

FCC Test Report –2.4GHz Bluetooth

Report ID : 03360-RF-00016

FCC ID : AZ489FT7078

Tested Model : LEX L10i

Test Date : Nov 19, 2015 ~ Jan 22, 2016

Issued Date : 29 Jan, 2016

Applicant : Motorola Solution Malaysia Sdn Bhd

Address : Innoplex Plot 2A, Medan Bayan lepas, Mukim 12, S.W.D. 11900 Bayan Lepas, Penang, Malaysia

Testing Lab : Motorola Penang Adv. Comm. Laboratory

Lab Address : Motorola Solutions Malaysia Sdn Bhd, Plot 2, Bayan Lepas Technoplex Industrial Park, Mukim 12 S.W.D, 11900 Bayan Lepas, Penang, Malaysia.

FCC Registration: 772092



Prepare By: _____, Date: 29 Jan, 2016

Chan Choon Keet / Engineer / +6048503678 / choonkeet.chan@motorolasolutions.com



Approved By: _____, Date: 29 Jan, 2016

Alex Goh / Senior Staff Engineer / +6042527292 / aikhong.goh@motorolasolutions.com

Contents

1.	Bluetooth 2.0+EDR Test	4
1.0.	Summary of Test Result	4
1.1.	Measurement Uncertainty.....	4
1.2.	Equipment List	5
1.3.	General Information	6
1.4.	Channel number and frequency info	7
1.5.	Test Mode Applicability and Test Channel Detail	7
2.	Test Types and Results.....	10
2.1.	Conducted RF Output Power (Peak)	10
2.1.1.	Test Procedure	10
2.1.2.	Test Limits:	10
2.1.3.	Test Data:	10
2.2.	20dB Channel Bandwidth.....	11
2.2.1.	Test Procedure	11
2.2.2.	Test Limits:	11
2.2.3.	Test Data:	11
2.3.	Band-edge Conducted Spurious Emission	21
2.3.1.	Test Procedure	21
2.3.2.	Test Limits:	21
2.3.3.	Test Data:	21
2.4.	Dwell time on each channel.....	34
2.4.1.	Test Procedure	34
2.4.2.	Test Limits:	34
2.4.3.	Test Data:	35
2.5.	Number of hopping Frequency	54
2.5.1.	Test Procedure	54
2.5.2.	Test Limits:	54
2.5.3.	Test Data:	54
2.6.	Channel Separation	58
2.6.1.	Test Procedure	58
2.6.2.	Test Limits:	58

2.6.3.	Test Data:	58
2.7.	Conducted Spurious Emission	59
2.7.1.	Test Procedure	59
2.7.2.	Test Limits:	59
2.7.3.	Test Data:	59
2.8.	Radiated Emission within Restricted Bands	78
2.8.1.	Test Procedure	78
2.8.2.	Test Limits:	79
2.8.3.	Test Data:	79
2.9.	AC Powerline Conducted Emission	89
2.9.1.	Test Procedure	89
2.9.2.	Test Limits:	90
2.9.3.	Test Data:	91

1. Bluetooth 2.0+EDR Test

1.0. Summary of Test Result

FCC Clause	Test Item	Result	Remark
15.247 (b)(1)	Conducted RF Output Power (Peak)	Pass	Meet the requirement of limit
15.247 (a)(1)	(1) 20dB Channel Bandwidth (2) Channel Separation	Pass	Meet the requirement of limit
15.247(a)(1)(iii)	Number of hopping Frequency used	Pass	Meet the requirement of limit
15.247(a)(1)(iii)	Dwell time on each channel	Pass	Meet the requirement of limit
15.247 (d)	Band Edge Conducted Spurious Emission	Pass	Meet the requirement of limit
15.247 (d)	Conducted Spurious Emission	Pass	Meet the requirement of limit
15.205, 15.209, 15.247 (d)	Radiated Emission within Restricted Bands	Pass	Meet the requirement of limit
15.207	AC Powerline Conducted Emission	Pass	Meet the requirement of limit
15.203	Antenna Requirement	Pass	Internal antenna is not accessible to the end-user

1.1. Measurement Uncertainty

Measurement	Frequency	Expanded Uncertainty (k=1.96) (±)
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	5.01
	200MHz ~ 1000MHz	5.01
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.01
	18GHz ~ 25GHz	5.01

