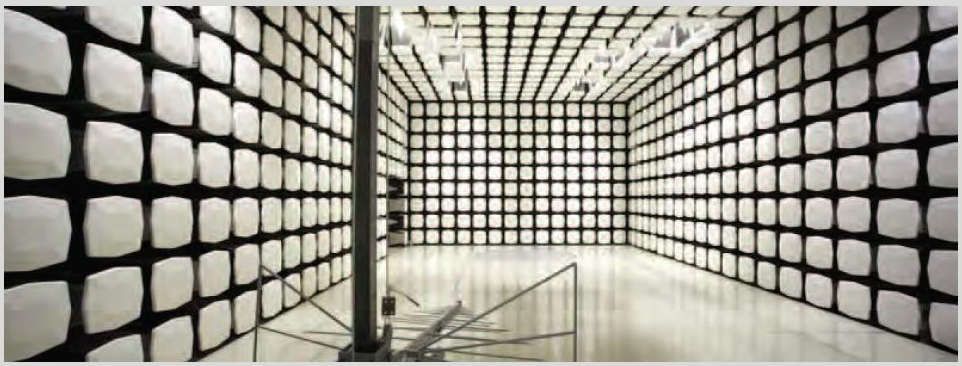
Koyo Electronics Industries Co., LTD

C2-03CPU

FCC 15.207:2020, FCC 15.247:2020

Bluetooth FHSS

Report # KOYO0001.14



NVLAP LAB CODE: 200881-0

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CERTIFICATE OF TEST

Last Date of Test: March 4, 2020
Koyo Electronics Industries Co., LTD
EUT: C2-03CPU

Radio Equipment Testing

Standards

Specification	Method
FCC 15.207:2020	ANSI C63.10:2013, KDB 558074
FCC 15.247:2020	

Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	Yes	Pass	
6.5, 6.6	Spurious Radiated Emissions	Yes	Pass	
7.5	Duty Cycle	Yes	Pass	
7.8.2	Carrier Frequency Separation	Yes	Pass	
7.8.3	Number of Hopping Frequencies	Yes	Pass	
7.8.4	Dwell Time	Yes	Pass	
7.8.5	Output Power	Yes	Pass	
7.8.5	Equivalent Isotropic Radiated Power	Yes	Pass	
7.8.6	Band Edge Compliance	Yes	Pass	
7.8.6	Band Edge Compliance - Hopping Mode	Yes	Pass	
7.8.7	Occupied Bandwidth	Yes	Pass	
7.8.8	Spurious Conducted Emissions	Yes	Pass	

Deviations From Test Standards

None

Approved By:

Eric Brandon, Department 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. As indicated in the Statement of Work sent with the quotation, Element's standard process is to always use the latest published version of the test methods even when earlier versions are cited in the test specification. Issuance of a purchase order was de facto acceptance of this approach. Otherwise, the client would have advised Element in writing of the specific version of the test methods they wanted applied to the subject testing.

REVISION HISTORY

Revision Number	Description	Date (yyyy-mm-dd)	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) and as a CAB for the acceptance of test data.

European Union

European Commission – Within Element, we have a EU Notified Body validated for the EMCD and RED Directives.

Australia/New Zealand

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

Korea

MSIT / 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

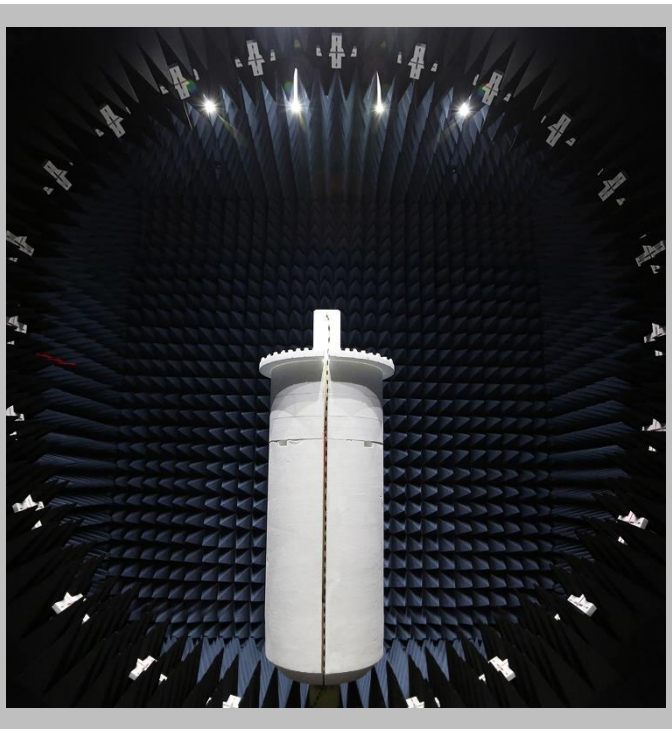
MIC – Recognized by MIC as a CAB for the acceptance of test data.

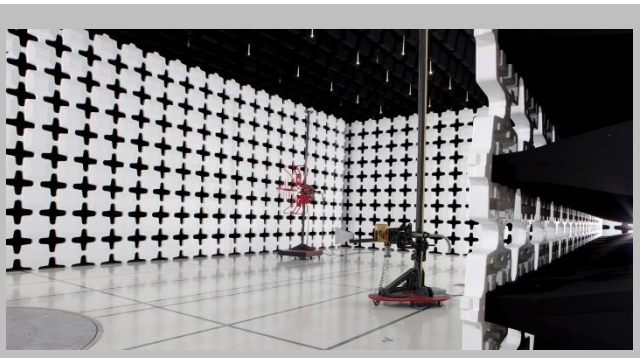
SCOPE

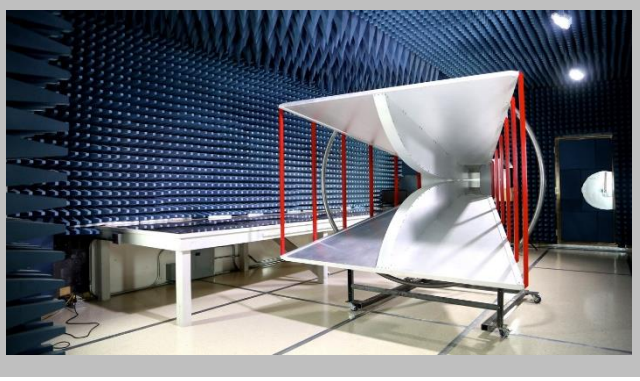
For details on the Scopes of our Accreditations, please visit:
https://www.nwemc.com/emc-testing-accreditations

FACILITIES

California	Minnesota	Oregon	Texas	Washington
Labs OC01-17 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs MN01-10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Labs EV01-12 6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Labs NC01-05 19201 120th Ave NE Bothell, WA 98011 (425)984-6600
NVLAP				
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	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, 2834E-3	2834D-1	2834G-1	2834F-1
BSMI				
SL2-IN-E-1154R	SL2-IN-E-1152R	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI				
A-0029	A-0109	A-0108	A-0201	A-0110
Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA				
US0158	US0175	US0017	US0191	US0157







MEASUREMENT UNCERTAINTY

element
TMU.2015.07.10

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.

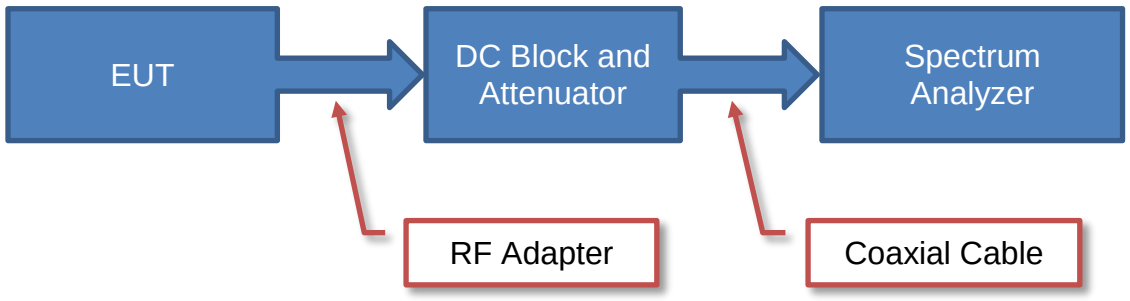
A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable 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.

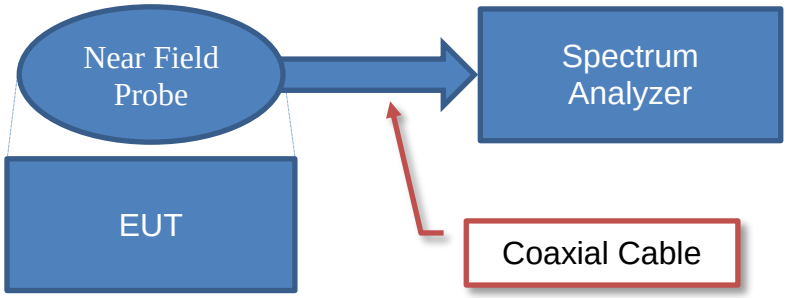
Test	+ MU	- MU
Frequency Accuracy	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	1.2 dB	-1.2 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field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

Test Setup Block Diagrams

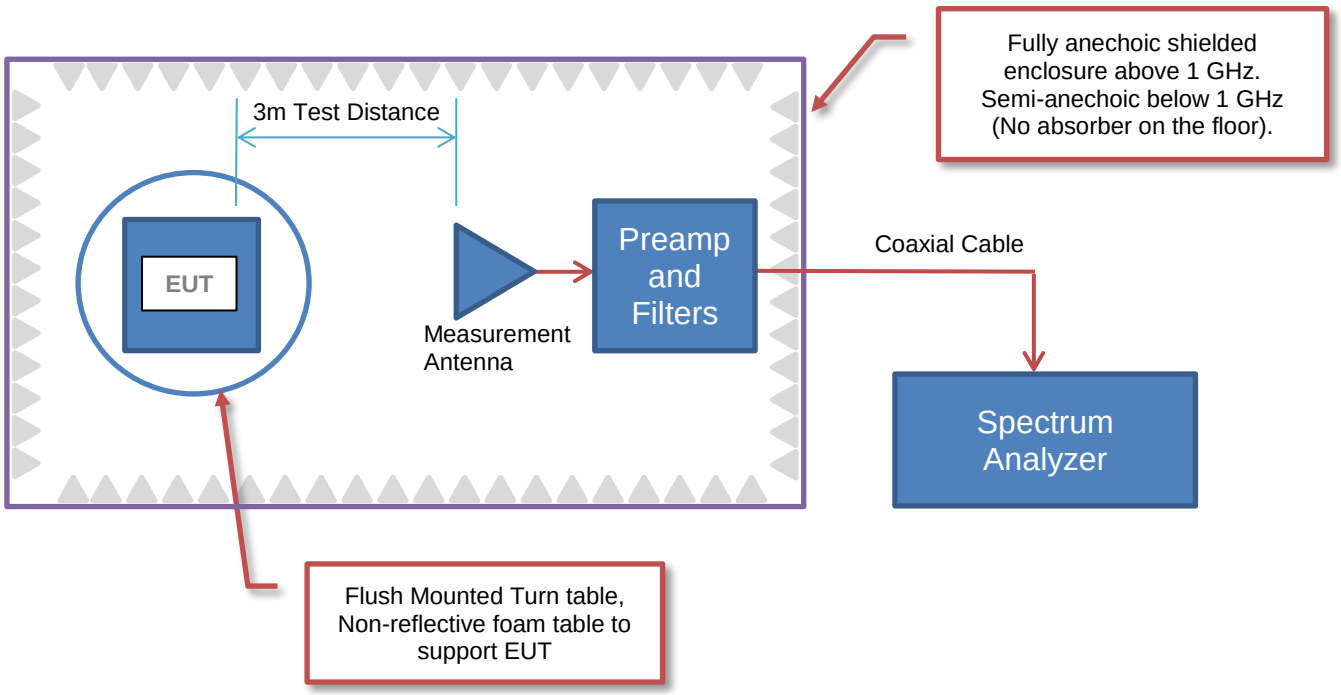
Antenna Port Conducted Measurements



Near Field Test Fixture Measurements



Spurious Radiated Emissions



PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	Koyo Electronics Industries Co., LTD
Address:	4-9-1 Tenjin-cho
City, State, Zip:	Kodaira-City, Tokyo, 187-0004
Test Requested By:	Kuramoto Hiroyuki
EUT:	C2-03CPU
First Date of Test:	February 11, 2020
Last Date of Test:	March 4, 2020
Receipt Date of Samples:	January 27, 2020
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
Embedded controller with 802.11 and BT

Testing Objective:
To demonstrate compliance of the Bluetooth radio under FCC 15.247 requirements.

CONFIGURATIONS

Configuration KOYO0001- 2

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
CLICK PLUS	Koyo Electronics Industries Co., LTD.	C2-03CPU	N/A

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
DC Power Module 2	Koyo Electronics Industries Co., LTD.	C0-01AC	C0-01AC+19923C443
Monopole Antenna	Automation Direct	SE-ANT210	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Cable	No	2.9m	No	AC Mains	DC Power Module 2
DC Leads	No	0.1m	No	DC Power Module 2	C2-03CPU

Configuration KOYO0001- 3

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
CLICK PLUS	Koyo Electronics Industries Co., LTD.	C2-03CPU	N/A

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
DC Power Module 2	Koyo Electronics Industries Co., LTD.	C0-01AC	C0-01AC+19923C443
Dome Antenna	Automation Direct	SE-ANT250	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Cable	No	2.9m	No	AC Mains	DC Power Module 2
DC Leads	No	0.1m	No	DC Power Module 2	C2-03CPU
Coax	Yes	3.0m	No	Dome Antenna	C2-03CPU

CONFIGURATIONS

Configuration KOYO0001- 10

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
CLICK PLUS	Koyo Electronics Industries Co., LTD.	C2-03CPU	N/A

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Dell	Vostro3360	HM7BPY1
Power Supply (Laptop)	Dell	6TM1C	CN-06TM1C-72438-3CP-6962-A01
DC Power Supply	Agilent	U8002A	TPZ

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Banana Cables (x2)	No	0.5m	No	CLICK PLUS	DC Power Supply
AC Cable (DC Power Supply)	No	1.8m	No	DC Power Supply	AC Mains
USB Cable	Yes	3.0m	No	CLICK PLUS	Laptop
AC Cable (Laptop)	No	0.9m	No	AC Mains	Power Supply (Laptop)
DC Cable (Laptop)	No	1.8m	Yes	Power Supply (Laptop)	Laptop

CONFIGURATIONS

Configuration KOYO0001- 11

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
CLICK PLUS	Koyo Electronics Industries Co., LTD.	C2-03CPU	N/A

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Monopole Antenna	Automation Direct	SE-ANT210	None
DC Power Supply 2	Kikusui	PMX35-3A	YB000467

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Power	No	1.8m	No	AC Mains	DC Power Supply 2
DC Power Leads	No	0.3m	No	DC Power Supply 2	C2-03CPU

Configuration KOYO0001- 17

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
CLICK PLUS	Koyo Electronics Industries Co., LTD.	C2-03CPU	N/A

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
DC Power Supply	Kikusui	PWR401ML	TQL

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Cable (DC Power Supply)	No	1.8m	No	DC Power Supply	AC Mains
DC Leads	No	0.4 m	No	DC Power Supply	CLICK PLUS

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2020-02-11	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	2020-02-14	Carrier Frequency Separation	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
3	2020-02-14	Number of Hopping Frequencies	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	2020-02-14	Dwell Time	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	2020-02-14	Output Power	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	2020-02-14	Equivalent Isotropic Radiated Power	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	2020-02-14	Band Edge Compliance-Hopping Mode	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	2020-02-14	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.
9	2020-02-14	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.
10	2020-02-14	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.
11	2020-02-17	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.
12	2020-02-26	Duty Cycle	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
13	2020-03-04	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

POWERLINE CONDUCTED EMISSIONS

element
WTD.2019.10.29.0

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 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm. 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
Receiver	Rohde & Schwarz	ESR7	ARI	2019-07-08	2020-07-08
Cable - Conducted Cable Assembly	Northwest EMC	MNC, HGN, TYK	MNCA	2019-03-13	2020-03-13
LISN	Solar Electronics	9252-50-R-24-BNC	LIY	2019-03-15	2020-03-15

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.4 dB	-2.4 dB

CONFIGURATIONS INVESTIGATED

KOYO0001-11

MODES INVESTIGATED

Continuous transmit on Bluetooth, Monopole antenna, Mid channel (2441 MHz), DH5, power level 8.

POWERLINE CONDUCTED EMISSIONS

EUT:	C2-03CPU	Work Order:	KOYO0001
Serial Number:	N/A	Date:	2020-02-17
Customer:	Koyo Electronics Industries Co., LTD	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	21.3%
Customer Project:	None	Bar. Pressure:	1014 mb
Tested By:	Dan Haas	Job Site:	MN03
Power:	24VDC	Configuration:	KOYO0001-11

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2020	ANSI C63.10:2013

TEST PARAMETERS

Run #:	15	Line:	High Line	Add. Ext. Attenuation (dB):	0

COMMENTS

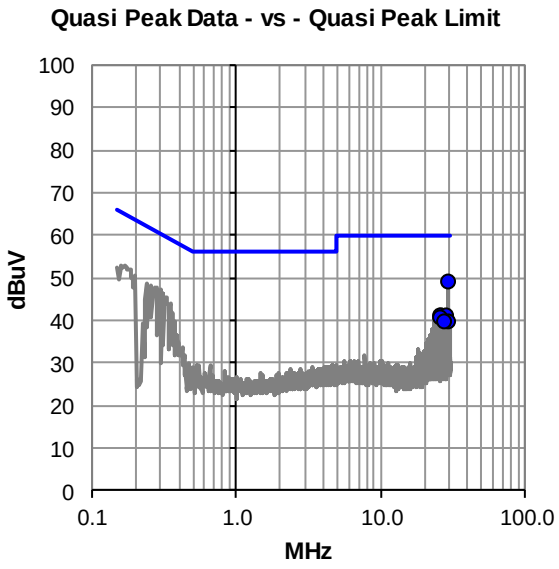
Kikusui 24VDC supply powered at 100VAC/60Hz.

