TRACE 0.23 45 TYPE DET PPPP	7 6
Keysight Spectr           5 dB/div           26 4           26 4           16 4           11 4	rum Analyzer - E RF 50 Ref Offset 3 Ref 31.39	Pulse Width N/A	Period N/A logy PNO: Fast IFGain:Low	Number of Pulses 6 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Iz Results N/A 02:54:12 AM Apr 27, 201 TRACE 0.23 45 TYPE DET PPPP	7 6
<ul> <li>✓ Exercise A sector of the sec</li></ul>	rum Analyzer - E RF 50 Ref Offset 3 Ref 31.39	Pulse Width N/A	Period N/A logy PNO: Fast IFGain:Low	Number of Pulses 6 SENSE:INT . Trig: Video #Atten: 10 dB	ng Factor 7, Low Value (%) N/A ALIGN OFF #Avg Type	Limit (%) N/A	Iz Results N/A 02:54:12 AM Apr 27, 201 TRACE 0.23 45 TYPE DET PPPP	7 64 P

#VBW 30 kHz

STATUS

Center 903.000000 MHz Res BW 3.0 MHz

Span 0 Hz Sweep 198.8 ms (8192 pts)



TbtTx 2017.01.27 XMit 2017.02.08

Di	ipole Antenna, Port					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	42.025 ms	44.062 ms	1	95.4	N/A	N/A
Keysight Spectrum Analyzer	- Element Materials Technol 50 Ω AC		NSE:INT	ALIGN OFF		03:14:55 AM Apr 27, 2017
		PNO: Fast	Trig Delay-1.000 n Trig: Video		e: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P P P P P P
D.605-		IFGain:Low	#Atten: 10 dB			Mkr1 6.661 ms
5 dB/div Ref 31.3	t 31.39 dB <b>39 dBm</b>		\\ <mark>3</mark>			15.35 dBm
26.4	1971 DA BUNDU B	n felden fan Herden of Garden i Derse Kolen waare (D. D	สรายคามของมาย / รัฐญายายเห	anan kana manan manan kana manan manan kana kana	Pary 44 (1999) 1999 1999 1999 1999 1999 1999 19	na long an ann an
16.4			2			
6.39						
1.39						
-3.61						TRIG LVL
-13.6						
Center 914.200000 Res BW 3.0 MHz	MHz	#\/B\A	/ 30 kHz		Sween 1	Span 0 Hz 00.5 ms (8192 pts)
MKR MODE TRC SCL	X	Y	FUNCTION	FUNCTION WIDTH	-	ION VALUE
1 N 1 t 2 N 1 t 3 N 1 t	6.661 ms 48.69 ms 50.72 ms	s 15.35 d s 12.60 d s 26.24 d	Bm Bm Bm			
4 5 6						E
7						
8						
8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9						•
9 10			m	STATUS		
9 10 11 MSG	ipole Antenna, Port	: B, 500 kHz Ba	m m		Channel 914.2 M	Hz
9 10 11 MSG	ipole Antenna, Port Pulse Width	B, 500 kHz Ba Period	m Indwidth, Spreadi Number of Pulses		Channel 914.2 M Limit (%)	Hz Results
9 10 11 MSG			Number of	ng Factor 7, Mid Value	Limit	
9 MSG	Pulse Width N/A	Period N/A	Number of Pulses 6	ng Factor 7, Mid Value (%) N/A	Limit (%)	Results N/A
9 MSG	Pulse Width N/A - Element Materials Technole 50 Q AC	Period N/A	Number of Pulses 6 NSE:INT Trig: Video	ng Factor 7, Mid Value (%) N/A	Limit (%)	Results N/A 03:16:52 AM Apr 27, 2017 TRACE 02:34 State
9 10 11 MSG D MSG D MSG D	Pulse Width N/A - Element Materials Technols 50 Ω AC	Period N/A	Number of Pulses 6	ng Factor 7, Mid Value (%) N/A	Limit (%) N/A	Results N/A 03:16:52 AM Apr 27, 2017 TRACE 12:34 A
9 10 11 MSG D MSG D MSG D	Pulse Width N/A	Period N/A	Number of Pulses 6 NSE:INT Trig: Video	ng Factor 7, Mid Value (%) N/A	Limit (%) N/A	Results N/A 03:16:52 AM Apr 27, 2017 TRACE 02:34 State
9 10 11 MSG D D Keysight Spectrum Analyzer M RL RF : CM RL RF : 5 dB/div Ref 0ffse 5 dB/div Ref 31.3	Pulse Width N/A	Period N/A	Number of Pulses 6 **********************************	ng Factor 7, Mid Value (%) N/A ALIGN OFF #Avg Typ	Limit (%) N/A e: Log-Pwr	Results           N/A           03:16:52 AM Apr 27, 2017           TRACE         P.2.3 5 S           TYPE         WMMWARK S           DET         P.P.P.P.P
9 10 11 MISG Di MISG Di MISG Di MISG Di MISG Control Control Contr	Pulse Width N/A - Element Materials Technoli 50 Ω AC t 31.39 dB 39 dBm	Period N/A	Number of Pulses 6 **********************************	ng Factor 7, Mid Value (%) N/A ALIGN OFF #Avg Typ	Limit (%) N/A e: Log-Pwr	Results           N/A           03:16:52 AM Apr 27, 2017           TRACE         P.2.3 5 S           TYPE         WMMWARK S           DET         P.P.P.P.P
MSG MSG MSG D MSG D D MSG D D C D C C C C C C C C C C C C C	Pulse Width N/A - Element Materials Technoli 50 Ω AC t 31.39 dB 39 dBm	Period N/A	Number of Pulses 6 **********************************	ng Factor 7, Mid Value (%) N/A ALIGN OFF #Avg Typ	Limit (%) N/A e: Log-Pwr	Results           N/A           03:16:52 AM Apr 27, 2017           TRACE         P.2.3 5 S           TYPE         WMMWARK S           DET         P.P.P.P.P