1.2. Equipment List

DESCRIPTION	MODEL	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
POWER SUPPLY	6652A	3117A00162	6-Mar-15	6-Mar-16
SPECTRUM ANALYZER	FSEK30	838495/014	21-Oct-14	21-Oct-16
SPECTRUM ANALYZER	E4445A	MY45301089	6-Sep-14	6-Sep-16
CHAMBER	SH-641	92002651	15-Mar-15	15-Mar-16
DRG HORN FREQ.	SAS-571	566	2-Aug-15	2-Aug-16
PREAMPLIFIER	PAM-0118P	361	NA	NA
BILOG ANTENNA	CBL6112B	2964	23-Apr-14	23-Apr-16
POWER SUPPLY	6031A	3121A02341	12-Jun-14	12-Jun-16
EMI TEST RECEIVER	ESIB26	100336	17-Jun-15	17-Jun-16
MICROWAVE SIGNAL GENERATOR	SMP04	100131	25-Jun-15	25-Jun-16
SYSTEM CONTROLLER	SC104V	050806-1	NA	NA
TURNTABLE FLUSH MOUNT 2M	FM2011	NA	NA	NA
ANTENNA POSITIONING TOWER	TLT2	NA	NA	NA
TEST RECEIVER	ESIB26	827769/009	16-Jun-15	16-Jun-16
SIGNAL ANALYZER	FSV40	101103	25-Jun-15	25-Jun-16
5m Semi-anechoic Chamber	S800-HX	J2308	29-Apr-15	29-Apr-16
BILOG ANTENNA	CBL6112B	2863	24-Jul-15	24-Jul-16
DATA LOGGER	TM320	12249289	12-Apr-15	12-Apr-16
BILOG ANTENNA	CBL6112D	25516	23-Apr-15	23-Apr-16
BROAD-BAND HORN ANTENNA	BBHA9170	BBHA9170143	24-Nov-15	24-Nov-16
SYSTEM POWER SUPPLY	6033A	2642A02318	14-Apr-14	14-Apr-16
TRANSIENT LIMITER	11947A	3107A04020	NA	NA
V-NETWORK 2-LINE	ENV216V	101268	18-Jun-15	18-Jun-16
LINE IMPEDANCE STAB.NETWORK	NNBM 8125	81251757	23-Jun-14	23-Jun-16
EMI TEST RECEIVER	ESCI	100225	19-Jun-15	19-Jun-16
LINE IMPEDANCE STAB.NETWORK	NNBM 8125	81251366	24-Jun-14	24-Jun-16
V-NETWORK 2-LINE	ENV216V	101039	18-Jun-15	18-Jun-16

1.3. General Information

General Description of EUT

Product	Smart phone
Brand	Motorola Solutions
Test Model	LEX L10i
Power Supply Rating	3.7Vdc (Battery), 5Vdc (Adapter)
Mode of operation	Bluetooth + EDR
Modulation Type	GFSK, $\pi/4$ -DQPSK, 8DPSK
Modulation Technology	FHSS
Transfer Rate	1/2/3Mbps
Operating Frequency	2402~2480Mhz
Number of Channel	79
Output Power	6.2661mW
Antenna Type	Inverted-L Monopole with 1.0dBi gain
Antenna Connector	Coaxial connector with switch
SW Version	LEXL10-INT-D17
HW Version	Rev A

Note:

1. The EUT contains following accessory devices and data cable.

Item	Brand	Model or P/N	Specification
Rechargeable Lithium ion battery	MOTOROLA	PMNN4472A	3.7Vdc, 2340mAh, 8.7Wh
Rechargeable Lithium ion battery	MOTOROLA	PMNN4475A	3.7Vdc, 4560mAh, 16.9Wh
ITE Power Supply	MOTOROLA	HKTN4009A	I/P: 100-240Vac, 50-60Hz, 0.2A O/P: 5Vdc, 1.2A
USB cable (CABLE: LEX USB SYNC AND CHARGE)	N/A	CB000262A01	-
Holster	N/A	HKLN4618A	-

General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part15, Subpart C (15.247)

FCC Public Notice DA 00-705

ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

1.4. Channel number and frequency info

79 channels are provided to this EUT:

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		

1.5. Test Mode Applicability and Test Channel Detail

EUT Configure Mode	Applicable to				Description
	RE $\geq$ 1G	RE<1G	PLC	APCM	-

Where:

RE $\geq$ 1G: Radiated Emission above 1GHz & Bandedge Measurement

RE<1G: Radiated Emission below 1GHz

PLC:Power Line Conducted Emission

APCM:Antenna Port Conducted Measurement

Note: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Y-plane**.

Radiated Emission Test (Above 1GHz)

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Packet Type
-	0 to 78	0,39,78	FHSS	GFSK	DH5
-	0 to 78	0,39,78	FHSS	$\pi/4$ -DQPSK	DH5
-	0 to 78	0,39,78	FHSS	8DPSK	DH5

Radiated Emission Test (Below 1GHz)

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Packet Type
-	0 to 78	0,39,78	FHSS	GFSK	DH5
-	0 to 78	0,39,78	FHSS	$\pi/4$ -DQPSK	DH5
-	0 to 78	0,39,78	FHSS	8DPSK	DH5

Power Line Conducted Emission Test

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Packet Type
Application Mode	0 to 78	AUTO	FHSS	AUTO	AUTO

Antenna Port Conducted Measurement:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Packet Type
-	0 to 78	0,39,78	FHSS	GFSK	DH5
-	0 to 78	0,39,78	FHSS	$\pi/4$ -DQPSK	DH5
-	0 to 78	0,39,78	FHSS	8DPSK	DH5