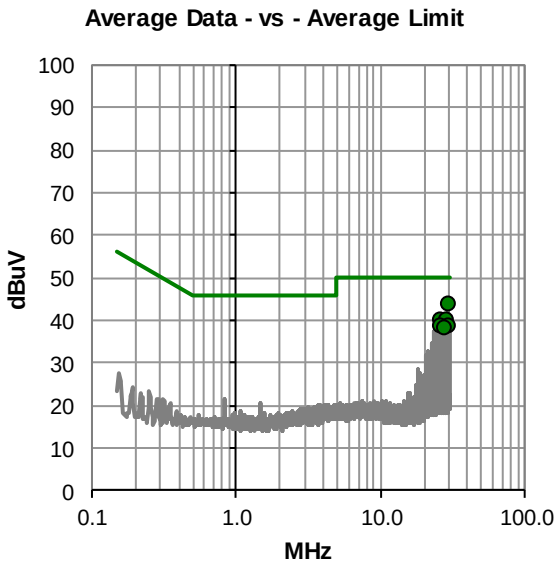
EUT OPERATING MODES

Continuous transmit on Bluetooth, Monopole antenna, Mid channel (2441 MHz), DH5, power level 8.

DEVIATIONS FROM TEST STANDARD

None





POWERLINE CONDUCTED EMISSIONS

element
WTD.2019.10.29.0

RESULTS - Run #15

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
29.5	27.800	21.2	49.0	60.0	-11.0
26.5	19.600	21.4	41.0	60.0	-19.0
28.8	19.500	21.3	40.8	60.0	-19.2
25.9	18.900	21.4	40.3	60.0	-19.7
29.4	18.400	21.2	39.6	60.0	-20.4
28.2	18.000	21.3	39.3	60.0	-20.7

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
29.5	22.600	21.2	43.8	50.0	-6.2
26.5	18.700	21.4	40.1	50.0	-9.9
28.8	18.500	21.3	39.8	50.0	-10.2
25.9	17.400	21.4	38.8	50.0	-11.2
29.4	17.200	21.2	38.4	50.0	-11.6
28.2	16.900	21.3	38.2	50.0	-11.8

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	C2-03CPU	Work Order:	KOYO0001
Serial Number:	N/A	Date:	2020-02-17
Customer:	Koyo Electronics Industries Co., LTD	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	21.3%
Customer Project:	None	Bar. Pressure:	1014 mb
Tested By:	Dan Haas	Job Site:	MN03
Power:	24VDC	Configuration:	KOYO0001-11

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2020	ANSI C63.10:2013

TEST PARAMETERS

Run #:	17	Line:	Neutral	Add. Ext. Attenuation (dB):	0

COMMENTS

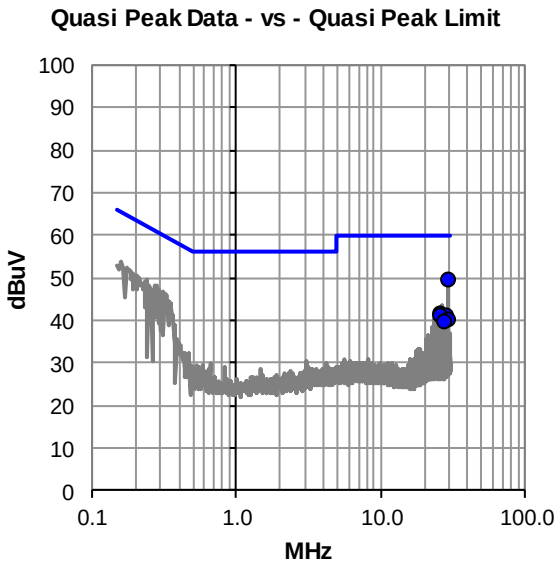
Kikusui 24VDC supply powered at 100VAC/60Hz.

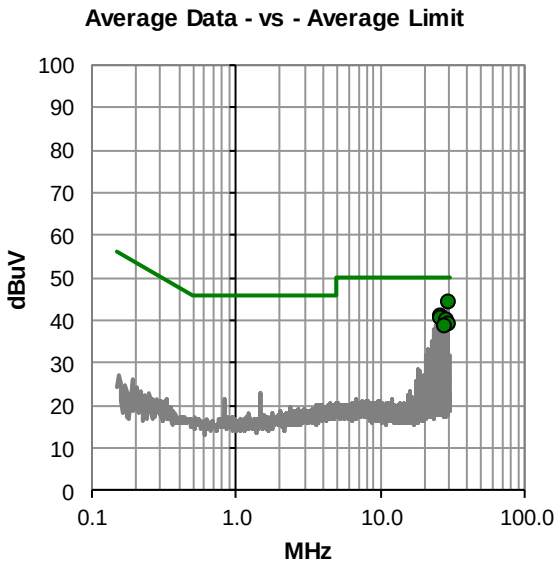
EUT OPERATING MODES

Continuous transmit on Bluetooth, Monopole antenna, Mid channel (2441 MHz), DH5, power level 8.

DEVIATIONS FROM TEST STANDARD

None





POWERLINE CONDUCTED EMISSIONS

element
WTD.2019.10.29.0

RESULTS - Run #17

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
29.5	28.400	21.2	49.6	60.0	-10.4
26.5	20.100	21.4	41.5	60.0	-18.5
28.8	19.700	21.3	41.0	60.0	-19.0
25.9	19.500	21.4	40.9	60.0	-19.1
29.4	18.600	21.2	39.8	60.0	-20.2
28.2	18.400	21.3	39.7	60.0	-20.3

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
29.5	23.200	21.2	44.4	50.0	-5.6
26.5	19.400	21.4	40.8	50.0	-9.2
25.9	18.900	21.4	40.3	50.0	-9.7
28.8	18.900	21.3	40.2	50.0	-9.8
29.4	17.700	21.2	38.9	50.0	-11.1
28.2	17.500	21.3	38.8	50.0	-11.2

CONCLUSION

Pass

Tested By

SPURIOUS RADIATED EMISSIONS

PSA-ESCI 2019.11.08.1

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

Transmitting Bluetooth on Low channel (2402 MHz) and High channel (2480 MHz), Dome antenna, various data rates, power level 8
Transmitting Bluetooth on Low channel (2402 MHz), Mid channel (2441 MHz), and High channel (2480 MHz), Dome antenna, various data rates, power level 8
Transmitting Bluetooth on Low channel (2402 MHz), Mid channel (2441 MHz), and High channel (2480 MHz); Monopole antenna; Power level 8; various data rates

POWER SETTINGS INVESTIGATED

24 VDC

CONFIGURATIONS INVESTIGATED

KOYO0001 - 3
KOYO0001 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	26500 MHz

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Antenna - Standard Gain	ETS Lindgren	3160-09	AHG	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	2019-09-11	12 mo
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNP	2019-09-11	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVX	2020-02-18	12 mo
Cable	Element	Double Ridge Guide Horn Cables	MNV	2020-02-18	12 mo
Antenna - Double Ridge	ETS Lindgren	3115	AIB	2018-08-27	24 mo
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	2019-12-23	12 mo
Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	2019-12-21	12 mo
Antenna - Biconilog	ETS Lindgren	3142D	AXO	2019-09-03	24 mo
Cable	ESM Cable Corp.	Bilog Cables	MNH	2019-10-18	12 mo
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	AVO	2019-10-18	12 mo
Antenna - Double Ridge	ETS-Lindgren	3115	AJQ	2019-01-16	24 mo
Cable	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	2019-09-17	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVT	2020-01-17	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AXP	NCR	0 mo
Cable	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	2019-03-08	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	2020-01-17	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-08	AIQ	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVW	2020-01-17	12 mo
Antenna - Double Ridge	ETS Lindgren	3115	AIP	2018-07-12	24 mo

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.

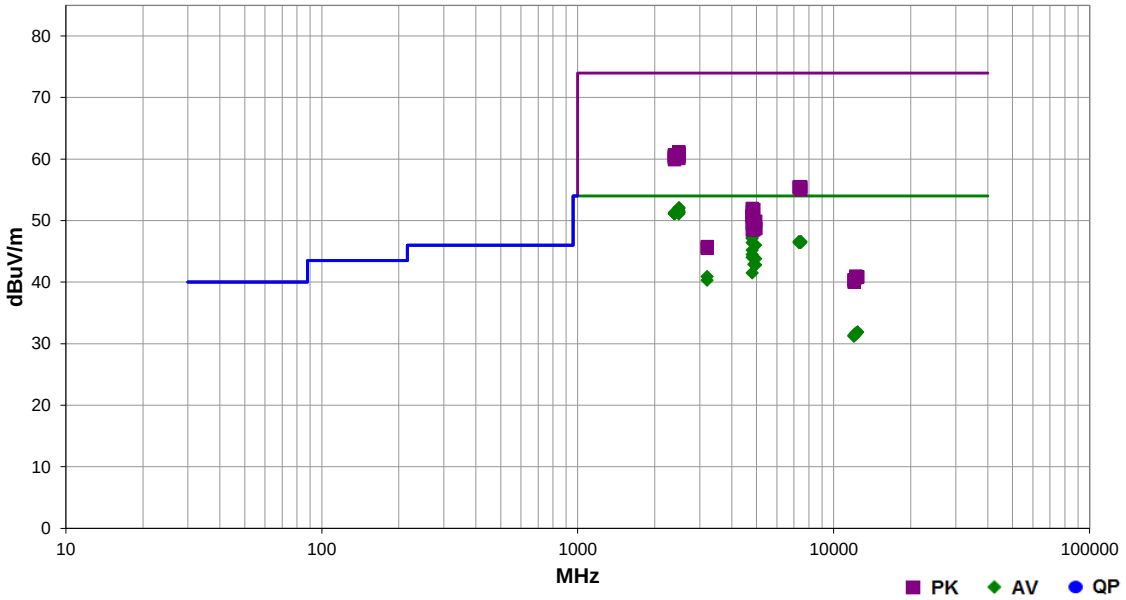
SPURIOUS RADIATED EMISSIONS

EmiR5 2019.08.15.1 PSA-ESCI 2019.11.08.1

Work Order:	KOYO0001	**Date:**	2020-02-11		
Project:	None	**Temperature:**	22.1 °C		
Job Site:	MN05	**Humidity:**	21.9% RH		
Serial Number:	N/A	**Barometric Pres.:**	1019 mbar	**Tested by:**	Dan Haas
EUT:	C2-03CPU				
Configuration:	2				
Customer:	Koyo Electronics Industries Co., LTD				
Attendees:	None				
EUT Power:	24 VDC				
Operating Mode:	Transmitting Bluetooth on Low channel (2402 MHz), Mid channel (2441 MHz), and High channel (2480 MHz); Monopole antenna; Power level 8; various data rates				
Deviations:	None				
Comments:	See comments for EUT orientation, transmit channel, and data rate. A duty cycle correction factor (DCCF) of 2.4 dB was applied based on a measured duty cycle of 57.57%. DCCF=10*log(1/.5757)=2.4				

Test Specifications	**Test Method**
FCC 15.247:2020	ANSI C63.10:2013

Run #	164	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2487.453	33.4	-3.7	1.5	178.9	2.4	20.0	Vert	AV	0.0	52.1	54.0	-1.9	EUT-Vert, High-2480 MHz, DH5
2487.060	33.3	-3.7	1.6	135.0	2.4	20.0	Horz	AV	0.0	52.0	54.0	-2.0	EUT-on side, High-2480 MHz, DH5
2487.473	32.9	-3.7	1.9	304.9	2.4	20.0	Horz	AV	0.0	51.6	54.0	-2.4	EUT-Horiz, High-2480 MHz, DH5
2487.407	32.7	-3.7	1.5	242.1	2.4	20.0	Horz	AV	0.0	51.4	54.0	-2.6	EUT-Vert, High-2480 MHz, DH5
2486.833	32.6	-3.7	1.5	331.0	2.4	20.0	Vert	AV	0.0	51.3	54.0	-2.7	EUT-Horiz, High-2480 MHz, DH5
2486.693	32.6	-3.7	1.5	220.0	2.4	20.0	Vert	AV	0.0	51.3	54.0	-2.7	EUT-on side, High-2480 MHz, DH5
2486.667	32.6	-3.7	1.5	317.0	2.4	20.0	Vert	AV	0.0	51.3	54.0	-2.7	EUT-Vert, High-2480 MHz, 3DH5
2387.160	32.6	-3.7	3.2	56.0	2.4	20.0	Vert	AV	0.0	51.3	54.0	-2.7	EUT-Horiz, Low-2402 MHz, 2DH5
2389.933	32.5	-3.7	2.3	160.9	2.4	20.0	Vert	AV	0.0	51.2	54.0	-2.8	EUT-Horiz, Low-2402 MHz, DH5
2389.747	32.5	-3.7	1.5	40.1	2.4	20.0	Horz	AV	0.0	51.2	54.0	-2.8	EUT-Horiz, Low-2402 MHz, DH5
2388.107	32.5	-3.7	1.7	55.0	2.4	20.0	Horz	AV	0.0	51.2	54.0	-2.8	EUT-Vert, Low-2402 MHz, DH5
2389.367	32.5	-3.7	3.4	122.0	2.4	20.0	Vert	AV	0.0	51.2	54.0	-2.8	EUT-on side, Low-2402 MHz, DH5
2388.413	32.5	-3.7	1.5	275.1	2.4	20.0	Horz	AV	0.0	51.2	54.0	-2.8	EUT-on side, Low-2402 MHz, DH5
2388.533	32.5	-3.7	1.5	91.1	2.4	20.0	Horz	AV	0.0	51.2	54.0	-2.8	EUT-Horiz, Low-2402 MHz, 2DH5
2388.487	32.5	-3.7	1.1	318.9	2.4	20.0	Vert	AV	0.0	51.2	54.0	-2.8	EUT-Horiz, Low-2402 MHz, 3DH5
2389.500	32.5	-3.7	1.5	27.0	2.4	20.0	Horz	AV	0.0	51.2	54.0	-2.8	EUT-Horiz, Low-2402 MHz, 3DH5
2484.080	32.5	-3.8	1.5	301.0	2.4	20.0	Vert	AV	0.0	51.1	54.0	-2.9	EUT-Vert, High-2480 MHz, 2DH5
2388.100	32.4	-3.7	1.5	241.9	2.4	20.0	Vert	AV	0.0	51.1	54.0	-2.9	EUT-Vert, Low-2402 MHz, DH5
4803.975	41.9	4.6	3.7	127.8	2.4	0.0	Vert	AV	0.0	48.9	54.0	-5.1	EUT-Horiz, Low-2402 MHz, DH5
4879.917	41.7	4.6	2.0	239.9	2.4	0.0	Horz	AV	0.0	48.7	54.0	-5.3	EUT-on side, Mid-2441 MHz, DH5
4803.925	40.3	4.6	3.6	130.0	2.4	0.0	Vert	AV	0.0	47.3	54.0	-6.7	EUT-Horiz, Low-2402 MHz, 2DH5
4803.942	40.1	4.6	2.2	66.9	2.4	0.0	Vert	AV	0.0	47.1	54.0	-6.9	EUT-on side, Low-2402 MHz, DH5
7322.092	30.8	13.4	1.5	234.0	2.4	0.0	Horz	AV	0.0	46.6	54.0	-7.4	EUT-on side, Mid-2441 MHz, DH5