9 10 11 MISG M	Pulse Width N/A - Element Materials Technoli 50 Ω AC t 31.39 dB 39 dBm	Period N/A	Number of Pulses 6 **********************************	ng Factor 7, Mid Value (%) N/A ALIGN OFF #Avg Typ	Limit (%) N/A e: Log-Pwr	Results           N/A           03:16:52 AM Apr 27, 2017           TRACE         P.2.3 5 S           TYPE         WMMWARK S           DET         P.P.P.P.P
MSG MSG MSG D MSG D D MSG D D C D C C C C C C C C C C C C C	Pulse Width N/A - Element Materials Technoli 50 Ω AC t 31.39 dB 39 dBm	Period N/A	Number of Pulses 6 **********************************	ng Factor 7, Mid Value (%) N/A ALIGN OFF #Avg Typ	Limit (%) N/A e: Log-Pwr	Results           N/A           03:16:52 AM Apr 27, 2017           TRACE         P.2.3 5 S           TYPE         WMMWARK S           DET         P.P.P.P.P
9 10 11 MISG M	Pulse Width N/A - Element Materials Technoli 50 Ω AC t 31.39 dB 39 dBm	Period N/A	Number of Pulses 6 **********************************	ng Factor 7, Mid Value (%) N/A ALIGN OFF #Avg Typ	Limit (%) N/A e: Log-Pwr	Results           N/A           03:16:52 AM Apr 27, 2017           TRACE         P.2.3 5 S           TYPE         WMMWARK S           DET         P.P.P.P.P
9         10           10         11           MSG         Di           Ø         RL           Ø         RE           Ø         RE           Ø         RL           Ø         RE           10         Ref Offse           26.4         11.4           16.4         11.4	Pulse Width N/A - Element Materials Technoli 50 Ω AC t 31.39 dB 39 dBm	Period N/A	Number of Pulses 6 **********************************	ng Factor 7, Mid Value (%) N/A ALIGN OFF #Avg Typ	Limit (%) N/A e: Log-Pwr	Results           N/A           03:16:52 AM Apr 27, 2017           TRACE         P.2.3 5 S           TYPE         WMMWARK S           DET         P.P.P.P.P
9         10           10         11           MSG         Di           MSG         Di           Image: Section of the section	Pulse Width N/A - Element Materials Technoli 50 Ω AC t 31.39 dB 39 dBm	Period N/A	Number of Pulses 6 **********************************	ng Factor 7, Mid Value (%) N/A ALIGN OFF #Avg Typ	Limit (%) N/A e: Log-Pwr	Results           N/A           03:16:52 AM Apr 27, 2017           TRACE         P.2.3 5 S           TYPE         WMMWARK S           DET         P.P.P.P.P
9         10           10         11           MSG         Di           11         11           MSG         Di           11         11           MSG         Di           11         11           11         11           MSG         Di           11         11           11         11           12         A           12         A           11.4         11           11.4         11           11.4         11           11.39         11.39	Pulse Width N/A - Element Materials Technoli 50 Ω AC t 31.39 dB 39 dBm	Period N/A	Number of Pulses 6 **********************************	ng Factor 7, Mid Value (%) N/A ALIGN OFF #Avg Typ	Limit (%) N/A e: Log-Pwr	Results N/A 03:16:52 AM Apr 27, 2017 TRACE 12:34 5 G TYPE WYWWWY DET PPPPP
9         10           10         11           MSG         Di           MSG         Di           Image: Sector of the s	Pulse Width N/A - Element Materials Technoli 50 Ω AC t 31.39 dB 39 dBm	Period N/A	Number of Pulses 6 **********************************	ng Factor 7, Mid Value (%) N/A ALIGN OFF #Avg Typ	Limit (%) N/A e: Log-Pwr	Results N/A 03:16:52 AM Apr 27, 2017 TRACE 12:34 5 G TYPE WYWWWY DET PPPPP
9         10           10         11           MSG         Di           MSG         Di           Image: Sector of the s	Pulse Width N/A - Element Materials Technoli 50 Ω AC t 31.39 dB 39 dBm	Period N/A	Number of Pulses 6 **********************************	ng Factor 7, Mid Value (%) N/A ALIGN OFF #Avg Typ	Limit (%) N/A e: Log-Pwr	Results N/A 03:16:52 AM Apr 27, 2017 TRACE 12:34 5 G TYPE WYWWWY DET PPPPP