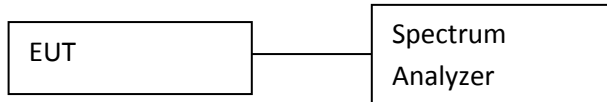
Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE $\geq$ 1G	25°C, 50% RH	3.7V DC	Nazrin/Qawiman
RE<1G	25°C, 50% RH	3.7V DC	Nazrin/Qawiman
PLC	22.4°C, 68.6% RH	120V AC, 240V AC	Madi/Rudy
APCM	25°C, 50% RH	3.7V DC	Jino Lim

2. Test Types and Results

2.1. Conducted RF Output Power (Peak)

2.1.1. Test Procedure



- Check and ensure the spectrum analyzer well calibrate.
- Turn on the EUT and set EUT to transmit maximum data rate with hopping disable.
- Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
- Setting of Spectrum analyzer :
 - RBW = > 20 dB bandwidth
 - VBW = RBW
 - Detector mode = Peak
 - AMPLITUDE → Scale/Div = 10 dB
 - Trace = Max hold
 - Sweep = auto
- Measure the captured power within the band and recording the plot.
- Repeat above procedure with other different mode of operation.

2.1.2. Test Limits:

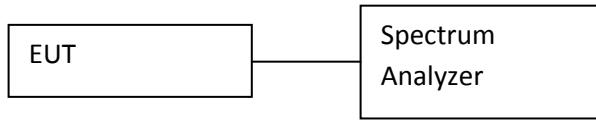
Normal Condition (25 ° C)
≤ 125mW (or 20.9dBm)

2.1.3. Test Data:

Test Conditions		Test Frequency (GHz)	Results	
Modulation	Voltage(V)		dBm	Status
GFSK	3.70	2.4020	6.757	Pass
		2.4410	8.089	Pass
		2.4800	6.192	Pass
Pi/4DQPSK	3.70	2.4020	6.657	Pass
		2.4410	8.037	Pass
		2.4800	6.147	Pass
8DPSK	3.70	2.4020	7.256	Pass
		2.4410	8.270	Pass
		2.4800	6.660	Pass

2.2. 20dB Channel Bandwidth

2.2.1. Test Procedure



- a) Check and ensure the spectrum analyzer well calibrate.
- b) Turn on the EUT and set EUT to transmit maximum data rate with hopping disable.
- c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - a. RBW = 30 kHz
 - b. VBW = 100 kHz
 - c. SPAN = 3 MHz, center on test frequency
 - d. AMPLITUDE → Scale/Div = 10 dB
 - e. Detector mode = Peak
 - f. Trace = Max hold
 - g. Sweep = auto
- e) Measure the freq different of two frequencies that were attenuated 20dB from peak of the emission & record the frequency difference as the emission bandwidth.
- f) Save the plot result from spectrum analyzer screen.
- g) Repeat above procedure with other different mode of operation.

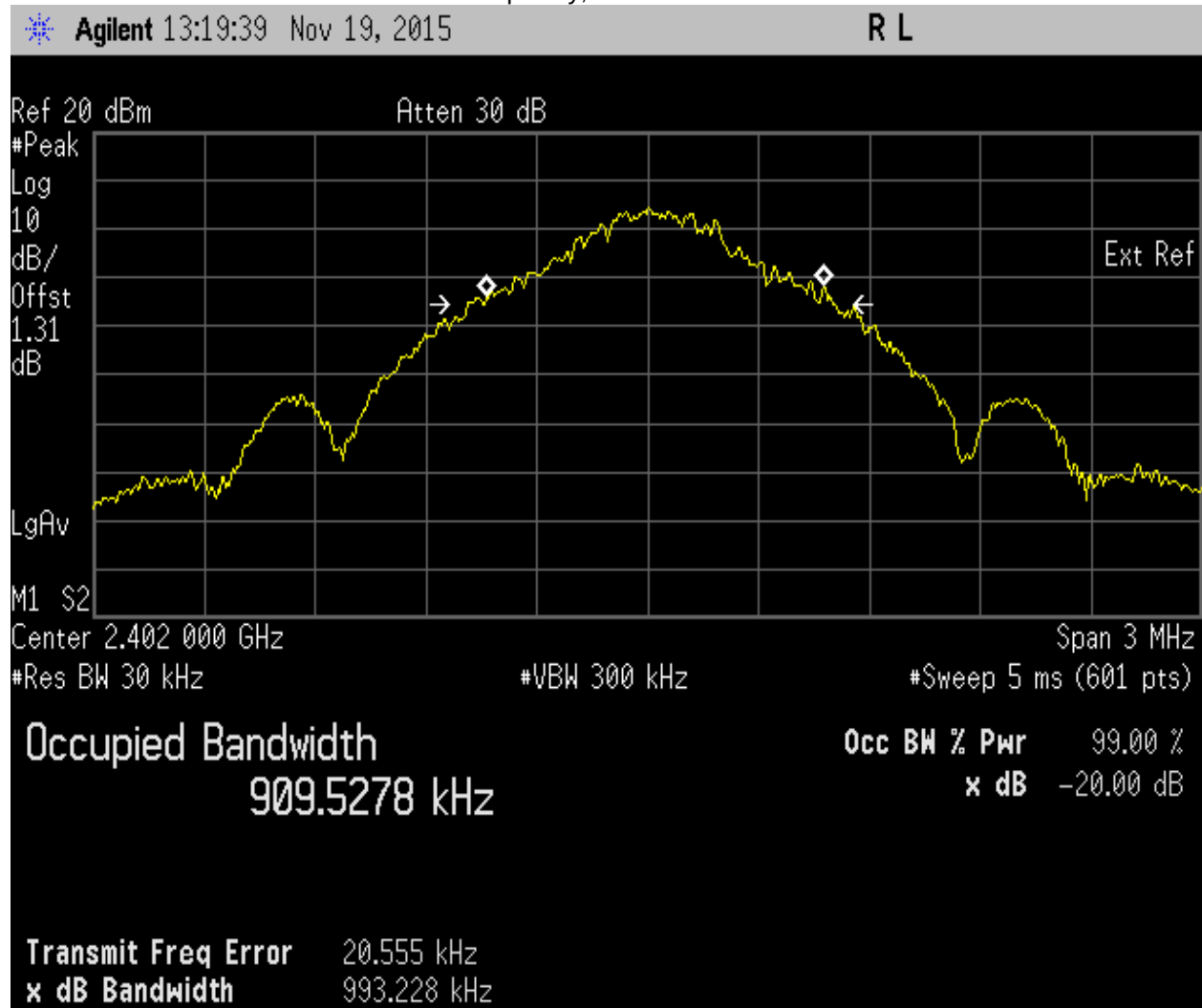
2.2.2. Test Limits:

Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

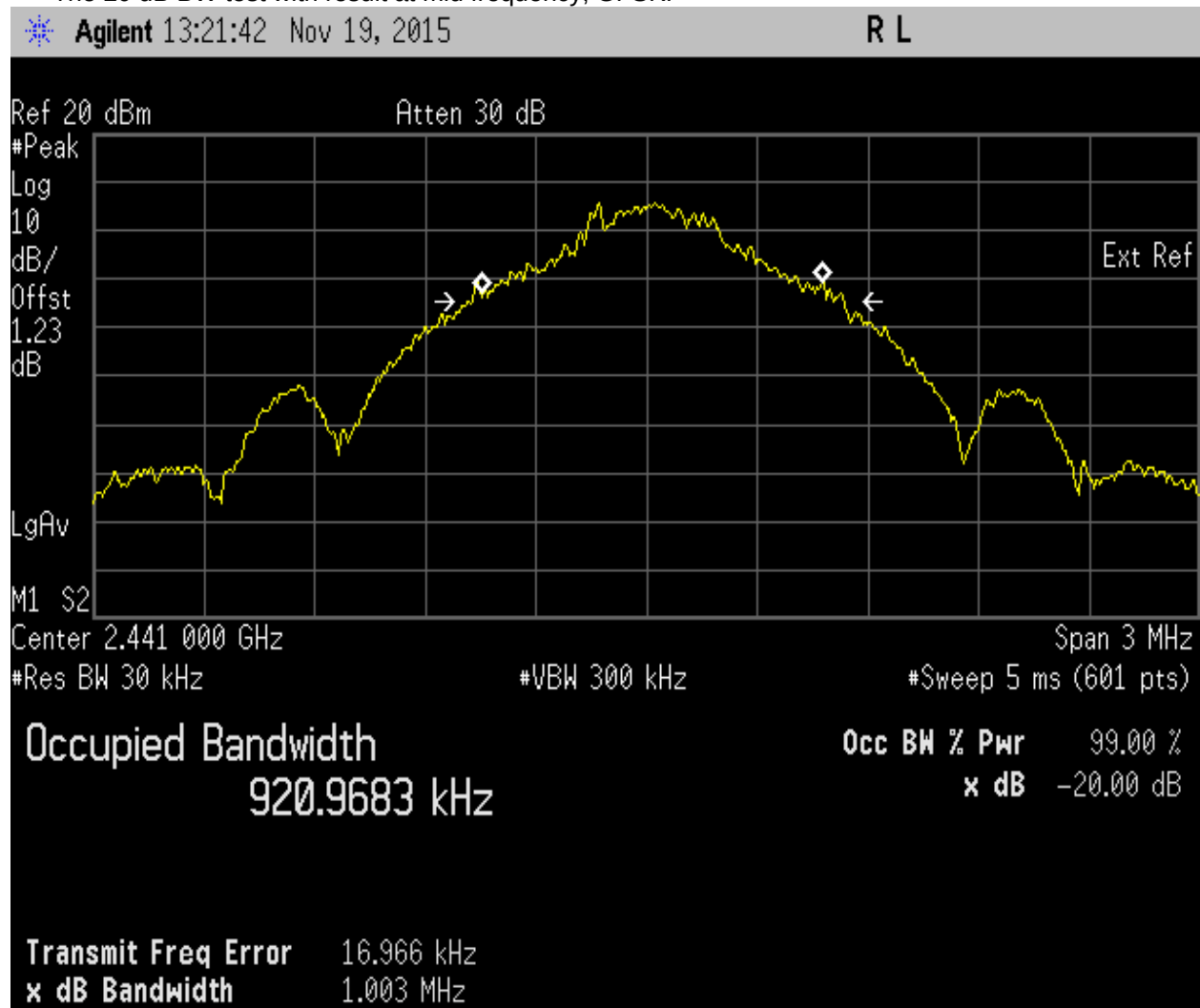
2.2.3. Test Data:

Test Conditions		Test Frequency (GHz)	Results (MHz)
Modulation	Voltage(V)		
GFSK	3.70	2.4020	0.993
		2.4410	1.003
		2.4800	0.993
Pi/4DQPSK	3.70	2.4020	1.281
		2.4410	1.302
		2.4800	1.288
8DPSK	3.70	2.4020	1.297
		2.4410	1.282
		2.4800	1.299

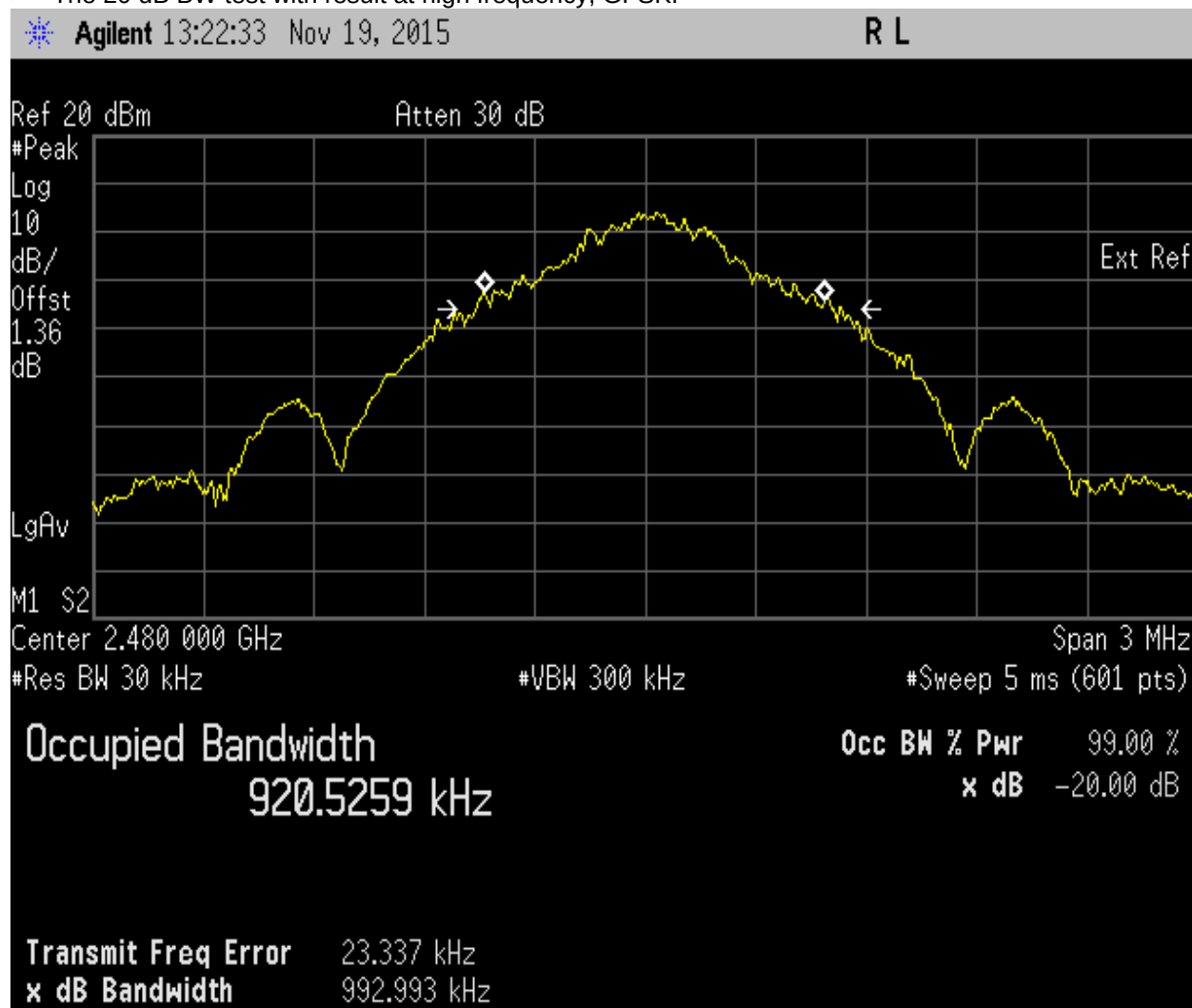
- The 20 dB BW test with result at low frequency, GFSK.