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
7442.392	30.8	13.4	3.3	130.1	2.4	0.0	Horz	AV	0.0	46.6	54.0	-7.4	EUT-Horiz, High-2480 MHz, DH5
7442.333	30.7	13.4	3.2	102.9	2.4	0.0	Horz	AV	0.0	46.5	54.0	-7.5	EUT-on side, High-2480 MHz, DH5
7322.158	30.6	13.4	1.5	226.9	2.4	0.0	Vert	AV	0.0	46.4	54.0	-7.6	EUT-Horiz, Mid-2441 MHz, DH5
4804.033	39.4	4.6	1.5	260.9	2.4	0.0	Horz	AV	0.0	46.4	54.0	-7.6	EUT-on side, Low-2402 MHz, DH5
7441.708	30.6	13.4	1.5	73.0	2.4	0.0	Vert	AV	0.0	46.4	54.0	-7.6	EUT-Horiz, High-2480 MHz, DH5
4959.908	39.0	4.6	2.6	288.0	2.4	0.0	Vert	AV	0.0	46.0	54.0	-8.0	EUT-Horiz, High-2480 MHz, DH5
4804.000	38.2	4.6	1.2	168.9	2.4	0.0	Horz	AV	0.0	45.2	54.0	-8.8	EUT-Horiz, Low-2402 MHz, DH5
4803.967	37.5	4.6	1.9	155.0	2.4	0.0	Horz	AV	0.0	44.5	54.0	-9.5	EUT-Vert, Low-2402 MHz, DH5
4804.000	37.0	4.6	1.5	187.0	2.4	0.0	Vert	AV	0.0	44.0	54.0	-10.0	EUT-Vert, Low-2402 MHz, DH5
4960.017	36.8	4.6	1.9	167.0	2.4	0.0	Horz	AV	0.0	43.8	54.0	-10.2	EUT-on side, High-2480 MHz, DH5
4879.942	35.9	4.6	1.5	34.0	2.4	0.0	Vert	AV	0.0	42.9	54.0	-11.1	EUT-Horiz, Mid-2441 MHz, DH5
4959.967	35.8	4.6	2.2	45.0	2.4	0.0	Horz	AV	0.0	42.8	54.0	-11.2	EUT-Horiz, High-2480 MHz, DH5
4804.042	34.5	4.6	2.2	55.0	2.4	0.0	Vert	AV	0.0	41.5	54.0	-12.5	EUT-Horiz, Low-2402 MHz, 3DH5
2484.687	45.0	-3.8	1.5	220.0	0.0	20.0	Vert	PK	0.0	61.2	74.0	-12.8	EUT-on side, High-2480 MHz, DH5
2486.227	44.7	-3.7	1.9	304.9	0.0	20.0	Horz	PK	0.0	61.0	74.0	-13.0	EUT-Horiz, High-2480 MHz, DH5
2486.260	44.6	-3.7	1.5	178.9	0.0	20.0	Vert	PK	0.0	60.9	74.0	-13.1	EUT-Vert, High-2480 MHz, DH5
3202.677	39.3	-0.8	1.5	137.1	2.4	0.0	Vert	AV	0.0	40.9	54.0	-13.1	EUT-Vert, Low-2402 MHz, DH5
2487.380	44.5	-3.7	1.5	301.0	0.0	20.0	Vert	PK	0.0	60.8	74.0	-13.2	EUT-Vert, High-2480 MHz, 2DH5
2388.607	44.4	-3.7	2.3	160.9	0.0	20.0	Vert	PK	0.0	60.7	74.0	-13.3	EUT-Horiz, Low-2402 MHz, DH5
2387.620	44.3	-3.7	1.5	241.9	0.0	20.0	Vert	PK	0.0	60.6	74.0	-13.4	EUT-Vert, Low-2402 MHz, DH5
2486.233	44.2	-3.7	1.5	317.0	0.0	20.0	Vert	PK	0.0	60.5	74.0	-13.5	EUT-Vert, High-2480 MHz, 3DH5
2388.367	44.2	-3.7	1.5	91.1	0.0	20.0	Horz	PK	0.0	60.5	74.0	-13.5	EUT-Horiz, Low-2402 MHz, 2DH5
2388.600	44.2	-3.7	1.5	27.0	0.0	20.0	Horz	PK	0.0	60.5	74.0	-13.5	EUT-Horiz, Low-2402 MHz, 3DH5
2484.680	44.3	-3.8	1.6	135.0	0.0	20.0	Horz	PK	0.0	60.5	74.0	-13.5	EUT-on side, High-2480 MHz, DH5
2483.867	44.2	-3.8	1.5	242.1	0.0	20.0	Horz	PK	0.0	60.4	74.0	-13.6	EUT-Vert, High-2480 MHz, DH5
2386.507	44.1	-3.7	3.2	56.0	0.0	20.0	Vert	PK	0.0	60.4	74.0	-13.6	EUT-Horiz, Low-2402 MHz, 2DH5
2388.480	44.1	-3.7	1.1	318.9	0.0	20.0	Vert	PK	0.0	60.4	74.0	-13.6	EUT-Horiz, Low-2402 MHz, 3DH5
3202.718	38.7	-0.8	1.5	138.0	2.4	0.0	Horz	AV	0.0	40.3	54.0	-13.7	EUT-Vert, Low-2402 MHz, DH5
2389.407	43.9	-3.7	3.4	122.0	0.0	20.0	Vert	PK	0.0	60.2	74.0	-13.8	EUT-on side, Low-2402 MHz, DH5
2484.727	43.9	-3.8	1.5	331.0	0.0	20.0	Vert	PK	0.0	60.1	74.0	-13.9	EUT-Horiz, High-2480 MHz, DH5
2388.533	43.8	-3.7	1.5	40.1	0.0	20.0	Horz	PK	0.0	60.1	74.0	-13.9	EUT-Horiz, Low-2402 MHz, DH5
2387.853	43.7	-3.7	1.7	55.0	0.0	20.0	Horz	PK	0.0	60.0	74.0	-14.0	EUT-Vert, Low-2402 MHz, DH5
2389.887	43.6	-3.7	1.5	275.1	0.0	20.0	Horz	PK	0.0	59.9	74.0	-14.1	EUT-on side, Low-2402 MHz, DH5
7322.133	42.1	13.4	1.5	226.9	0.0	0.0	Vert	PK	0.0	55.5	74.0	-18.5	EUT-Horiz, Mid-2441 MHz, DH5
7438.025	42.1	13.4	3.3	130.1	0.0	0.0	Horz	PK	0.0	55.5	74.0	-18.5	EUT-Horiz, High-2480 MHz, DH5
7440.300	42.0	13.4	1.5	73.0	0.0	0.0	Vert	PK	0.0	55.4	74.0	-18.6	EUT-Horiz, High-2480 MHz, DH5
7322.158	41.9	13.4	1.5	234.0	0.0	0.0	Horz	PK	0.0	55.3	74.0	-18.7	EUT-on side, Mid-2441 MHz, DH5
7442.025	41.6	13.4	3.2	102.9	0.0	0.0	Horz	PK	0.0	55.0	74.0	-19.0	EUT-on side, High-2480 MHz, DH5
4803.750	47.4	4.6	1.9	155.0	0.0	0.0	Horz	PK	0.0	52.0	74.0	-22.0	EUT-Vert, Low-2402 MHz, DH5
12398.580	29.1	0.4	1.9	342.0	2.4	0.0	Vert	AV	0.0	31.9	54.0	-22.1	EUT-Horiz, High-2480 MHz, DH5
12398.320	29.1	0.4	1.1	28.9	2.4	0.0	Horz	AV	0.0	31.9	54.0	-22.1	EUT-on side, High-2480 MHz, DH5
4880.275	47.3	4.5	2.0	239.9	0.0	0.0	Horz	PK	0.0	51.8	74.0	-22.2	EUT-on side, Mid-2441 MHz, DH5
12201.390	30.0	-0.7	1.5	330.0	2.4	0.0	Vert	AV	0.0	31.7	54.0	-22.3	EUT-Horiz, Mid-2441 MHz, DH5
12197.810	29.8	-0.7	1.5	135.9	2.4	0.0	Horz	AV	0.0	31.5	54.0	-22.5	EUT-on side, Mid-2441 MHz, DH5
4803.500	46.9	4.6	3.6	130.0	0.0	0.0	Vert	PK	0.0	51.5	74.0	-22.5	EUT-Horiz, Low-2402 MHz, 2DH5
12009.340	29.9	-0.9	1.5	343.9	2.4	0.0	Vert	AV	0.0	31.4	54.0	-22.6	EUT-Horiz, Low-2402 MHz, DH5
12008.030	29.9	-1.0	1.5	274.1	2.4	0.0	Vert	AV	0.0	31.3	54.0	-22.7	EUT-Horiz, Low-2402 MHz, 3DH5
12009.220	29.7	-0.9	1.5	296.0	2.4	0.0	Horz	AV	0.0	31.2	54.0	-22.8	EUT-on side, Low-2402 MHz, DH5
4803.667	46.3	4.6	3.7	127.8	0.0	0.0	Vert	PK	0.0	50.9	74.0	-23.1	EUT-Horiz, Low-2402 MHz, DH5
4804.383	46.2	4.6	1.5	260.9	0.0	0.0	Horz	PK	0.0	50.8	74.0	-23.2	EUT-on side, Low-2402 MHz, DH5
4803.942	46.1	4.6	2.2	66.9	0.0	0.0	Vert	PK	0.0	50.7	74.0	-23.3	EUT-on side, Low-2402 MHz, DH5
4803.833	45.9	4.6	1.2	168.9	0.0	0.0	Horz	PK	0.0	50.5	74.0	-23.5	EUT-Horiz, Low-2402 MHz, DH5
4960.475	45.3	4.6	2.6	288.0	0.0	0.0	Vert	PK	0.0	49.9	74.0	-24.1	EUT-Horiz, High-2480 MHz, DH5
4803.675	44.9	4.6	1.5	187.0	0.0	0.0	Vert	PK	0.0	49.5	74.0	-24.5	EUT-Vert, Low-2402 MHz, DH5
4960.475	44.2	4.6	1.9	167.0	0.0	0.0	Horz	PK	0.0	48.8	74.0	-25.2	EUT-on side, High-2480 MHz, DH5
4959.142	44.1	4.6	2.2	45.0	0.0	0.0	Horz	PK	0.0	48.7	74.0	-25.3	EUT-Horiz, High-2480 MHz, DH5
4879.600	43.9	4.6	1.5	34.0	0.0	0.0	Vert	PK	0.0	48.5	74.0	-25.5	EUT-Horiz, Mid-2441 MHz, DH5
4803.450	43.9	4.6	2.2	55.0	0.0	0.0	Vert	PK	0.0	48.5	74.0	-25.5	EUT-Horiz, Low-2402 MHz, 3DH5
3202.693	46.6	-0.8	1.5	137.1	0.0	0.0	Vert	PK	0.0	45.8	74.0	-28.2	EUT-Vert, Low-2402 MHz, DH5
3202.518	46.3	-0.8	1.5	138.0	0.0	0.0	Horz	PK	0.0	45.5	74.0	-28.5	EUT-Vert, Low-2402 MHz, DH5
12199.700	41.7	-0.7	1.5	330.0	0.0	0.0	Vert	PK	0.0	41.0	74.0	-33.0	EUT-Horiz, Mid-2441 MHz, DH5
12398.230	40.5	0.4	1.1	28.9	0.0	0.0	Horz	PK	0.0	40.9	74.0	-33.1	EUT-on side, High-2480 MHz, DH5
12398.790	40.4	0.4	1.9	342.0	0.0	0.0	Vert	PK	0.0	40.8	74.0	-33.2	EUT-Horiz, High-2480 MHz, DH5
12201.150	41.4	-0.7	1.5	135.9	0.0	0.0	Horz	PK	0.0	40.7	74.0	-33.3	EUT-on side, Mid-2441 MHz, DH5
12012.080	41.3	-0.9	1.5	343.9	0.0	0.0	Vert	PK	0.0	40.4	74.0	-33.6	EUT-Horiz, Low-2402 MHz, DH5
12008.430	41.2	-0.9	1.5	274.1	0.0	0.0	Vert	PK	0.0	40.3	74.0	-33.7	EUT-Horiz, Low-2402 MHz, 3DH5
12010.280	40.9	-0.9	1.5	296.0	0.0	0.0	Horz	PK	0.0	40.0	74.0	-34.0	EUT-on side, Low-2402 MHz, DH5

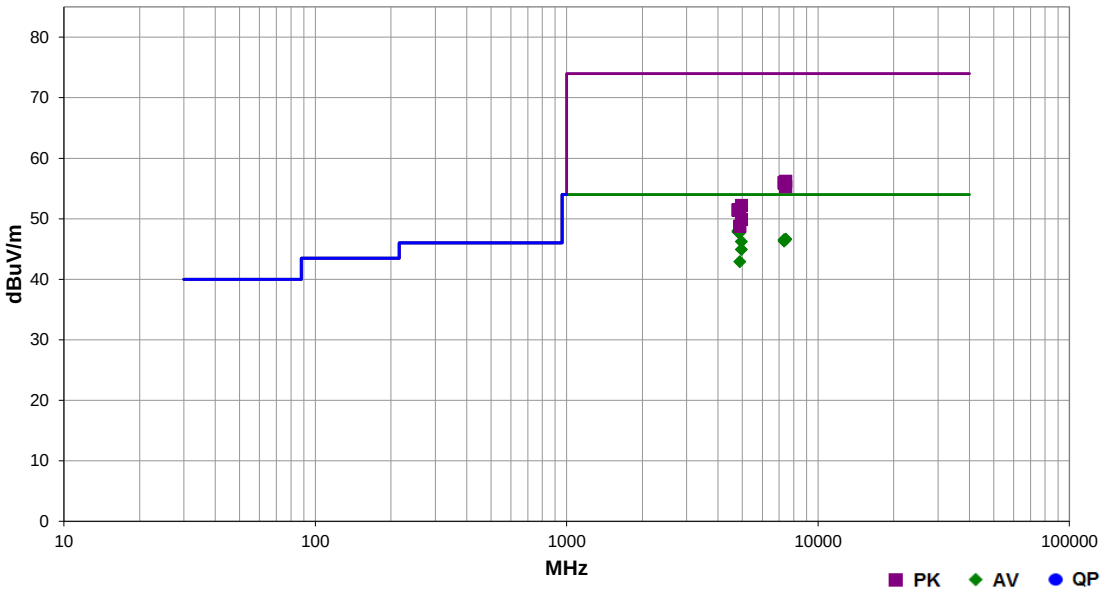
SPURIOUS RADIATED EMISSIONS

EmiR5 2019.08.15.1 PSA-ESCI 2019.11.08.1

Work Order:	KOYO0001	**Date:**	2020-03-02		
Project:	None	**Temperature:**	22.2 °C		
Job Site:	MN05	**Humidity:**	25.3% RH		
Serial Number:	N/A	**Barometric Pres.:**	1012 mbar	**Tested by:**	Andrew Rogstad
EUT:	C2-03CPU				
Configuration:	3				
Customer:	Koyo Electronics Industries Co., LTD				
Attendees:	None				
EUT Power:	24 VDC				
Operating Mode:	Transmitting Bluetooth on Low channel (2402 MHz), Mid channel (2440 MHz), and High channel (2480 MHz), Dome antenna, various data rates, power level 8				
Deviations:	None				
Comments:	See comments for EUT and antenna orientation, transmit frequency, and data rate. A duty cycle correction factor (DCCF) of 2.4 dB was applied based on a measured duty cycle of 57.57%. DCCF=10*log(1/.5757)=2.4				

Test Specifications	**Test Method**
FCC 15.247:2020	ANSI C63.10:2013

Run #	229	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
4803.917	41.0	4.6	1.5	171.8	2.4	0.0	Horz	AV	0.0	48.0	54.0	-6.0	PCB Horz, Ant Horz Z, Low ch., DH5
4803.908	40.8	4.6	2.36	182.9	2.4	0.0	Vert	AV	0.0	47.8	54.0	-6.2	PCB Horz, Ant Horz X, Low ch., DH5
4883.942	40.8	4.5	2.0	196.9	2.4	0.0	Horz	AV	0.0	47.7	54.0	-6.3	PCB Horz, Ant Horz Z, Mid ch., DH5
7441.850	30.8	13.4	2.19	94.0	2.4	0.0	Vert	AV	0.0	46.6	54.0	-7.4	PCB Horz, Ant Horz X, High ch., DH5
7442.492	30.8	13.4	1.5	94.0	2.4	0.0	Horz	AV	0.0	46.6	54.0	-7.4	PCB Horz, Ant Horz Z, High ch., DH5
7328.217	30.7	13.4	1.5	239.0	2.4	0.0	Horz	AV	0.0	46.5	54.0	-7.5	PCB Horz, Ant Horz Z, Mid ch., DH5
7323.858	30.5	13.4	1.5	52.1	2.4	0.0	Vert	AV	0.0	46.3	54.0	-7.7	PCB Horz, Ant Horz X, Mid ch., DH5
4959.933	39.2	4.6	1.5	188.1	2.4	0.0	Horz	AV	0.0	46.2	54.0	-7.8	PCB Horz, Ant Horz Z, High ch., DH5
4959.992	37.9	4.6	1.85	116.0	2.4	0.0	Vert	AV	0.0	44.9	54.0	-9.1	PCB Horz, Ant Horz X, High ch., DH5
4883.950	36.0	4.5	1.5	119.0	2.4	0.0	Vert	AV	0.0	42.9	54.0	-11.1	PCB Horz, Ant Horz X, Mid ch., DH5
7441.500	42.8	13.4	2.19	94.0	0.0	0.0	Vert	PK	0.0	56.2	74.0	-17.8	PCB Horz, Ant Horz X, High ch., DH5
7325.458	42.6	13.4	1.5	52.1	0.0	0.0	Vert	PK	0.0	56.0	74.0	-18.0	PCB Horz, Ant Horz X, Mid ch., DH5
7326.925	42.5	13.4	1.5	239.0	0.0	0.0	Horz	PK	0.0	55.9	74.0	-18.1	PCB Horz, Ant Horz Z, Mid ch., DH5
7440.483	41.9	13.4	1.5	94.0	0.0	0.0	Horz	PK	0.0	55.3	74.0	-18.7	PCB Horz, Ant Horz Z, High ch., DH5
4959.808	47.6	4.6	1.5	188.1	0.0	0.0	Horz	PK	0.0	52.2	74.0	-21.8	PCB Horz, Ant Horz Z, High ch., DH5
4804.458	46.9	4.6	1.5	171.8	0.0	0.0	Horz	PK	0.0	51.5	74.0	-22.5	PCB Horz, Ant Horz Z, Low ch., DH5
4884.250	46.9	4.5	2.0	196.9	0.0	0.0	Horz	PK	0.0	51.4	74.0	-22.6	PCB Horz, Ant Horz Z, Mid ch., DH5
4804.233	46.8	4.6	2.36	182.9	0.0	0.0	Vert	PK	0.0	51.4	74.0	-22.6	PCB Horz, Ant Horz X, Low ch., DH5
4960.375	45.3	4.6	1.85	116.0	0.0	0.0	Vert	PK	0.0	49.9	74.0	-24.1	PCB Horz, Ant Horz X, High ch., DH5
4884.000	44.3	4.5	1.5	119.0	0.0	0.0	Vert	PK	0.0	48.8	74.0	-25.2	PCB Horz, Ant Horz X, Mid ch., DH5

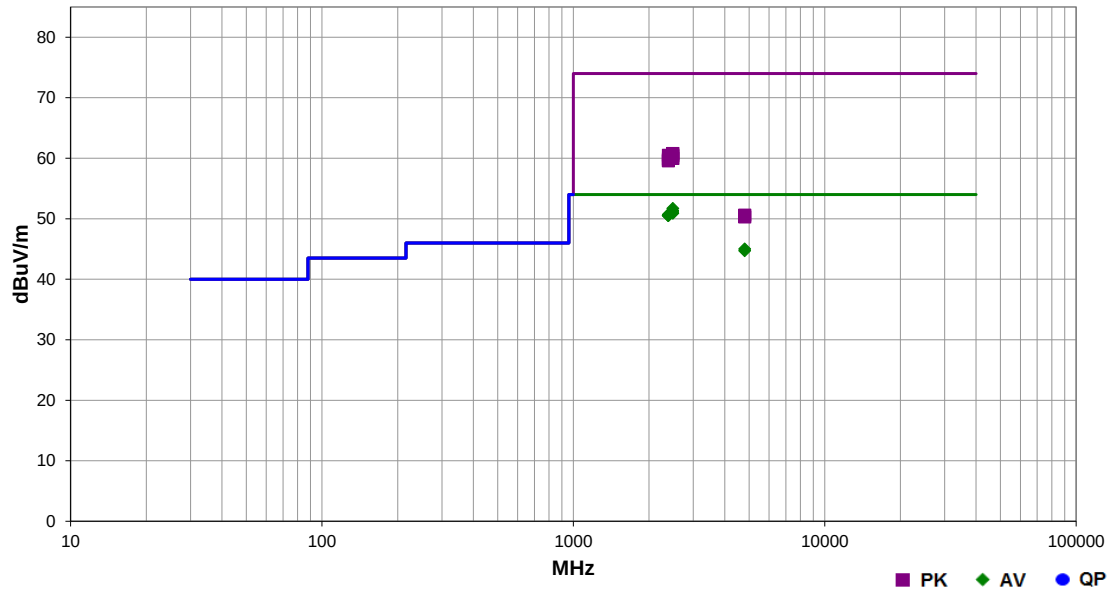
SPURIOUS RADIATED EMISSIONS

EmiRS 2019.08.15.1 PSA-ESCI 2019.11.08.1

Work Order:	KOYO0001	**Date:**	2020-03-04		
Project:	None	**Temperature:**	22.4 °C		
Job Site:	MN09	**Humidity:**	24.1% RH		
Serial Number:	N/A	**Barometric Pres.:**	1016 mbar	**Tested by:**	Andrew Rogstad
EUT:	C2-03CPU				
Configuration:	3				
Customer:	Koyo Electronics Industries Co., LTD				
Attendees:	None				
EUT Power:	24 VDC				
Operating Mode:	Transmitting Bluetooth on Low channel (2402 MHz) and High channel (2480 MHz), various data rates, power level 8				
Deviations:	None				
Comments:	See comments for EUT and antenna orientation, transmit frequency, and data rate. A duty cycle correction factor (DCCF) of 2.4 dB was applied based on a measured duty cycle of 57.57%. DCCF=10*log(1/.5757)=2.4				