STATUS

MSG



	Dipole Antenna, Port	Period	Number of Pulses	Value (%)	Limit (%)		Results
	42.013 ms	44.049 ms	1	95.4	N/A		N/A
	alyzer - Element Materials Techno 50 Ω AC		NSE:INT Trig Delay-1.000 Trig: Video #Atten: 10 dB	ALIGN OFF ms #Avg	Type: Log-Pwr	03:2	27:21 AM Apr 27, 2017 TRACE 1 2 3 4 5 6 TYPE WWWWW DET P P P P P
Ref O	ffset 31.39 dB					Mkr	1 12.92 ms 25.65 dBm
5 dB/div Ref 3	31.39 dBm	910 - 1910 - 1910 - 1910 - 1910 - 1910 - 1910 - 1910 - 1910 - 1910 - 1910 - 1910 - 1910 - 1910 - 1910 - 1910 -			AT AN OR INTERNITORIA DAMAG		11////////////////////////////////////
21.4				¢ <sup>2</sup>			
6.39				<b>0</b> −			
-3.61							
-8.61							
Center 927.5000							Span 0 Hz
Res BW 3.0 MH:	х	Y	FUNCTION	FUNCTION WIDT		p 100.5	ms (8192 pts)
1 N 1 t 2 N 1 t 3 N 1 t	12.92 m 54.93 m 56.97 m	ns 25.65 d ns 11.24 d ns 25.84 d	Bm Bm Bm				
4 5 6 7							E
8 9 10							
							~
11 ≺			m	STAT	us		,
•	Dipole Antenna, Port	t B, 500 kHz Bar	m ndwidth, Spread			7.5 MHz	•
•	Pulse Width	Period	Number of Pulses	ling Factor 7, I Value (%)	High Channel 92 Limit		Results
•			Number of	ding Factor 7, I Value	High Channel 92		Results N/A
K L	Pulse Width	Period N/A	Number of Pulses	ding Factor 7, I Value (%) N/A	High Channel 92 Limit (%) N/A		N/A
< MSG MSG Keysight Spectrum Ana	Pulse Width N/A	Period N/A	Number of Pulses 5	ding Factor 7, I Value (%) N/A	High Channel 92 Limit (%) N/A		N/A
Keysight Spectrum Ana RE Ref Ol	Pulse Width N/A	Period N/A	Number of Pulses 5	ding Factor 7, I Value (%) N/A	High Channel 92 Limit (%) N/A		N/A
Keysight Spectrum Ana RL RF Ref Of 5 dB/div Ref 3	Pulse Width N/A alyzer - Element Materials Techno 50 Ω AC ffset 31.39 dB	Period N/A	Number of Pulses 5 **********************************	ting Factor 7, 1 Value (%) N/A MALIGN OFF- #Avg	High Channel 92 Limit (%) N/A	03:2	N/A
Keysight Spectrum Ana RL RF	Pulse Width N/A alyzer - Element Materials Techno 50 Ω AC ffset 31.39 dB	Period N/A slogy PNO: Fast IFGain:Low	Number of Pulses 5 **********************************	ting Factor 7, 1 Value (%) N/A MALIGN OFF- #Avg	High Channel 92 Limit (%) N/A Type: Log-Pwr	03:2	N/A
Keysight Spectrum Ana RL RF	Pulse Width N/A alyzer - Element Materials Techno 50 Ω AC ffset 31.39 dB	Period N/A slogy PNO: Fast IFGain:Low	Number of Pulses 5 **********************************	ting Factor 7, 1 Value (%) N/A MALIGN OFF- #Avg	High Channel 92 Limit (%) N/A Type: Log-Pwr	03:2	N/A