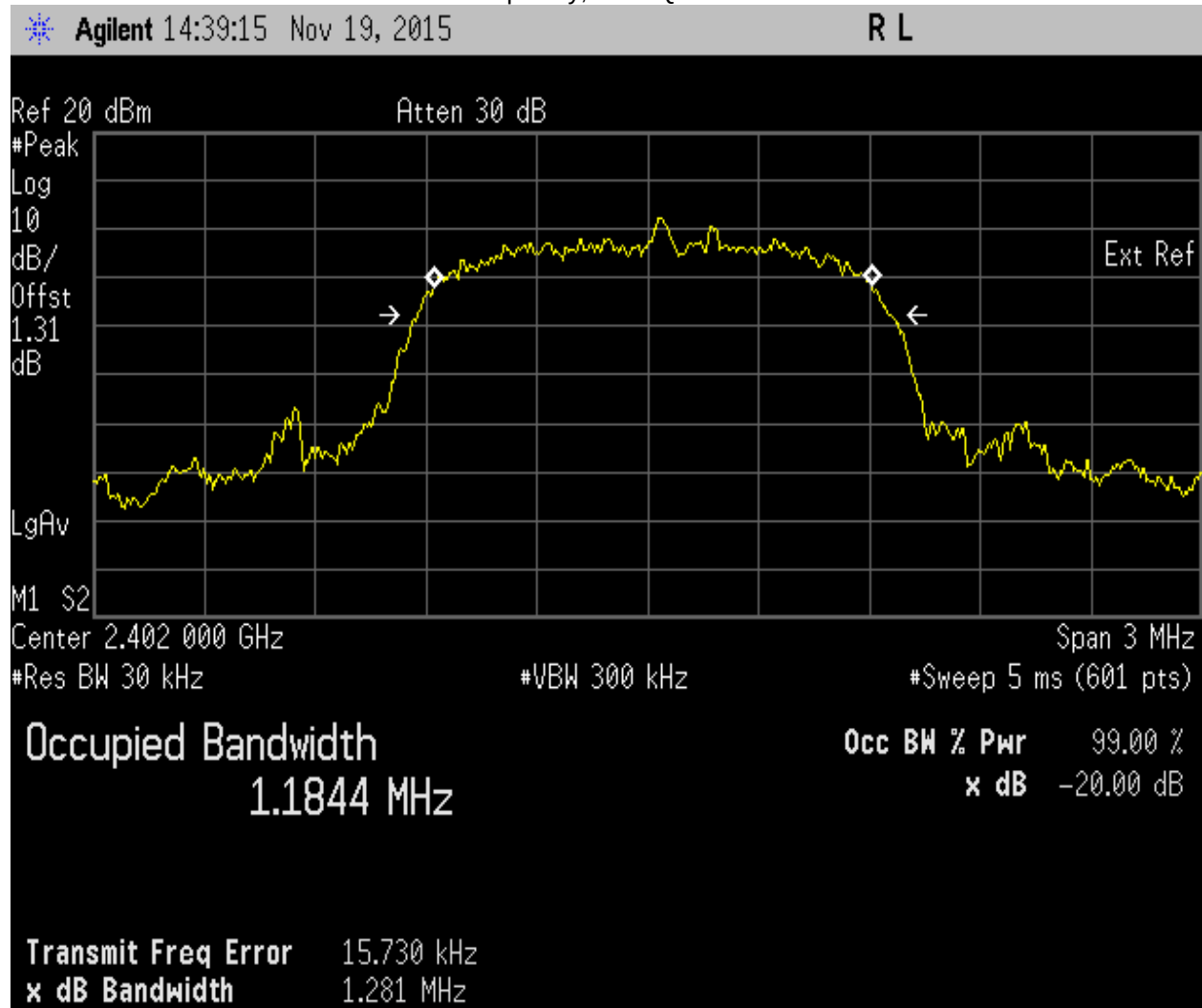
- The 20 dB BW test with result at mid frequency, GFSK.