Test Specifications	**Test Method**
FCC 15.247:2020	ANSI C63.10:2013

Run #	2	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2487.287	32.2	-2.9	1.5	120.0	2.4	20.0	Horz	AV	0.0	51.7	54.0	-2.3	PCB Horz, Ant Horz (Z), High ch., DH5
2485.687	31.8	-2.9	1.5	159.0	2.4	20.0	Vert	AV	0.0	51.3	54.0	-2.7	PCB Horz, Ant Horz (Z), High ch., DH5
2484.287	31.6	-2.9	1.5	89.0	2.4	20.0	Horz	AV	0.0	51.1	54.0	-2.9	PCB Horz, Ant Horz (Z), High ch., 3DH5
2487.033	31.4	-2.9	1.5	215.0	2.4	20.0	Horz	AV	0.0	50.9	54.0	-3.1	PCB Horz, Ant Horz (Z), High ch., 3DH5
2388.060	31.5	-3.2	1.5	345.0	2.4	20.0	Horz	AV	0.0	50.7	54.0	-3.3	PCB Horz, Ant Horz (Z), Low ch., DH5
2388.900	31.4	-3.2	1.5	149.0	2.4	20.0	Horz	AV	0.0	50.6	54.0	-3.4	PCB Horz, Ant Horz (Z), Low ch., 2DH5
2389.847	31.3	-3.2	1.5	260.0	2.4	20.0	Vert	AV	0.0	50.5	54.0	-3.5	PCB Horz, Ant Horz (Z), Low ch., DH5
2386.340	31.3	-3.2	2.9	221.0	2.4	20.0	Horz	AV	0.0	50.5	54.0	-3.5	PCB Horz, Ant Horz (Z), Low ch., 3DH5
4803.987	37.4	5.2	1.4	180.0	2.4	0.0	Horz	AV	0.0	45.0	54.0	-9.0	PCB Horz, Ant Horz (Z), Low ch., 3DH5
4803.980	37.1	5.2	1.1	350.0	2.4	0.0	Horz	AV	0.0	44.7	54.0	-9.3	PCB Horz, Ant Horz (Z), Low ch., 2DH5
2486.727	43.7	-2.9	1.5	120.0	0.0	20.0	Horz	PK	0.0	60.8	74.0	-13.2	PCB Horz, Ant Horz (Z), High ch., DH5
2485.927	43.4	-2.9	1.5	159.0	0.0	20.0	Vert	PK	0.0	60.5	74.0	-13.5	PCB Horz, Ant Horz (Z), High ch., DH5
2387.080	43.7	-3.2	1.5	260.0	0.0	20.0	Vert	PK	0.0	60.5	74.0	-13.5	PCB Horz, Ant Horz (Z), Low ch., DH5
2484.333	43.3	-2.9	1.5	89.0	0.0	20.0	Horz	PK	0.0	60.4	74.0	-13.6	PCB Horz, Ant Horz (Z), High ch., 3DH5
2487.473	42.9	-2.9	1.5	215.0	0.0	20.0	Horz	PK	0.0	60.0	74.0	-14.0	PCB Horz, Ant Horz (Z), High ch., 3DH5
2386.887	43.1	-3.2	2.9	221.0	0.0	20.0	Horz	PK	0.0	59.9	74.0	-14.1	PCB Horz, Ant Horz (Z), Low ch., 3DH5
2388.453	42.8	-3.2	1.5	345.0	0.0	20.0	Horz	PK	0.0	59.6	74.0	-14.4	PCB Horz, Ant Horz (Z), Low ch., DH5
2387.480	42.8	-3.2	1.5	149.0	0.0	20.0	Horz	PK	0.0	59.6	74.0	-14.4	PCB Horz, Ant Horz (Z), Low ch., 2DH5
4803.940	45.4	5.2	1.4	180.0	0.0	0.0	Horz	PK	0.0	50.6	74.0	-23.4	PCB Horz, Ant Horz (Z), Low ch., 3DH5
4804.253	45.1	5.2	1.1	350.0	0.0	0.0	Horz	PK	0.0	50.3	74.0	-23.7	PCB Horz, Ant Horz (Z), Low ch., 2DH5

DUTY CYCLE

XMit 2019.09.05

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
Power Supply	Kikusui	PWR401ML	TQL	NCR	NCR
Generator - Signal	Agilent	E4422B	TGQ	15-Mar-18	15-Mar-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	23-Dec-19	23-Dec-20
Block - DC	Fairview Microwave	SD3379	AMI	6-Aug-19	6-Aug-20
Attenuator	S.M. Electronics	SA26B-20	TZP	9-Nov-19	9-Nov-20
Cable	Micro-Coax	UFD150A-1-0720-200200	MNL	15-Sep-19	15-Sep-20

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.

DUTY CYCLE

element

TbtTx 2019.08.30.0 XMit 2019.09.05

EUT:	C2-03CPU			**Work Order:**	KOYO0001
Serial Number:	N/A			**Date:**	26-Feb-20
Customer:	Koyo Electronics Industries Co., LTD			**Temperature:**	22.4 °C
Attendees:	None			**Humidity:**	22.4% RH
Project:	None			**Barometric Pres.:**	1030 mbar
Tested by:	Andrew Rogstad	**Power:**	24VDC	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 15.247:2020	ANSI C63.10:2013

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	17	Signature

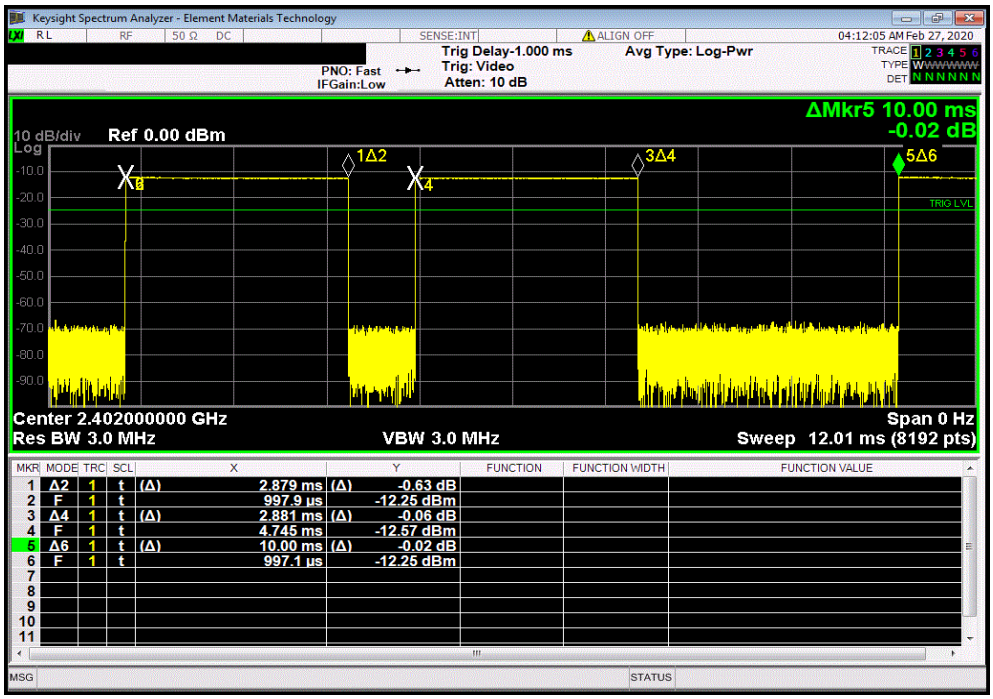
		Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
DH5, GFSK							
	Low Channel (2402 MHz)	5.76	10	1	57.6	N/A	N/A
	Low Channel (2402 MHz)	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel (2441 MHz)	5.758	10	1	57.58	N/A	N/A
	Mid Channel (2441 MHz)	N/A	N/A	5	N/A	N/A	N/A
	High Channel (2480 MHz)	5.757	10	1	57.57	N/A	N/A
	High Channel (2480 MHz)	N/A	N/A	5	N/A	N/A	N/A
2DH5, pi/4-DQPSK							
	Low Channel (2402 MHz)	5.771	10	1	57.71	N/A	N/A
	Low Channel (2402 MHz)	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel (2441 MHz)	5.775	10	1	57.75	N/A	N/A
	Mid Channel (2441 MHz)	N/A	N/A	5	N/A	N/A	N/A
	High Channel (2480 MHz)	5.775	10	1	57.75	N/A	N/A
	High Channel (2480 MHz)	N/A	N/A	5	N/A	N/A	N/A
3DH5, 8-DPSK							
	Low Channel (2402 MHz)	5.781	10	1	57.81	N/A	N/A
	Low Channel (2402 MHz)	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel (2441 MHz)	5.778	10	1	57.78	N/A	N/A
	Mid Channel (2441 MHz)	N/A	N/A	5	N/A	N/A	N/A
	High Channel (2480 MHz)	5.779	10	1	57.79	N/A	N/A
	High Channel (2480 MHz)	N/A	N/A	5	N/A	N/A	N/A

DUTY CYCLE

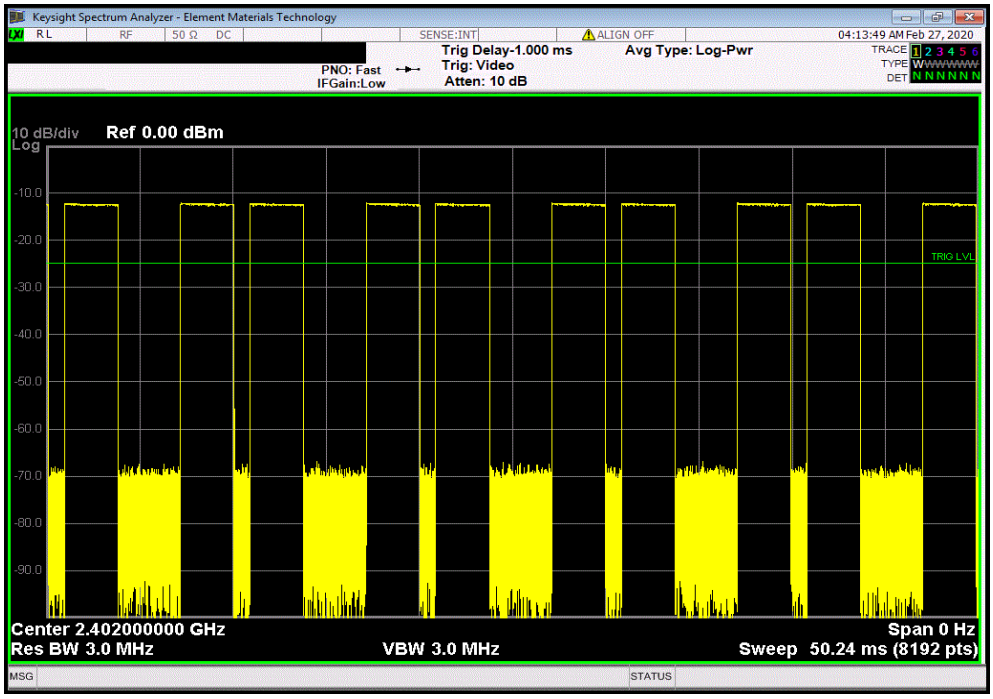
element

TbtTx 2019.08.30.0 XMit 2019.09.05

DH5, GFSK, Low Channel (2402 MHz)						
	Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
	5.76	10	1	57.6	N/A	N/A

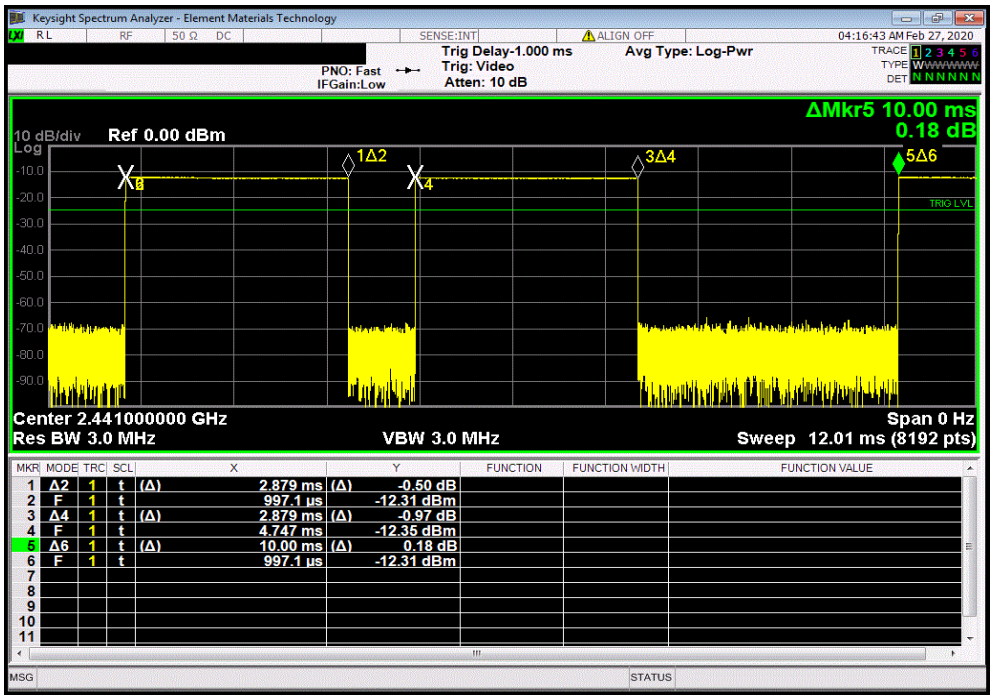


DH5, GFSK, Low Channel (2402 MHz)						
	Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

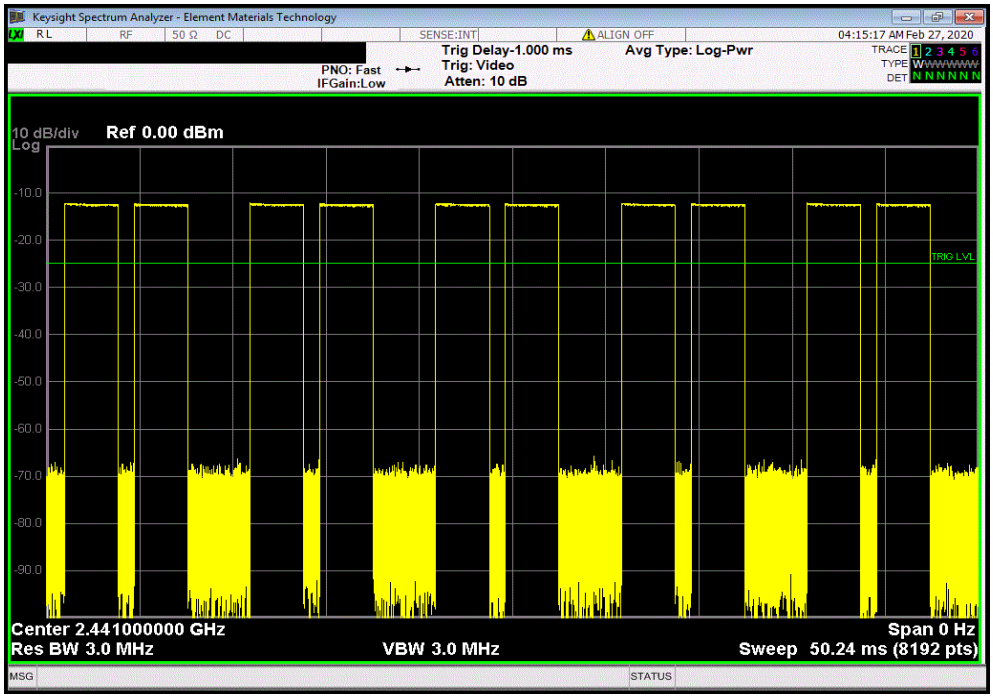


DUTY CYCLE

DH5, GFSK, Mid Channel (2441 MHz)						
	Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
	5.758	10	1	57.58	N/A	N/A

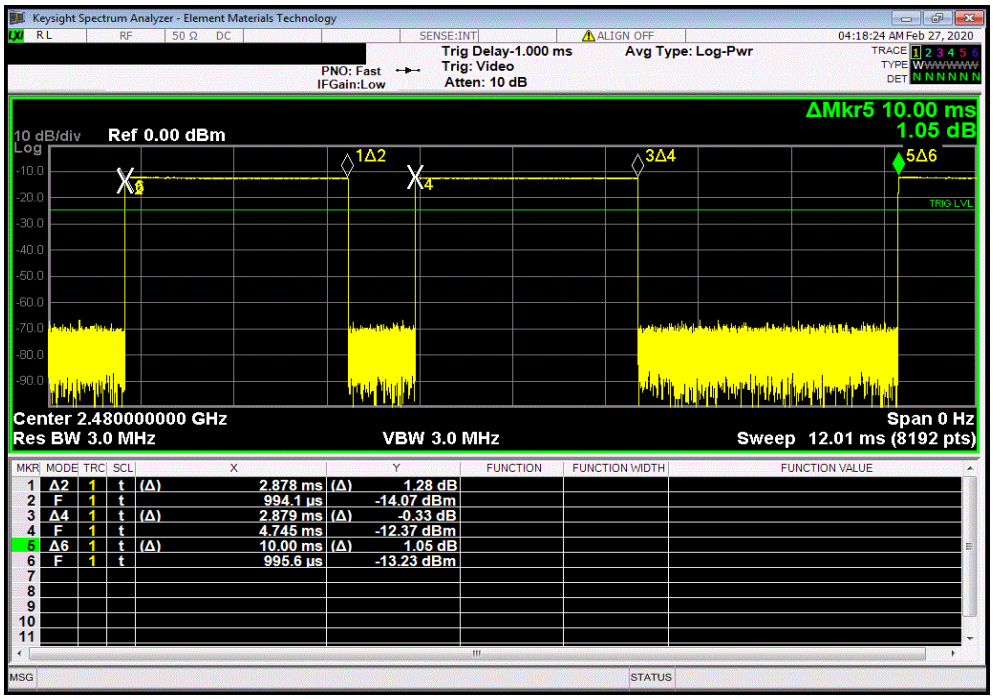


DH5, GFSK, Mid Channel (2441 MHz)						
	Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