Keysight Spectrum Ana Keysight Spectrum Ana	Pulse Width N/A alyzer - Element Materials Techno 50 Ω AC ffset 31.39 dB	Period N/A slogy PNO: Fast IFGain:Low	Number of Pulses 5 **********************************	ting Factor 7, 1 Value (%) N/A MALIGN OFF- #Avg	High Channel 92 Limit (%) N/A Type: Log-Pwr	03:2	N/A
Keysight Spectrum Ana RL RF S dB/div Ref 3 26.4 vectology ref 4 21.4	Pulse Width N/A alyzer - Element Materials Techno 50 Ω AC ffset 31.39 dB	Period N/A slogy PNO: Fast IFGain:Low	Number of Pulses 5 **********************************	ting Factor 7, 1 Value (%) N/A MALIGN OFF- #Avg	High Channel 92 Limit (%) N/A Type: Log-Pwr	03:2	N/A
Keysight Spectrum Ana Keysight Spectrum Ana Ki RL RF S dB/div Ref 3 26.4 26.4 21.4 16.4	Pulse Width N/A alyzer - Element Materials Techno 50 Ω AC ffset 31.39 dB	Period N/A slogy PNO: Fast IFGain:Low	Number of Pulses 5 **********************************	ting Factor 7, 1 Value (%) N/A MALIGN OFF- #Avg	High Channel 92 Limit (%) N/A Type: Log-Pwr	03:2	N/A
Keysight Spectrum Ana Keysight Spectrum Ana RL RF 5 dB/div Ref 3 26.4 vsiul/univiritity 21.4 16.4 11.4 6.39	Pulse Width N/A alyzer - Element Materials Techno 50 Ω AC ffset 31.39 dB	Period N/A slogy PNO: Fast IFGain:Low	Number of Pulses 5 **********************************	ting Factor 7, 1 Value (%) N/A MALIGN OFF- #Avg	High Channel 92 Limit (%) N/A Type: Log-Pwr	03:2	N/A
Keysight Spectrum Ana       MSG       Image: Spectrum Ana	Pulse Width N/A alyzer - Element Materials Techno 50 Ω AC ffset 31.39 dB	Period N/A slogy PNO: Fast IFGain:Low	Number of Pulses 5 **********************************	ting Factor 7, 1 Value (%) N/A MALIGN OFF- #Avg	High Channel 92 Limit (%) N/A Type: Log-Pwr	03:2	N/A
Keysight Spectrum Ana           Keysight Spectrum Ana           R L         RF           Sog         Ref Of           26.4         Wesh Mashing Initial           21.4         Initial           16.4         Initial           1.39         Initial           -3.61         Initial	Pulse Width N/A alyzer - Element Materials Techno 50 Ω AC ffset 31.39 dB	Period N/A slogy PNO: Fast IFGain:Low	Number of Pulses 5 **********************************	ting Factor 7, 1 Value (%) N/A MALIGN OFF- #Avg	High Channel 92 Limit (%) N/A Type: Log-Pwr	03:2	N/A
Keysight Spectrum Ana           RL           RL           REG           26.4           16.4           11.4           6.39           1.39           -3.61           -8.61	Pulse Width N/A alyzer - Element Materials Technol 50   AC 50   AC	Period N/A Slogy PNO: Fast IFGain:Low II II II II II II II II II II II II II	Number of Pulses 5 **********************************	ting Factor 7, 1 Value (%) N/A MALIGN OFF- #Avg	High Channel 92 Limit (%) N/A Type: Log-Pwr		N/A