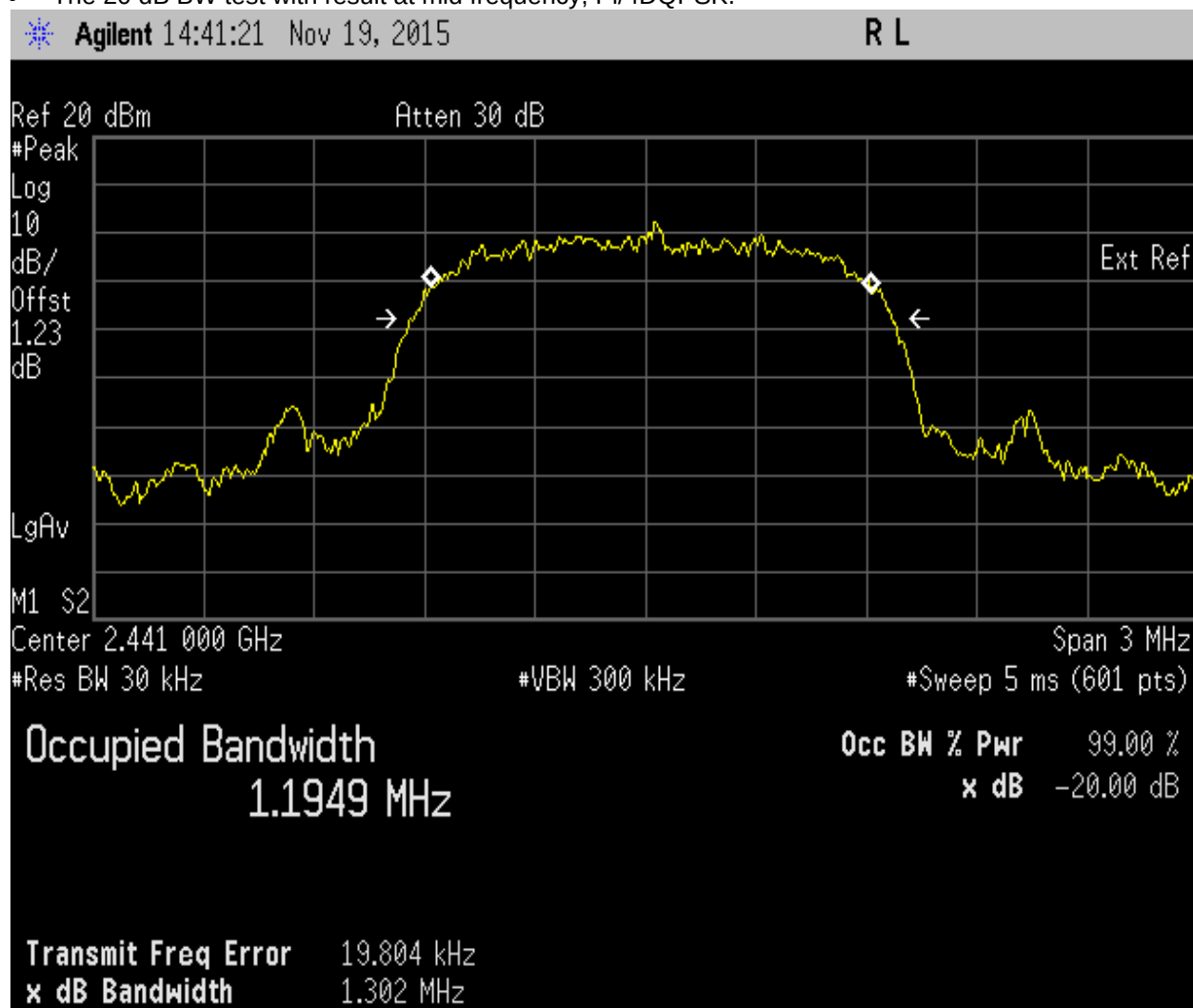
- The 20 dB BW test with result at high frequency, GFSK.



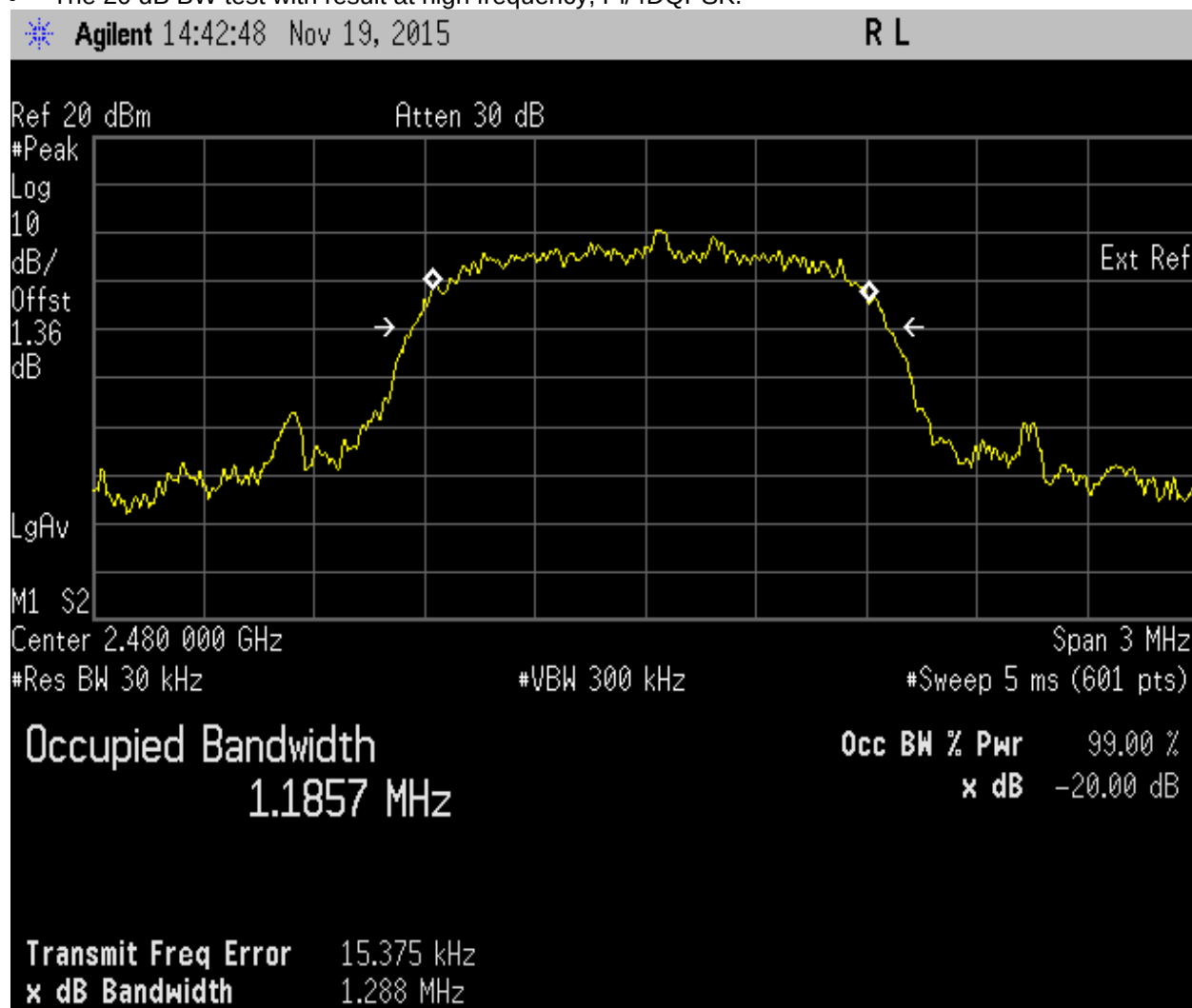
- The 20 dB BW test with result at low frequency, Pi/4DQPSK.