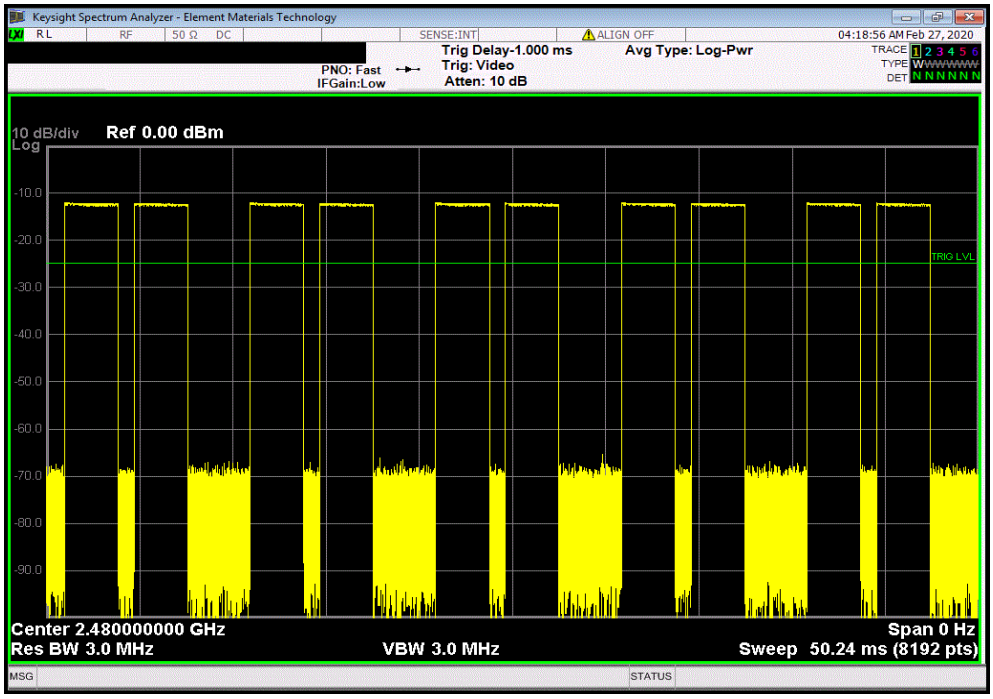


DUTY CYCLE

DH5, GFSK, High Channel (2480 MHz)						
	Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
	5.757	10	1	57.57	N/A	N/A

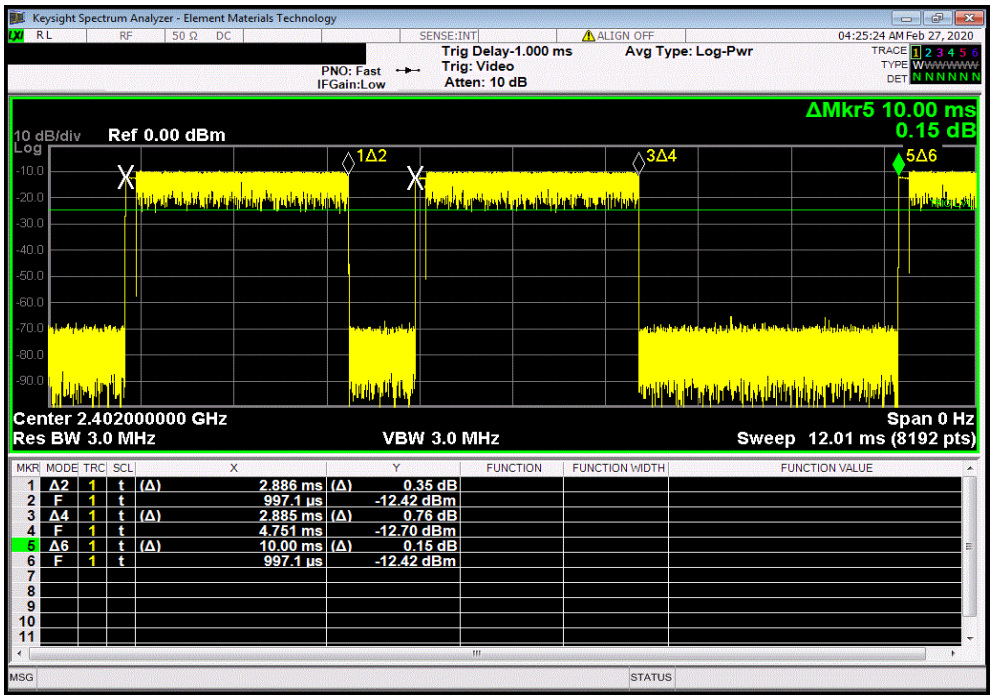


DH5, GFSK, High Channel (2480 MHz)						
	Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

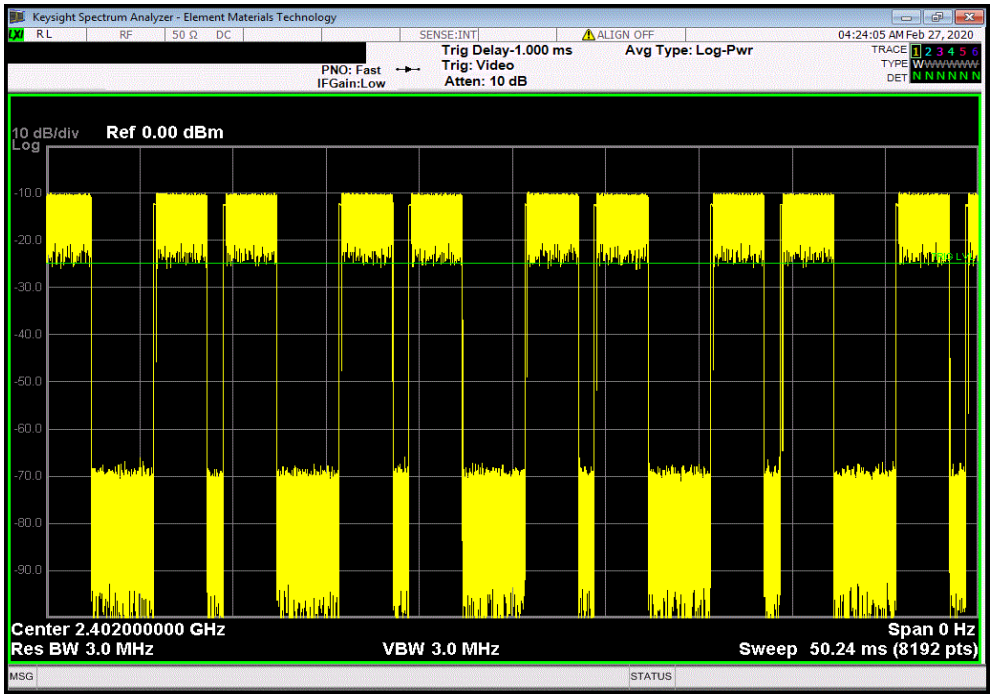


DUTY CYCLE

2DH5, pi/4-DQPSK, Low Channel (2402 MHz)						
	Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
	5.771	10	1	57.71	N/A	N/A

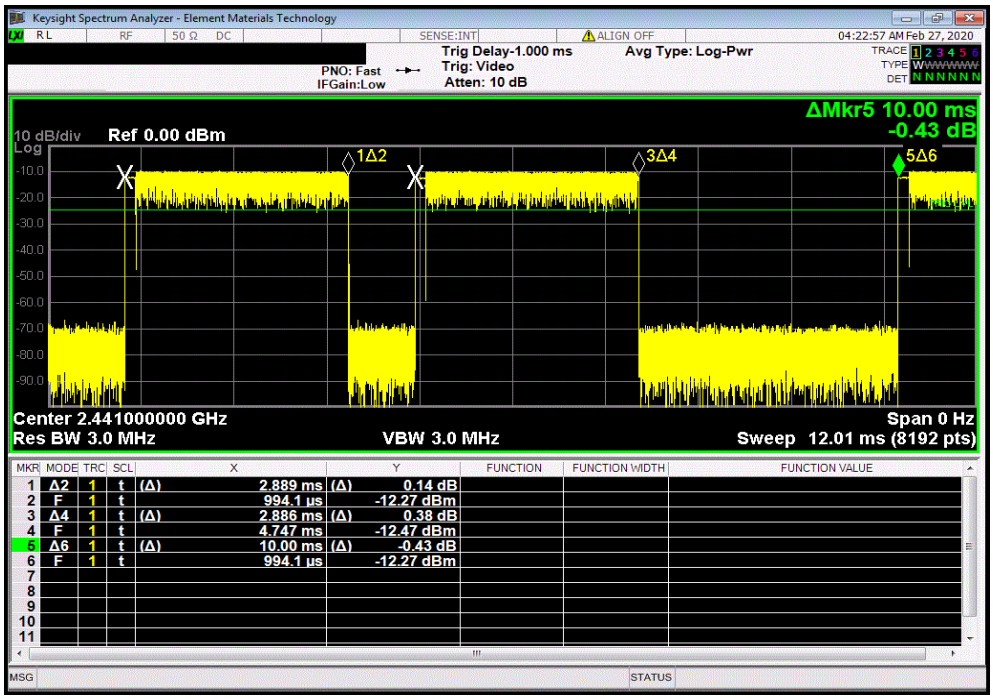


2DH5, pi/4-DQPSK, Low Channel (2402 MHz)						
	Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

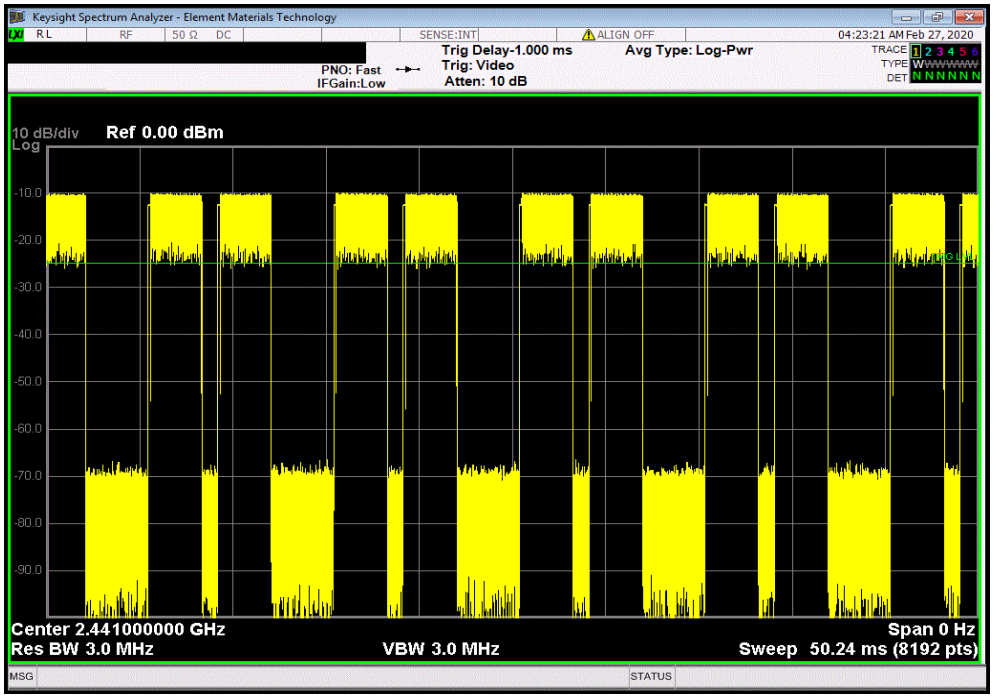


DUTY CYCLE

2DH5, pi/4-DQPSK, Mid Channel (2441 MHz)						
	Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
	5.775	10	1	57.75	N/A	N/A

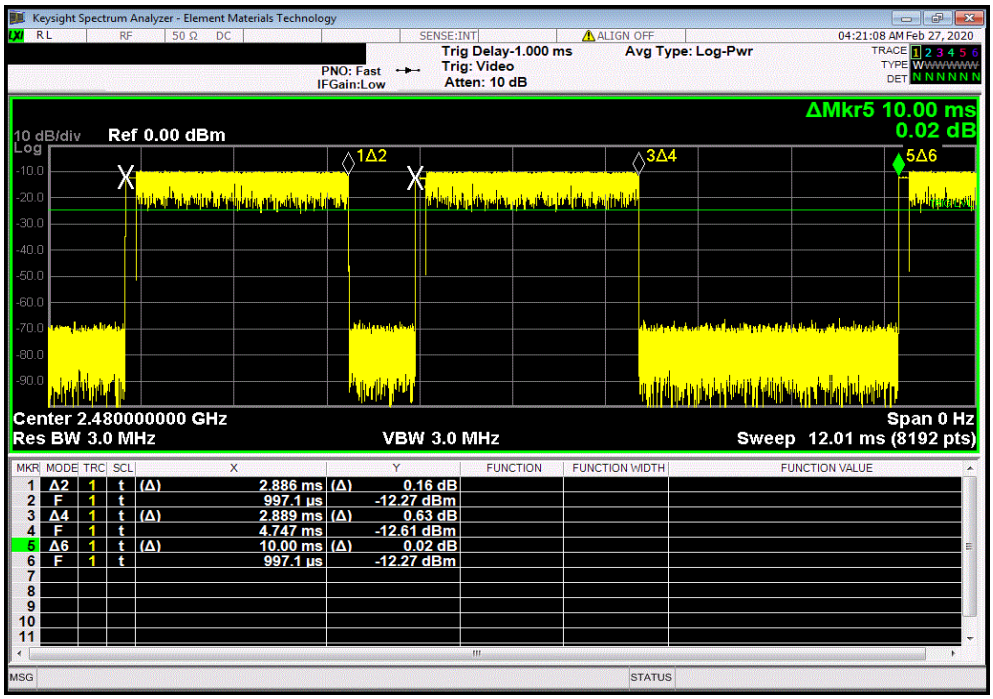


2DH5, pi/4-DQPSK, Mid Channel (2441 MHz)						
	Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

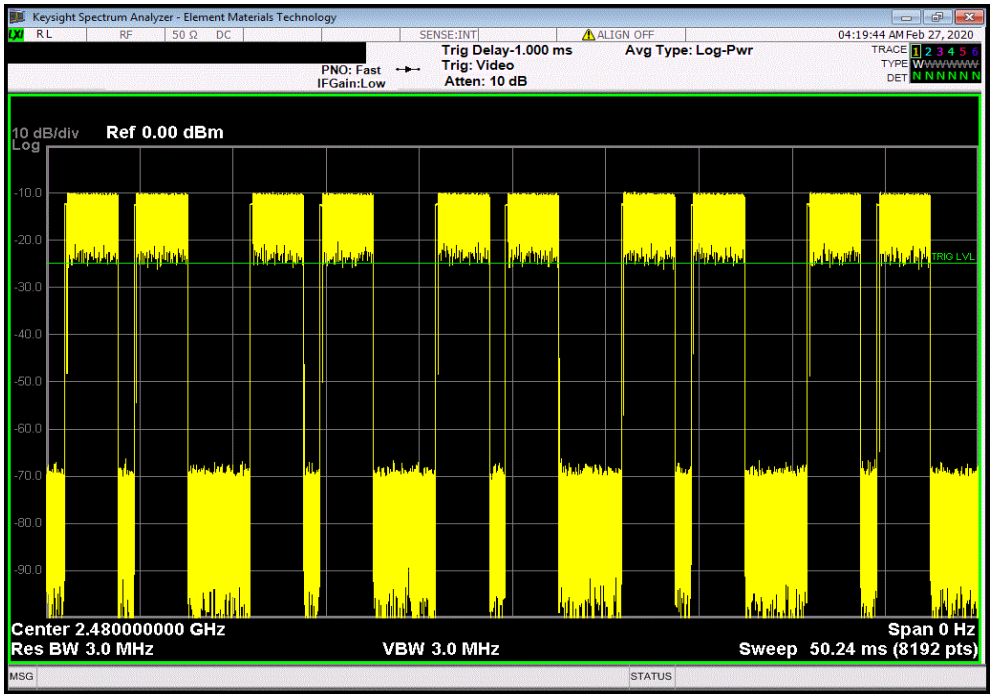


DUTY CYCLE

2DH5, pi/4-DQPSK, High Channel (2480 MHz)						
	Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
	5.775	10	1	57.75	N/A	N/A

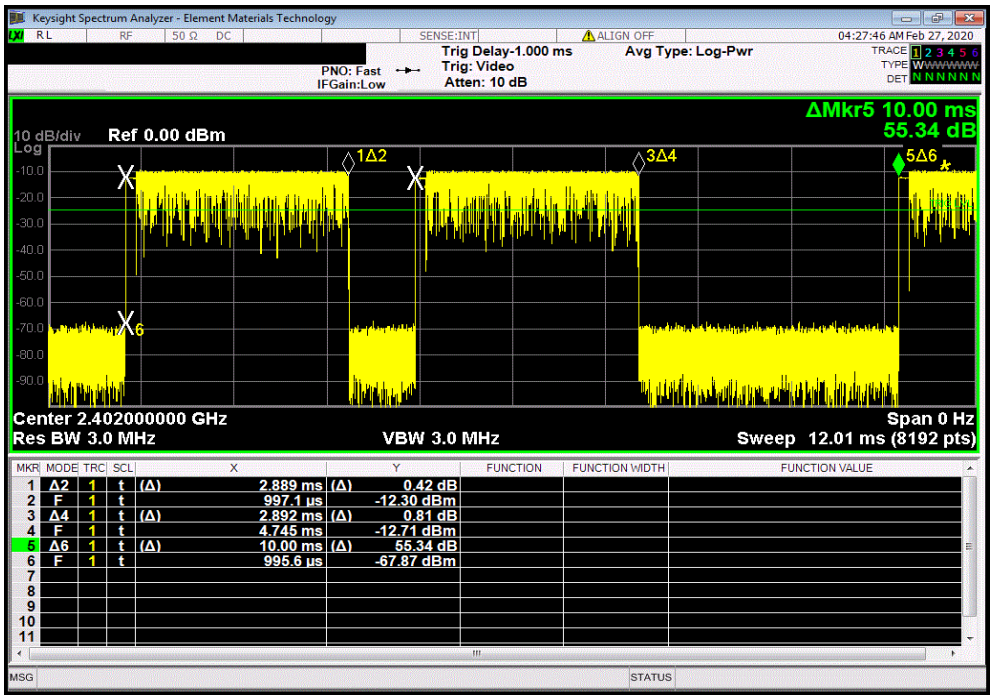


2DH5, pi/4-DQPSK, High Channel (2480 MHz)						
	Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