XMit 2017.02.08

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

#### **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due	
Generator - Signal	Keysight	N5182B	TFU	10/27/2015	10/27/2018	
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-8-2-SCT/AC	TBI	NCR	NCR	
Thermometer	Omegaette	HH311	DTY	1/21/2015	1/21/2018	
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	6/7/2016	6/7/2017	
Attenuator	S.M. Electronics	SA26B-20	AUY	6/27/2016	6/27/2017	
Block - DC	Fairview Microwave	SD3379	AMQ	6/8/2016	6/8/2017	
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFP	8/10/2016	8/10/2017	

#### TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The EUT was set to the channels and modes listed in the datasheet.

The 6dB occupied bandwidth was measured using 100 kHz resolution bandwidth and 300 kHz video bandwidth. The 99.0% occupied bandwidth was also measured at the same time which can be needed during Output Power depending on the applicable method.

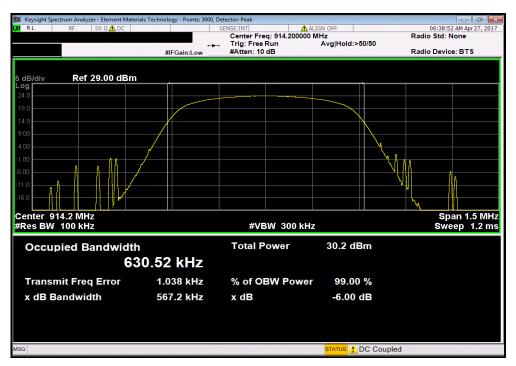
In accordance with power settings stated herein, the power applied to each antenna is different. The approximate output power for each antenna is listed below. • Yagi antenna: ≈ 24 dBm • Dipole antenna: ≈ 30 dBm



				TbtTx 2017.01.27	XMit 201
	XB1301		Work Order:		
Serial Number:				04/26/17	
Customer:	APANA Inc		Temperature:		
Attendees:			Humidity:		
Project:			Barometric Pres.:		
	Brandon Hobbs	Power: 5 VDC Nominal via 110VAC/60Hz	Job Site:	EV06	
EST SPECIFICATI	ONS	Test Method			
CC 15.247:2017		ANSI C63.10:2013			
OMMENTS					
	ttings for the Yagi (12dBi) antenna data listed below are as nts were made at -20°C per client's request. A termination w	ollows: DAC = 4000, MXG = 8. The power level settings for the I as placed on the unused antenna port while under test.	Dipole antenna data listed below a	re as follows: DAC	= 4000, MXG
EVIATIONS FROM	I TEST STANDARD				
lone					
Configuration #	1	1 1 1			
Configuration #	Signature	2 Jan			
				Limit	
			Value	(≥)	Result
agi Antenna					
0	Port A				
	500 kHz Bandwidth				
	Spreading Factor 7				
	Low Channel 903 MH		566.087 kHz	500 kHz	Pass
	Mid Channel 914.2 Mi	lz	567.165 kHz	500 kHz	Pass
	High Channel 927.5 M		566.514 kHz	500 kHz	Pass
	Port B		000101111112	0001012	1 400
	500 kHz Bandwidth				
	Spreading Factor 7				
	Low Channel 903 MH		570.219 kHz	500 kHz	Pass
	Mid Channel 914.2 Mi	7	570.27 kHz	500 kHz	Pass
	High Channel 927.5 M		570.235 kHz	500 kHz	Pass
ipole Antenna	righ ondinier 527.6 W		070.200 NT2	000 1112	1 435
	Port A				
	500 kHz Bandwidth				
	Spreading Factor /				Pass
	Spreading Factor 7		602 834 kHz	500 kHz	
	Low Channel 903 MH:		602.834 kHz 605.371 kHz	500 kHz 500 kHz	
	Low Channel 903 MH: Mid Channel 914.2 MH	Iz	605.371 kHz	500 kHz	Pass
	Low Channel 903 MH: Mid Channel 914.2 MH High Channel 927.5 M	Iz			
	Low Channel 903 MH: Mid Channel 914.2 MH High Channel 927.5 M	Iz	605.371 kHz	500 kHz	Pass
	Low Channel 903 MH: Mid Channel 914.2 MH High Channel 927.5 M 500 kHz Bandwidth	Iz	605.371 kHz	500 kHz	Pass
	Low Channel 903 MH; Mid Channel 914.2 MH High Channel 927.5 M 500 kHz Bandwidth Spreading Factor 7	lz Hz	605.371 kHz 604.002 kHz	500 kHz 500 kHz	Pass Pass
	Low Channel 903 MH: Mid Channel 914.2 MH High Channel 927.5 M Port B 500 kHz Bandwidth Spreading Factor 7 Low Channel 903 MH:	IZ HZ	605.371 kHz 604.002 kHz 604.294 kHz	500 kHz 500 kHz 500 kHz	Pass Pass Pass
	Low Channel 903 MH; Mid Channel 914.2 MH High Channel 927.5 M 500 kHz Bandwidth Spreading Factor 7	Iz Hz : iz	605.371 kHz 604.002 kHz	500 kHz 500 kHz	Pass Pass