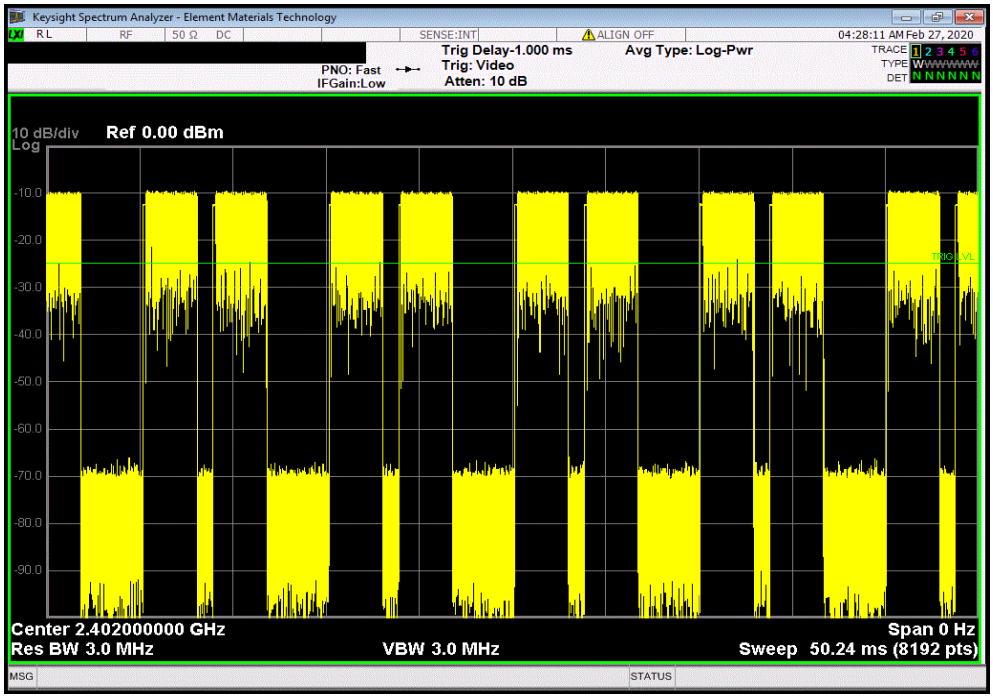


DUTY CYCLE

3DH5, 8-DPSK, Low Channel (2402 MHz)						
	Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
	5.781	10	1	57.81	N/A	N/A

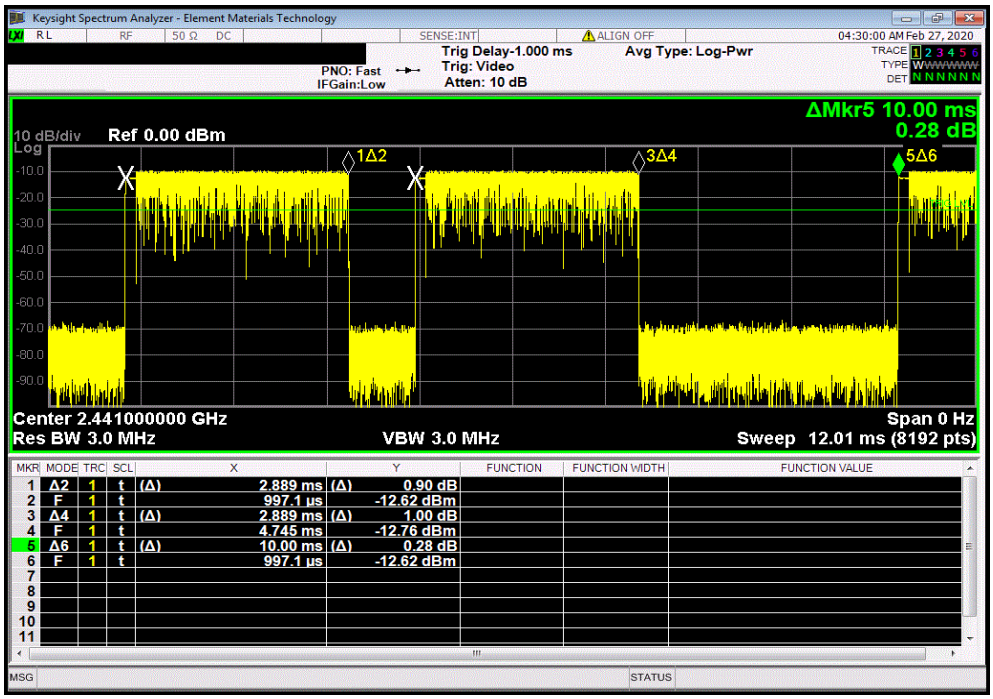


3DH5, 8-DPSK, Low Channel (2402 MHz)						
	Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

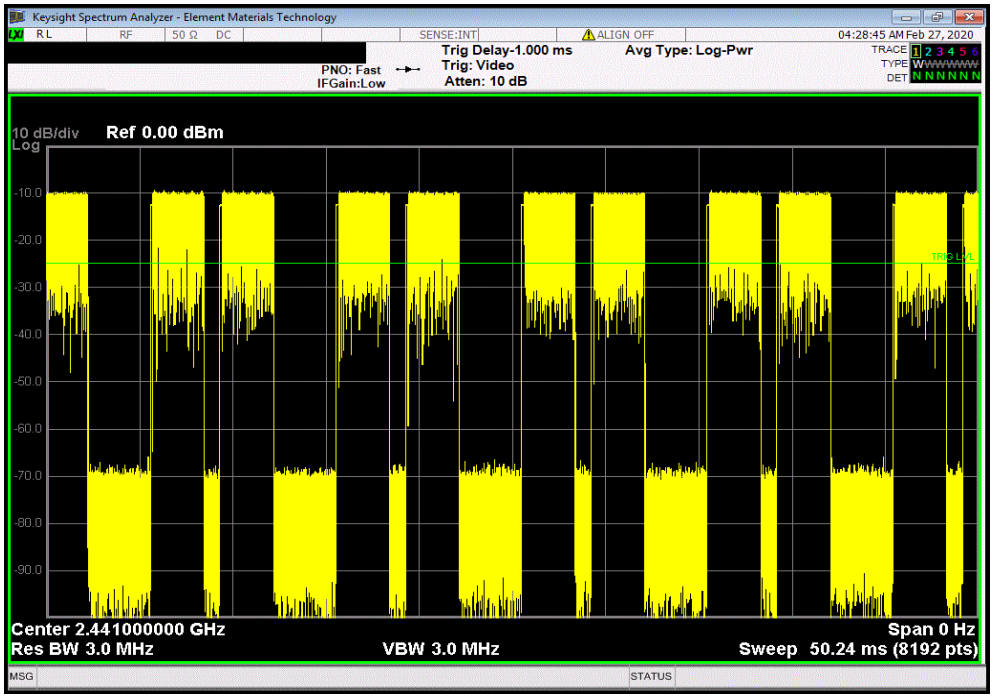


DUTY CYCLE

3DH5, 8-DPSK, Mid Channel (2441 MHz)						
	Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
	5.778	10	1	57.78	N/A	N/A

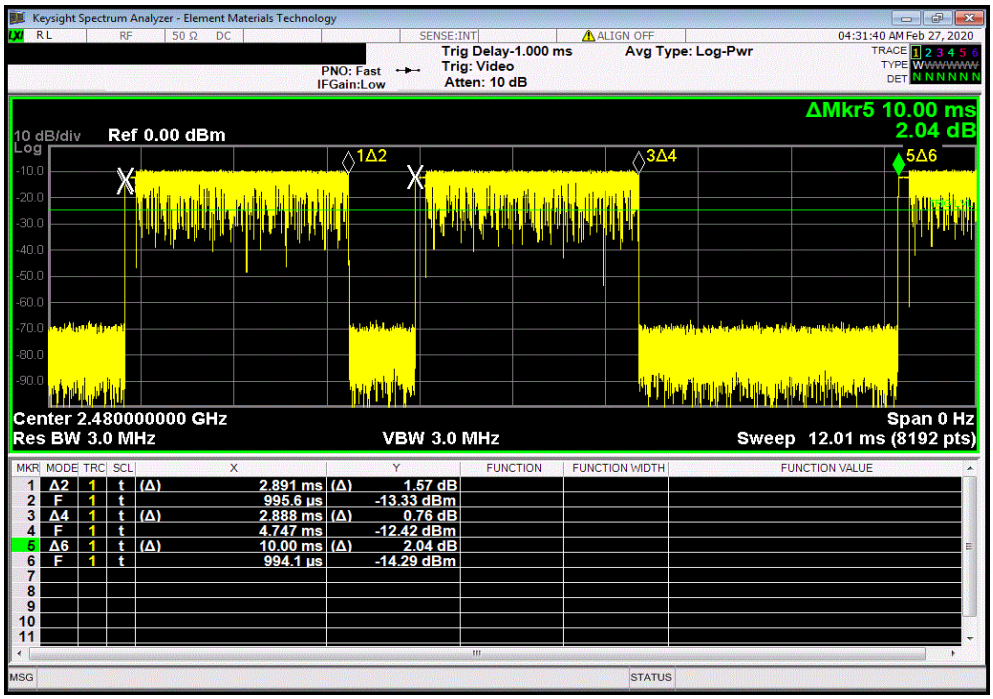


3DH5, 8-DPSK, Mid Channel (2441 MHz)						
	Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

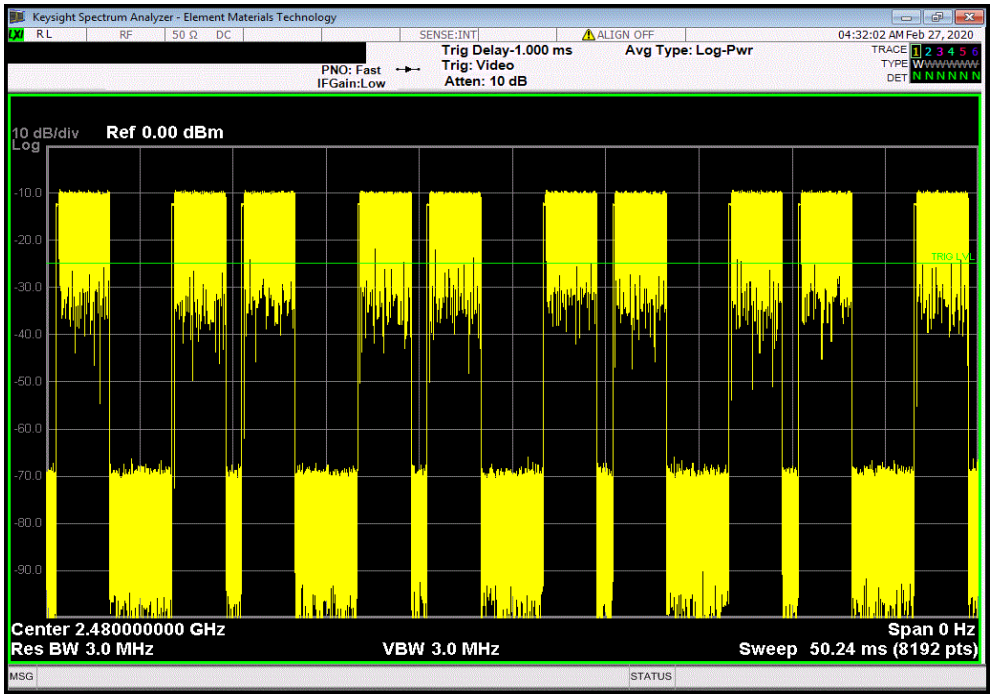


DUTY CYCLE

3DH5, 8-DPSK, High Channel (2480 MHz)						
	Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
	5.779	10	1	57.79	N/A	N/A



3DH5, 8-DPSK, High Channel (2480 MHz)						
	Total On Time (ms)	Period (ms)	Number of Periods	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



CARRIER FREQUENCY SEPARATION

XMit 2019.09.05

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
Power Supply - DC	Agilent	U8002A	TPZ	NCR	NCR
Block - DC	Fairview Microwave	SD3379	AMI	6-Aug-19	6-Aug-20
Attenuator	S.M. Electronics	SA26B-20	TZP	9-Nov-19	9-Nov-20
Generator - Signal	Keysight	N5171B (EXG)	TEY	31-Dec-19	31-Dec-22
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	23-Dec-19	23-Dec-20
Cable	Micro-Coax	UFD150A-1-0720-200200	MNL	15-Sep-19	15-Sep-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The channel carrier frequencies in the 2400-2483.5MHz band must be separated by 25 kHz or the 20dB bandwidth of the hopping channel, whichever is greater. Or, if the output power is less than 125 mW, the channel separation can be 25 kHz or 2/3 of the 20dB bandwidth. The EUT was operated in pseudorandom hopping mode. The spectrum was scanned across two adjacent peaks. The separation between the peaks of these channels was measured.

The EUT has an output of less than 125 mW, the largest 20dB occupied bandwidth is 1.322 MHz.

1.322 MHz * 2/3 = 0.881 MHz

CARRIER FREQUENCY SEPARATION

element

TbtTx 2019.08.30.0 XMit 2019.09.05

EUT:	C2-03CPU			**Work Order:**	KOYO0001
Serial Number:	N/A			**Date:**	14-Feb-20
Customer:	Koyo Electronics Industries Co., LTD			**Temperature:**	22.2 °C
Attendees:	None			**Humidity:**	14.7% RH
Project:	None			**Barometric Pres.:**	1026 mbar
Tested by:	Andrew Rogstad	**Power:**	24 VDC	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 15.247:2020	ANSI C63.10:2013

COMMENTS

Reference level offset includes 20 dB attenuator, DC block, and measurement cable.

DEVIATIONS FROM TEST STANDARD

None

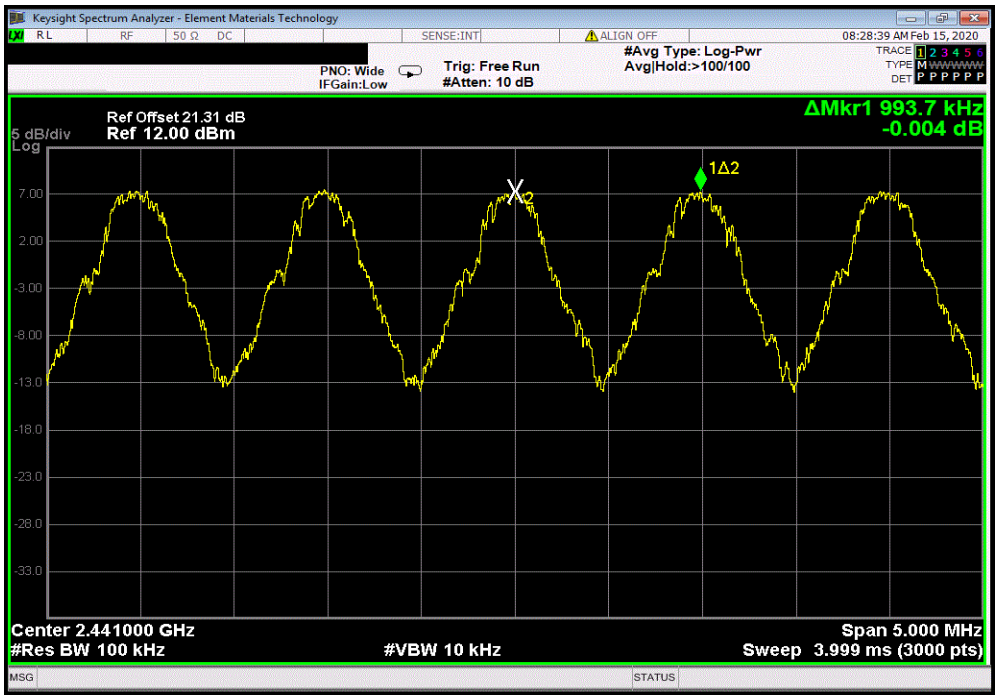
Configuration #	10	Signature

	Value	Limit (≥)	Results
Hopping Mode (All Channels)			
DH5, GFSK			
Mid Channel, 2441 MHz	0.994 MHz	0.881 MHz	Pass

CARRIER FREQUENCY SEPARATION

TbtTx 2019.08.30.0 XMit 2019.09.05

Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
				Value	Limit (≥)	Results
				0.994 MHz	0.881 MHz	Pass



NUMBER OF HOPPING FREQUENCIES

XMit 2019.09.05

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
Power Supply - DC	Agilent	U8002A	TPZ	NCR	NCR
Block - DC	Fairview Microwave	SD3379	AMI	6-Aug-19	6-Aug-20
Attenuator	S.M. Electronics	SA26B-20	TZP	9-Nov-19	9-Nov-20
Generator - Signal	Keysight	N5171B (EXG)	TEY	31-Dec-19	31-Dec-22
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	23-Dec-19	23-Dec-20
Cable	Micro-Coax	UFD150A-1-0720-200200	MNL	15-Sep-19	15-Sep-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The number of hopping frequencies was measured across the authorized band. The hopping function of the EUT was enabled.

NUMBER OF HOPPING FREQUENCIES

element

TbtTx 2019.08.30.0 XMit 2019.09.05

EUT:	C2-03CPU			**Work Order:**	KOYO0001
Serial Number:	N/A			**Date:**	14-Feb-20
Customer:	Koyo Electronics Industries Co., LTD			**Temperature:**	22.2 °C
Attendees:	None			**Humidity:**	14.6% RH
Project:	None			**Barometric Pres.:**	1025 mbar
Tested by:	Andrew Rogstad	**Power:**	24 VDC	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 15.247:2020	ANSI C63.10:2013

COMMENTS

Reference level offset includes 20 dB attenuator, DC block, and measurement cable.

DEVIATIONS FROM TEST STANDARD

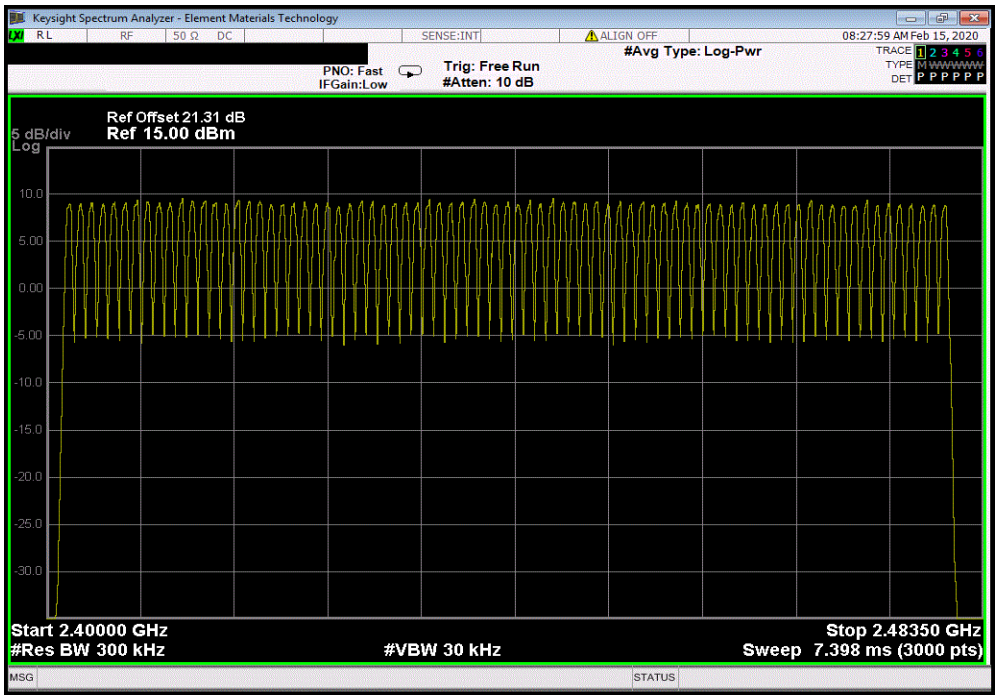
None

Configuration #	10	Signature

	Number of Channels	Limit (≥)	Results
Hopping Mode (All Channels)			
DH5, GFSK			
Mid Channel, 2441 MHz	79	15	Pass

NUMBER OF HOPPING FREQUENCIES

Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
				Number of Channels	Limit (≥)	Results
				79	15	Pass



DWELL TIME

XMit 2019.09.05

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
Power Supply - DC	Agilent	U8002A	TPZ	NCR	NCR
Block - DC	Fairview Microwave	SD3379	AMI	6-Aug-19	6-Aug-20
Attenuator	S.M. Electronics	SA26B-20	TZP	9-Nov-19	9-Nov-20
Generator - Signal	Keysight	N5171B (EXG)	TEY	31-Dec-19	31-Dec-22
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	23-Dec-19	23-Dec-20
Cable	Micro-Coax	UFD150A-1-0720-200200	MNL	15-Sep-19	15-Sep-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The average dwell time per hopping channel was measured at one hopping channel in the middle of the authorized band. The hopping function of the EUT was enabled.