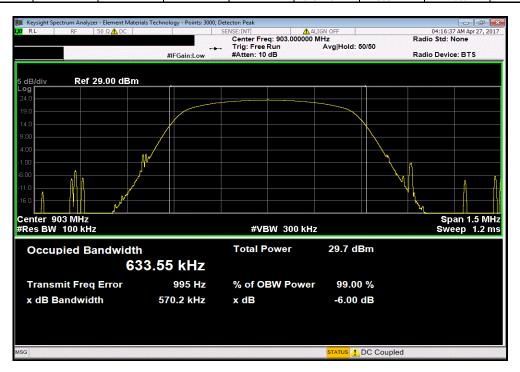


TbtTx 2017.01.27 XMit 2017.02.08 Yagi Antenna, Port A, 500 kHz Bandwidth, Spreading Factor 7, Low Channel 903 MHz Limit Value Result (≥) 566.087 kHz 500 kHz Pass NSE:INT ALIGN OFF Center Freq: 903.00000 MHz Trig: Free Run Avg|Hold: 50/50 #Atten: 10 dB 06:20:51 AM Apr 27, 2017 RL Radio Std: None ----Radio Device: BTS #IFGain:Low Ref 29.00 dBm dB/di .og Center 903 MHz #Res BW 100 kHz Span 1.5 MHz Sweep 1.2 ms #VBW 300 kHz **Total Power** 29.8 dBm **Occupied Bandwidth** 630.59 kHz 1.165 kHz Transmit Freq Error % of OBW Power 99.00 % x dB Bandwidth 566.1 kHz x dB -6.00 dB DC Coupled Yagi Antenna, Port A, 500 kHz Bandwidth, Spreading Factor 7, Mid Channel 914.2 MHz Limit Value (≥) Result 567.165 kHz 500 kHz Pass



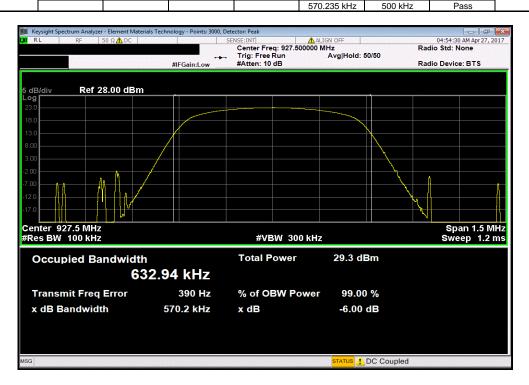


TbtTx 2017.01.27 XMit 2017.02.08 Yagi Antenna, Port A, 500 kHz Bandwidth, Spreading Factor 7, High Channel 927.5 MHz Limit Value Result (≥) 566.514 kHz 500 kHz Pass NSE:INT ALIGN OFF Center Freq: 927.500000 MHz Trig: Free Run Avg|Hold:>50/50 #Atten: 10 dB 07:03:29 AM Apr 27, 2017 RL Radio Std: None ----Radio Device: BTS #IFGain:Low Ref 28.00 dBm dB/di Center 927.5 MHz #Res BW 100 kHz Span 1.5 MHz Sweep 1.2 ms #VBW 300 kHz Total Power 29.6 dBm **Occupied Bandwidth** 630.59 kHz 1.100 kHz Transmit Freq Error % of OBW Power 99.00 % x dB Bandwidth 566.5 kHz x dB -6.00 dB DC Coupled Yagi Antenna, Port B, 500 kHz Bandwidth, Spreading Factor 7, Low Channel 903 MHz Limit Value (≥) Result 570.219 kHz 500 kHz Pass





TbtTx 2017.01.27 XMit 2017.02.08 Yagi Antenna, Port B, 500 kHz Bandwidth, Spreading Factor 7, Mid Channel 914.2 MHz Limit Value Result (≥) 570.27 kHz 500 kHz Pass NSE:INT ALIGN OFF Center Freq: 914.200000 MHz Trig: Free Run Avg|Hold:>50/50 #Atten: 10 dB 04:43:54 AM Apr 27, 2017 RL Radio Std: None ----Radio Device: BTS #IFGain:Low Ref 29.00 dBm dB/di .og Center 914.2 MHz #Res BW 100 kHz Span 1.5 MHz Sweep 1.2 ms #VBW 300 kHz **Total Power** 29.9 dBm **Occupied Bandwidth** 633.29 kHz 908 Hz Transmit Freq Error % of OBW Power 99.00 % x dB Bandwidth 570.3 kHz x dB -6.00 dB DC Coupled Yagi Antenna, Port B, 500 kHz Bandwidth, Spreading Factor 7, High Channel 927.5 MHz Limit Value (≥) Result



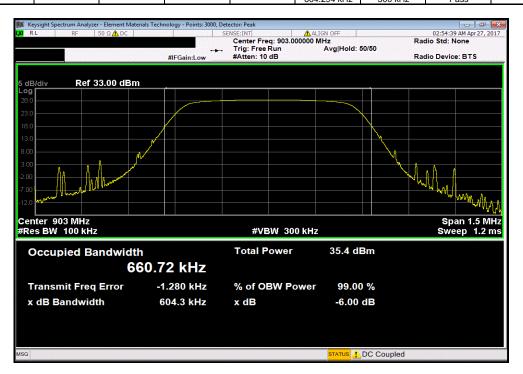


TbtTx 2017.01.27 XMit 2017.02.08 Dipole Antenna, Port A, 500 kHz Bandwidth, Spreading Factor 7, Low Channel 903 MHz Limit Value Result (≥) 602.834 kHz 500 kHz Pass Center Freq: 903.000000 MHz Trig: Free Run Avg|Hold: 50/50 #Atten: 10 dB 09:31:45 AM Apr 26, 2017 RL Radio Std: None ----Radio Device: BTS #IFGain:Low dB/di Ref 34.00 dBm Willie Center 903 MHz #Res BW 100 kHz Span 1.5 MHz Sweep 1.2 ms #VBW 300 kHz Total Power 35.5 dBm **Occupied Bandwidth** 657.73 kHz 812 Hz Transmit Freq Error % of OBW Power 99.00 % x dB Bandwidth 602.8 kHz x dB -6.00 dB DC Coupled Dipole Antenna, Port A, 500 kHz Bandwidth, Spreading Factor 7, Mid Channel 914.2 MHz Limit Value (≥) Result 605.371 kHz 500 kHz Pass





TbtTx 2017.01.27 XMit 2017.02.0 Dipole Antenna, Port A, 500 kHz Bandwidth, Spreading Factor 7, High Channel 927.5 MHz Limit Value Result (≥) 604.002 kHz 500 kHz Pass NSE:INT ALIGN OFF Center Freq: 927.500000 MHz Trig: Free Run Avg|Hold: 50/50 #Atten: 10 dB 10:06:09 AM Apr 26, 2017 RL Radio Std: None ----Radio Device: BTS #IFGain:Low Ref 33.00 dBm dB/di MMA 6 M Center 927.5 MHz #Res BW 100 kHz Span 1.5 MHz Sweep 1.2 ms #VBW 300 kHz **Total Power** 35.1 dBm **Occupied Bandwidth** 660.10 kHz -201 Hz 99.00 % Transmit Freq Error % of OBW Power x dB Bandwidth 604.0 kHz x dB -6.00 dB DC Coupled Dipole Antenna, Port B, 500 kHz Bandwidth, Spreading Factor 7, Low Channel 903 MHz Limit Value (≥) Result 604.294 kHz 500 kHz Pass





TbtTx 2017.01.27 XMit 2017.02.0 Dipole Antenna, Port B, 500 kHz Bandwidth, Spreading Factor 7, Mid Channel 914.2 MHz Limit Value Result (≥) 607.383 kHz 500 kHz Pass NSE:INT ALIGN OFF Center Freq: 914.200000 MHz Trig: Free Run Avg|Hold: 50/50 #Atten: 10 dB 03:17:30 AM Apr 27, 2017 RL Radio Std: None ----Radio Device: BTS #IFGain:Low Ref 33.00 dBm dB/di Center 914.2 MHz #Res BW 100 kHz Span 1.5 MHz Sweep 1.2 ms #VBW 300 kHz **Total Power** 35.3 dBm **Occupied Bandwidth** 662.08 kHz -554 Hz 99.00 % Transmit Freq Error % of OBW Power x dB Bandwidth 607.4 kHz x dB -6.00 dB DC Coupled Dipole Antenna, Port B, 500 kHz Bandwidth, Spreading Factor 7, High Channel 927.5 MHz Limit Value (≥) Result 605.16 kHz 500 kHz Pass