The dwell time limit is based on the Number of Hopping Channels * 400 mS. For Bluetooth this would be 79 Channels * 400mS = 31.6 Sec.

On Time During 31.6 Sec = Pulse Width * Average Number of Pulses * Scale Factor

- Average Number of Pulses is based on 4 samples.
- Scale Factor = 31.6 Sec / Screen Capture Sweep Time = 31.6 Sec / 6.32 Sec = 5

DWELL TIME

element

TbtTx 2019.08.30.0 XMit 2019.09.05

EUT:	C2-03CPU			**Work Order:**	KOYO0001
Serial Number:	N/A			**Date:**	14-Feb-20
Customer:	Koyo Electronics Industries Co., LTD			**Temperature:**	22.3 °C
Attendees:	None			**Humidity:**	14.7% RH
Project:	None			**Barometric Pres.:**	1025 mbar
Tested by:	Andrew Rogstad	**Power:**	24 VDC	**Job Site:**	MN08

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2020	ANSI C63.10:2013

COMMENTS

Reference level offset includes 20 dB attenuator, DC block, and measurement cable.

DEVIATIONS FROM TEST STANDARD

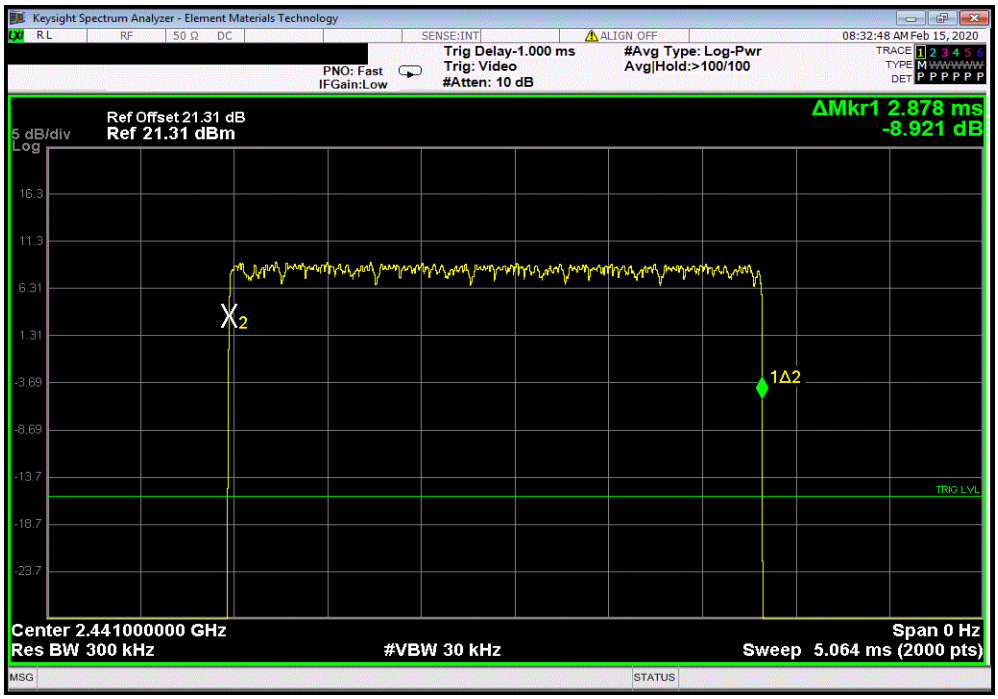
None

Configuration #	10	*Signature*

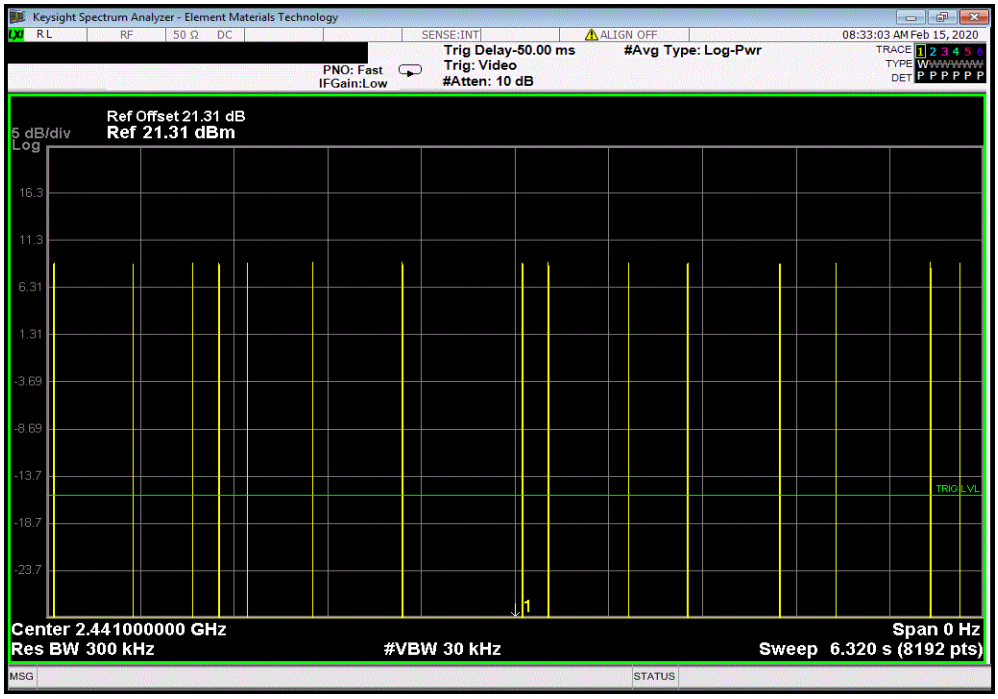
	Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
Hopping Mode (All Channels)							
DH5, GFSK							
Mid Channel, 2441 MHz	2.878	N/A	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	14	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	15	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	12	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	16	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	2.878	N/A	14.25	5	205.06	400	Pass
2DH5, pi/4-DQPSK							
Mid Channel, 2441 MHz	2.885	N/A	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	19	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	16	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	17	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	17	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	2.885	N/A	17.25	5	248.83	400	Pass
3DH5, 8-DPSK							
Mid Channel, 2441 MHz	2.906	N/A	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	15	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	17	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	19	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	17	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	2.906	N/A	17	5	247.01	400	Pass

DWELL TIME

Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.878	N/A	N/A	N/A	N/A	N/A	N/A

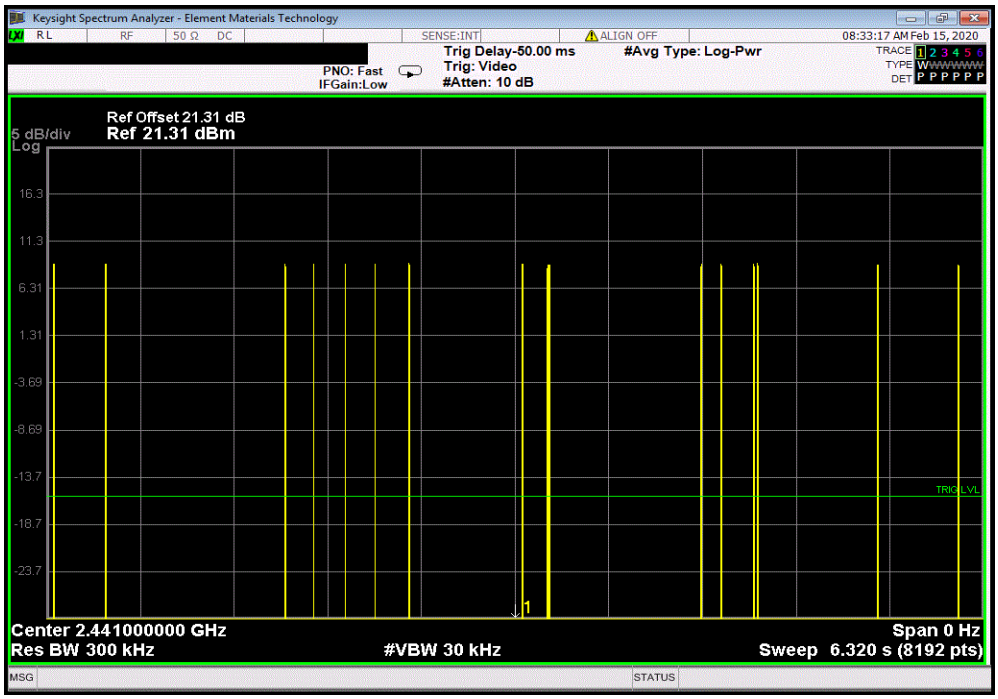


Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	14	N/A	N/A	N/A	N/A	N/A

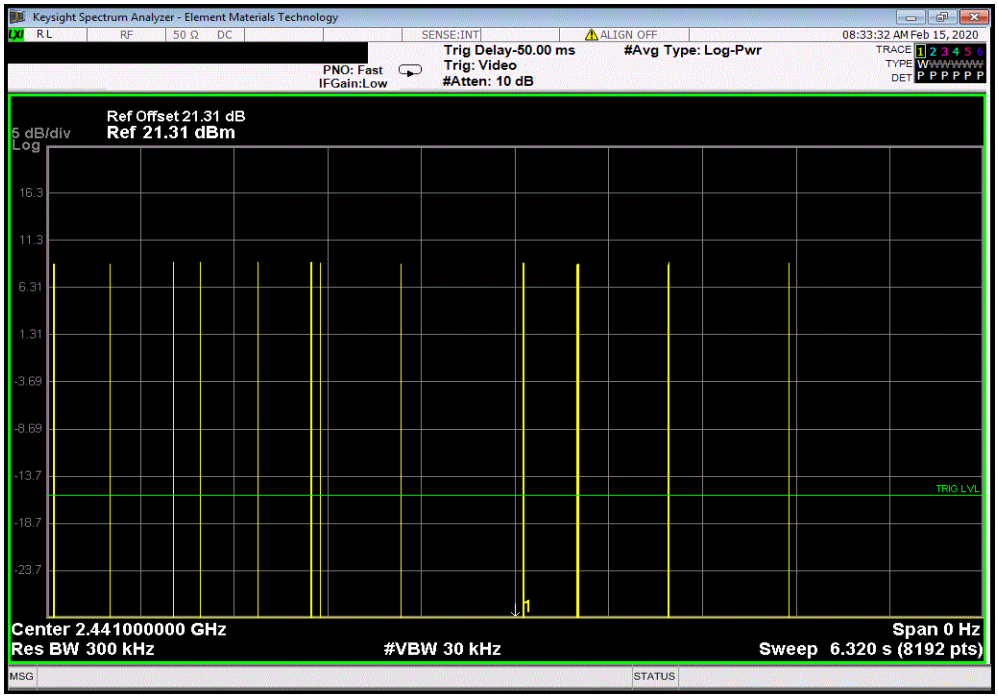


DWELL TIME

Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	15	N/A	N/A	N/A	N/A	N/A

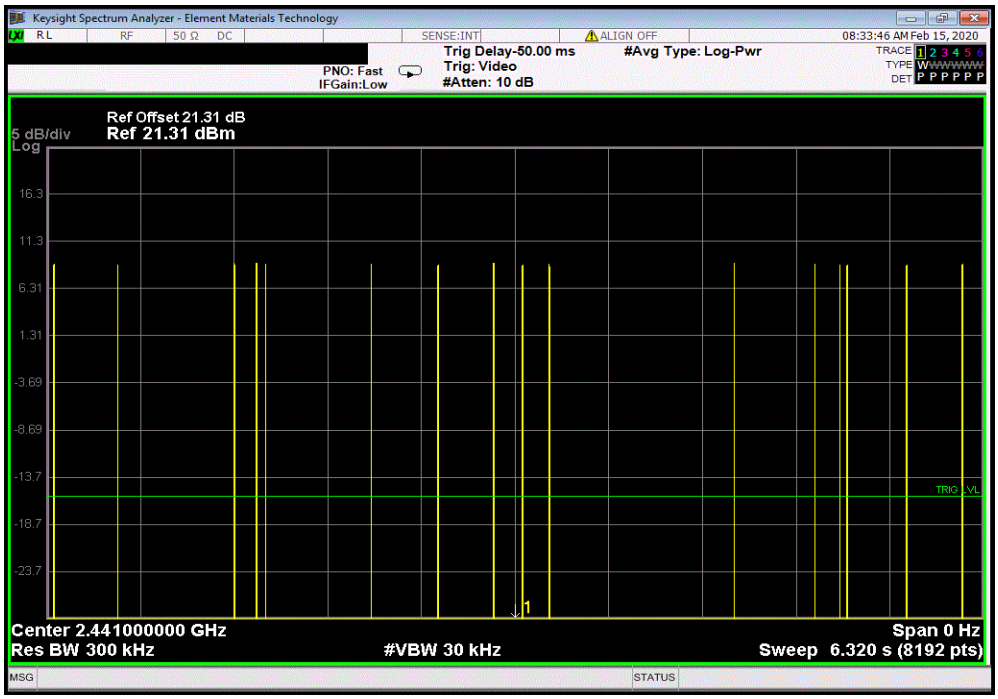


Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	12	N/A	N/A	N/A	N/A	N/A



DWELL TIME

Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	16	N/A	N/A	N/A	N/A	N/A

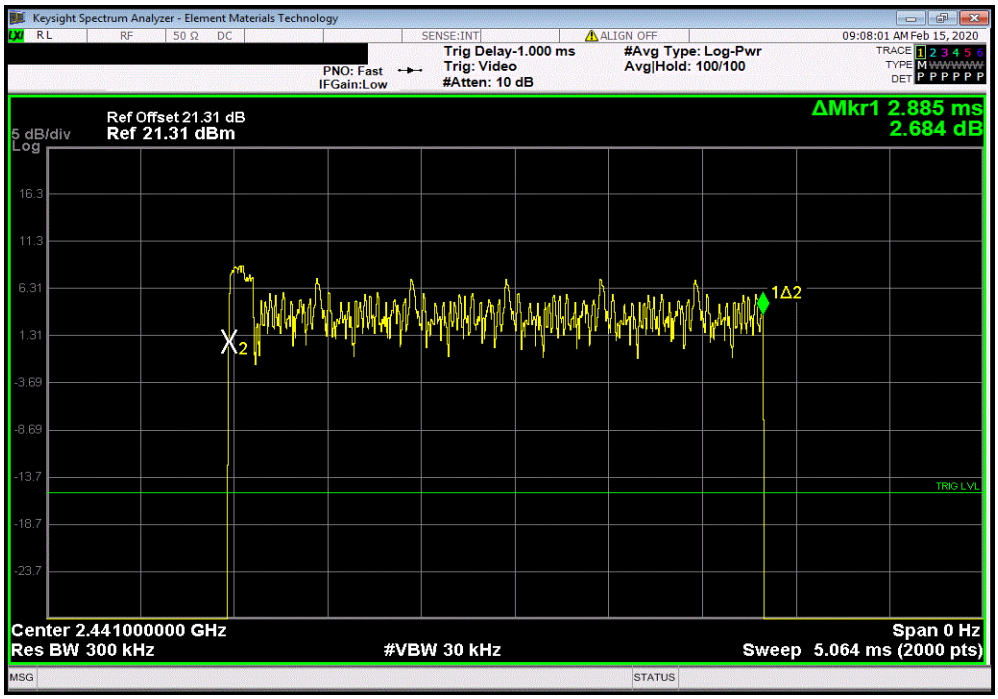


Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.878	N/A	14.25	5	205.06	400	Pass

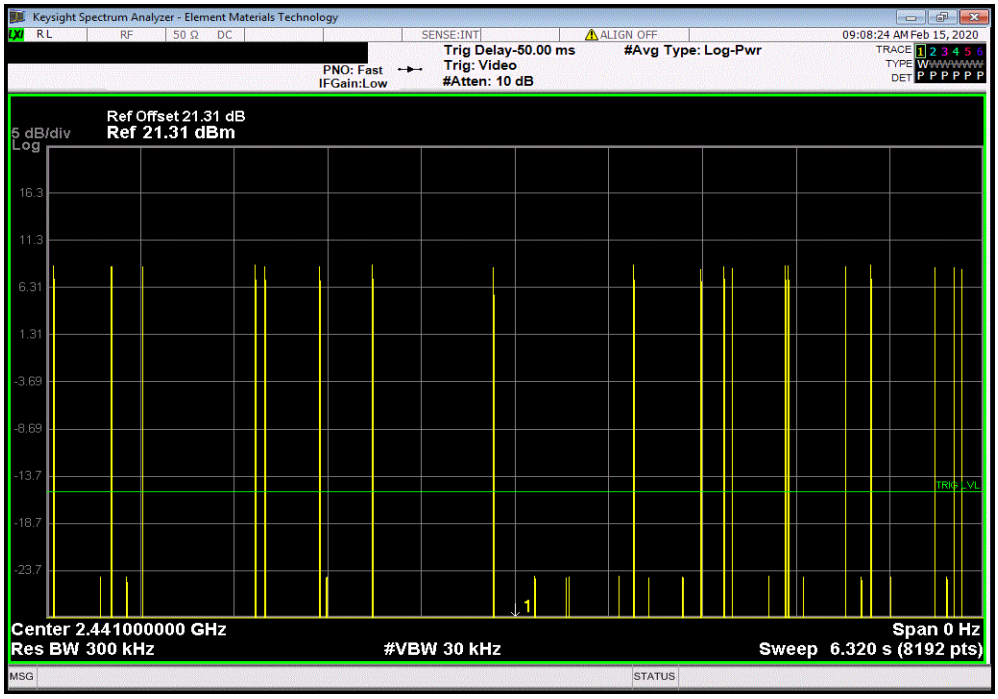
Calculation Only

No Screen Capture Required

Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.885	N/A	N/A	N/A	N/A	N/A	N/A

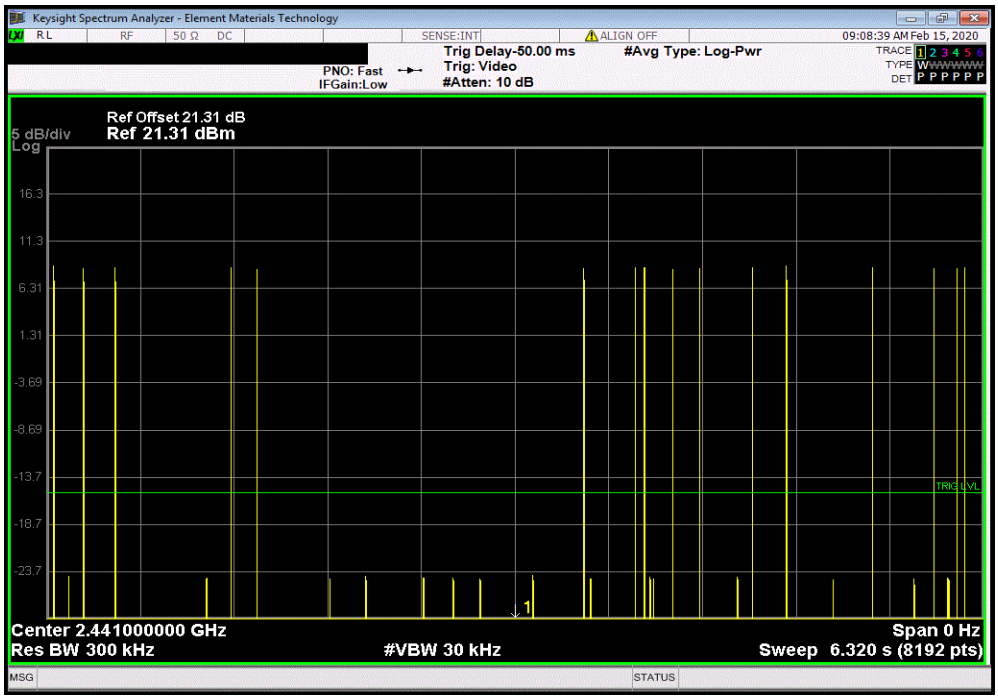


Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	19	N/A	N/A	N/A	N/A	N/A

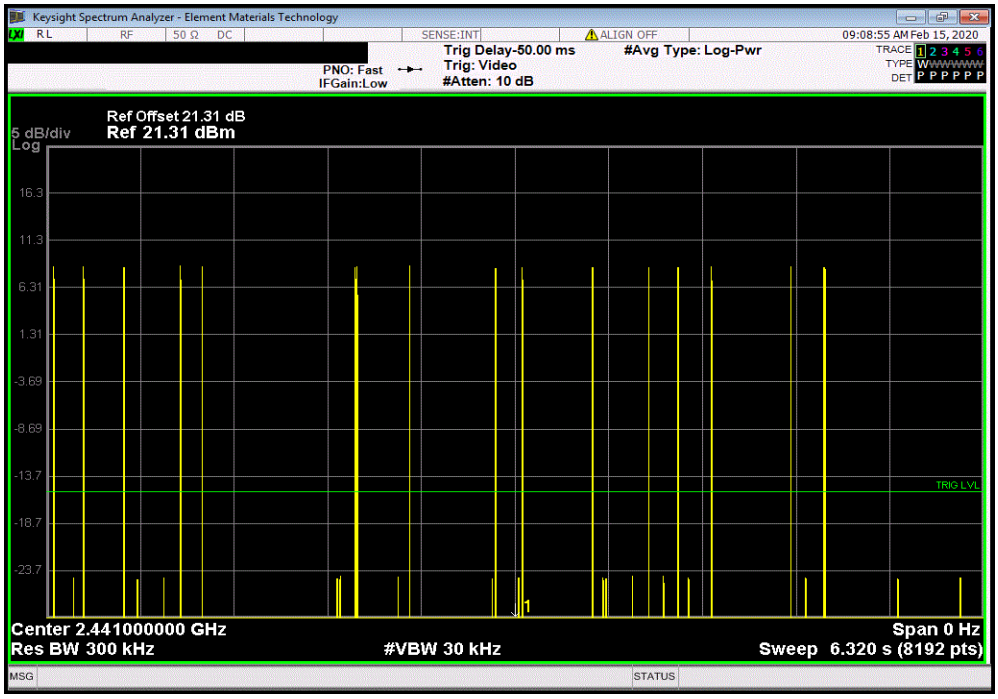


DWELL TIME

Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	16	N/A	N/A	N/A	N/A	N/A

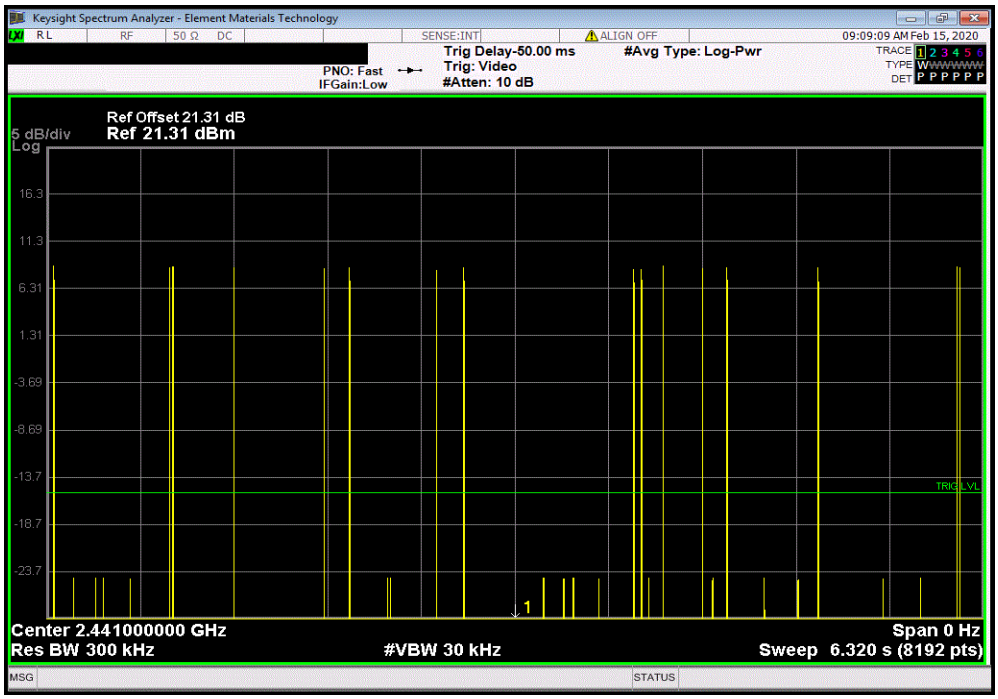


Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	17	N/A	N/A	N/A	N/A	N/A



DWELL TIME

Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	17	N/A	N/A	N/A	N/A	N/A



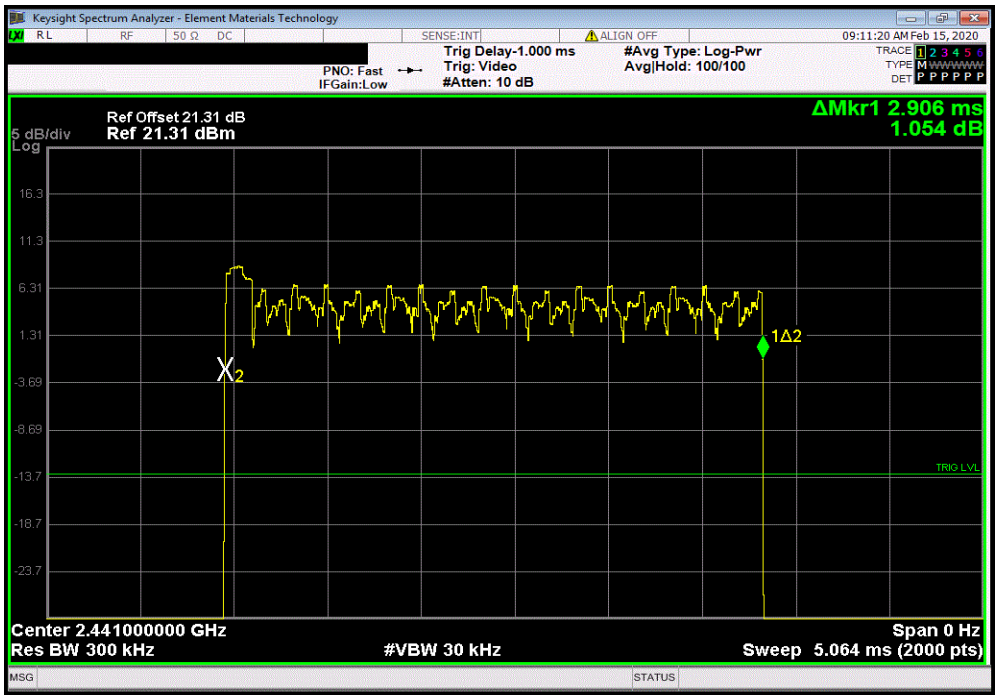
Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.885	N/A	17.25	5	248.83	400	Pass

Calculation Only

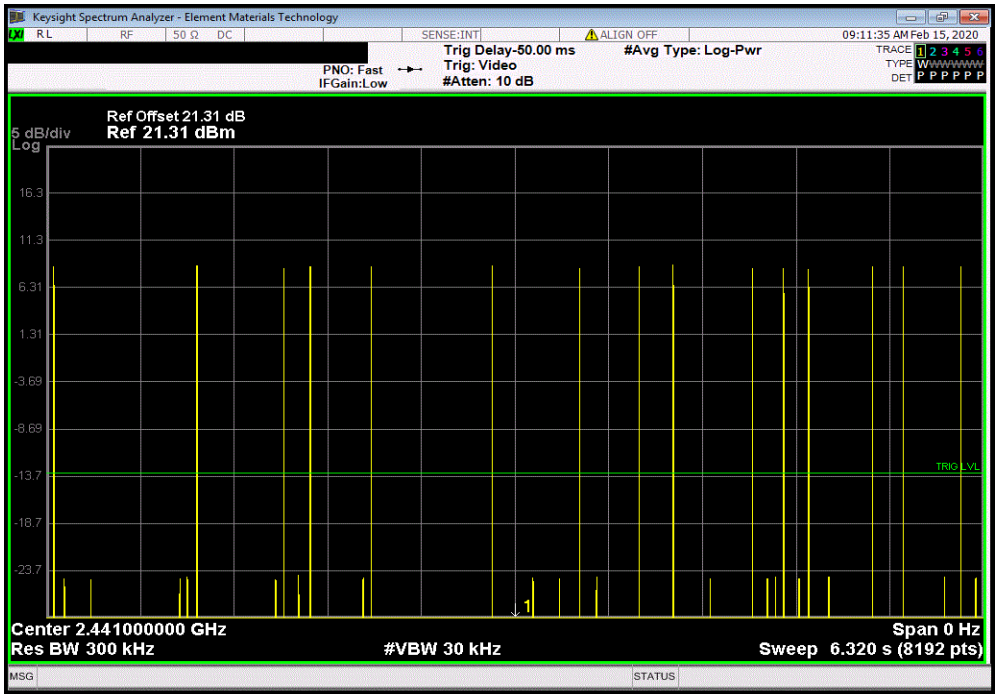
No Screen Capture Required

DWELL TIME

Hopping Mode (All Channels), 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.906	N/A	N/A	N/A	N/A	N/A	N/A

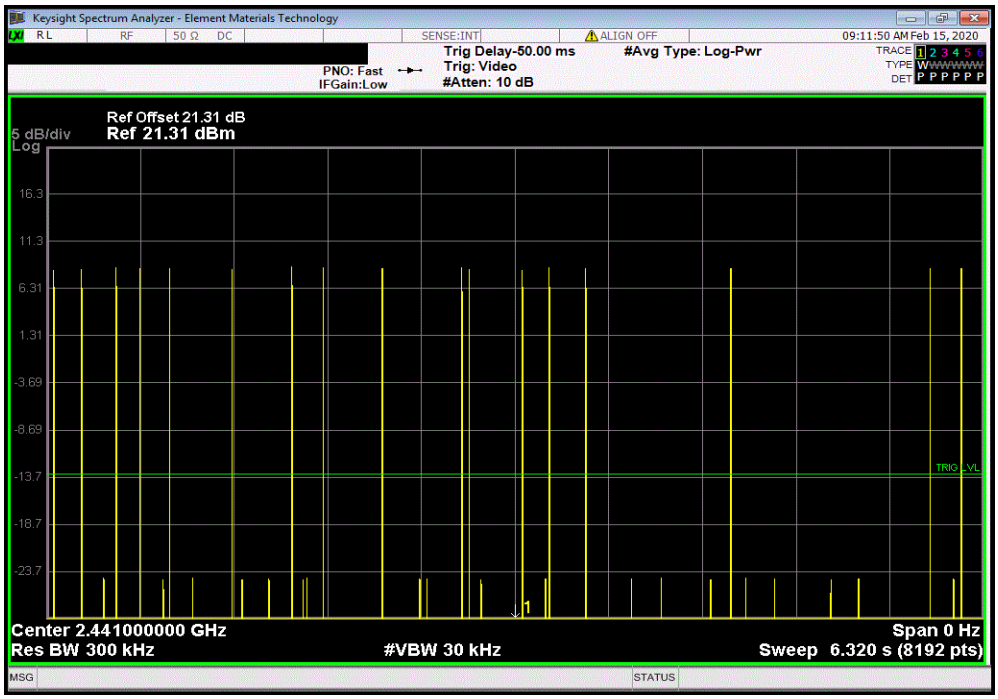


Hopping Mode (All Channels), 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	15	N/A	N/A	N/A	N/A	N/A

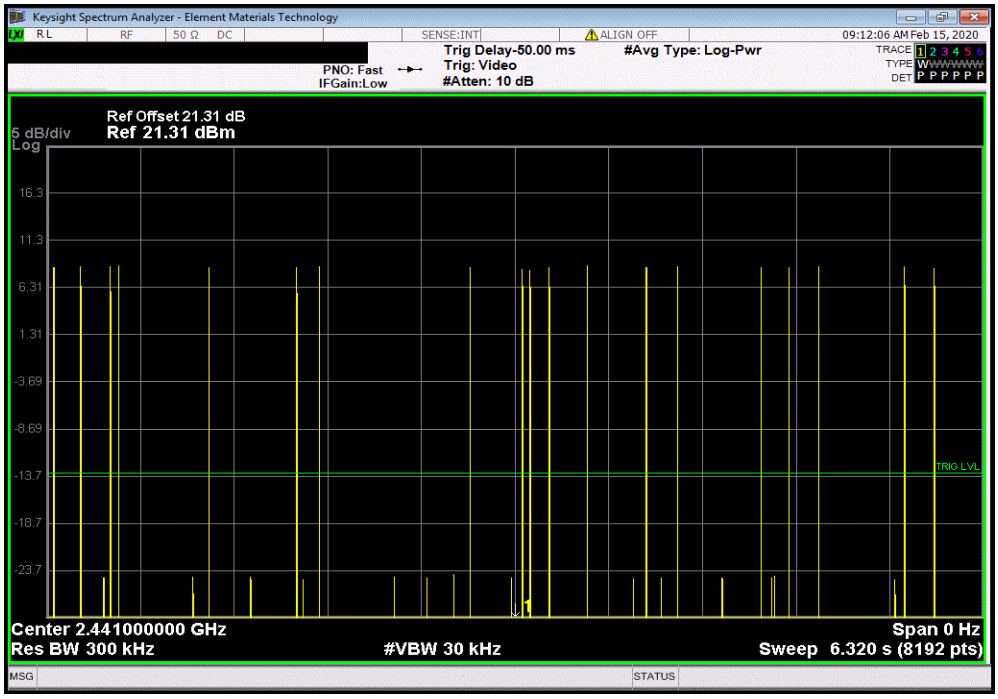


DWELL TIME

Hopping Mode (All Channels), 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	17	N/A	N/A	N/A	N/A	N/A

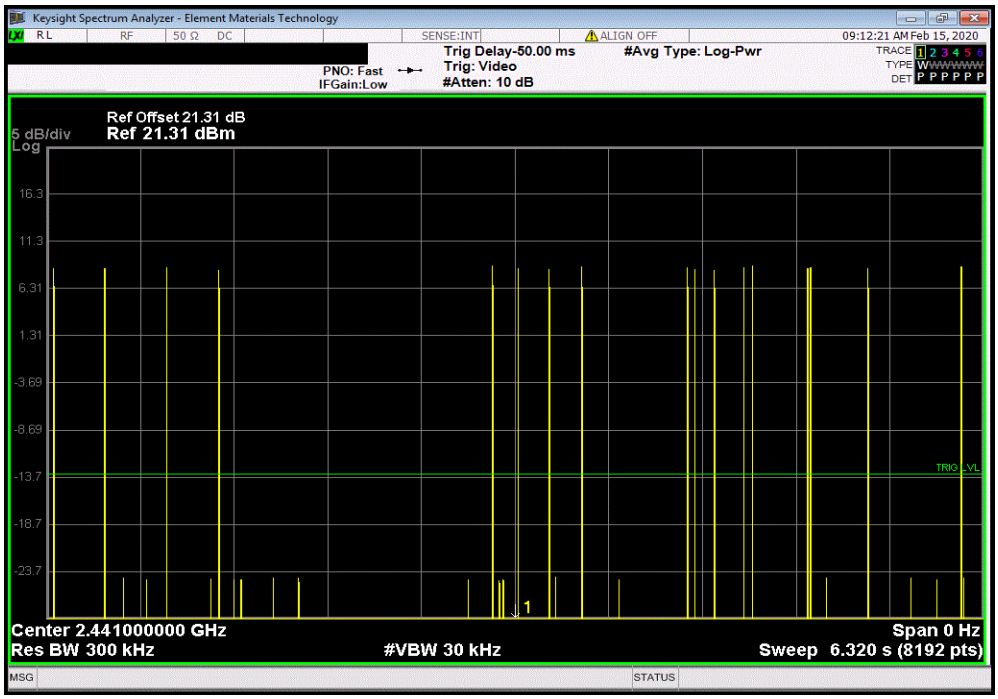


Hopping Mode (All Channels), 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	19	N/A	N/A	N/A	N/A	N/A



DWELL TIME

Hopping Mode (All Channels), 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	17	N/A	N/A	N/A	N/A	N/A



Hopping Mode (All Channels), 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.906	N/A	17	5	247.01	400	Pass

Calculation Only

No Screen Capture Required