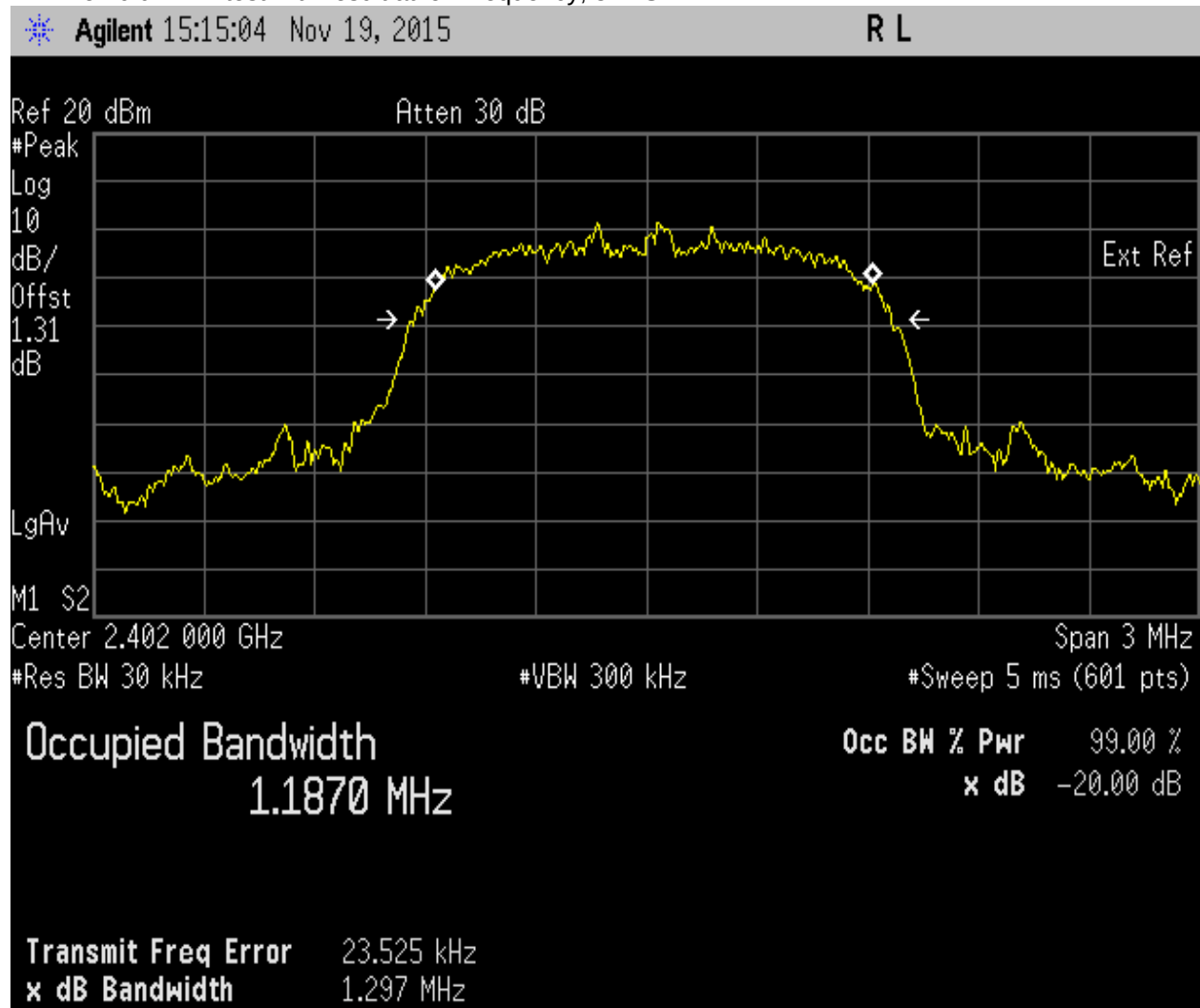
- The 20 dB BW test with result at mid frequency, Pi/4DQPSK.



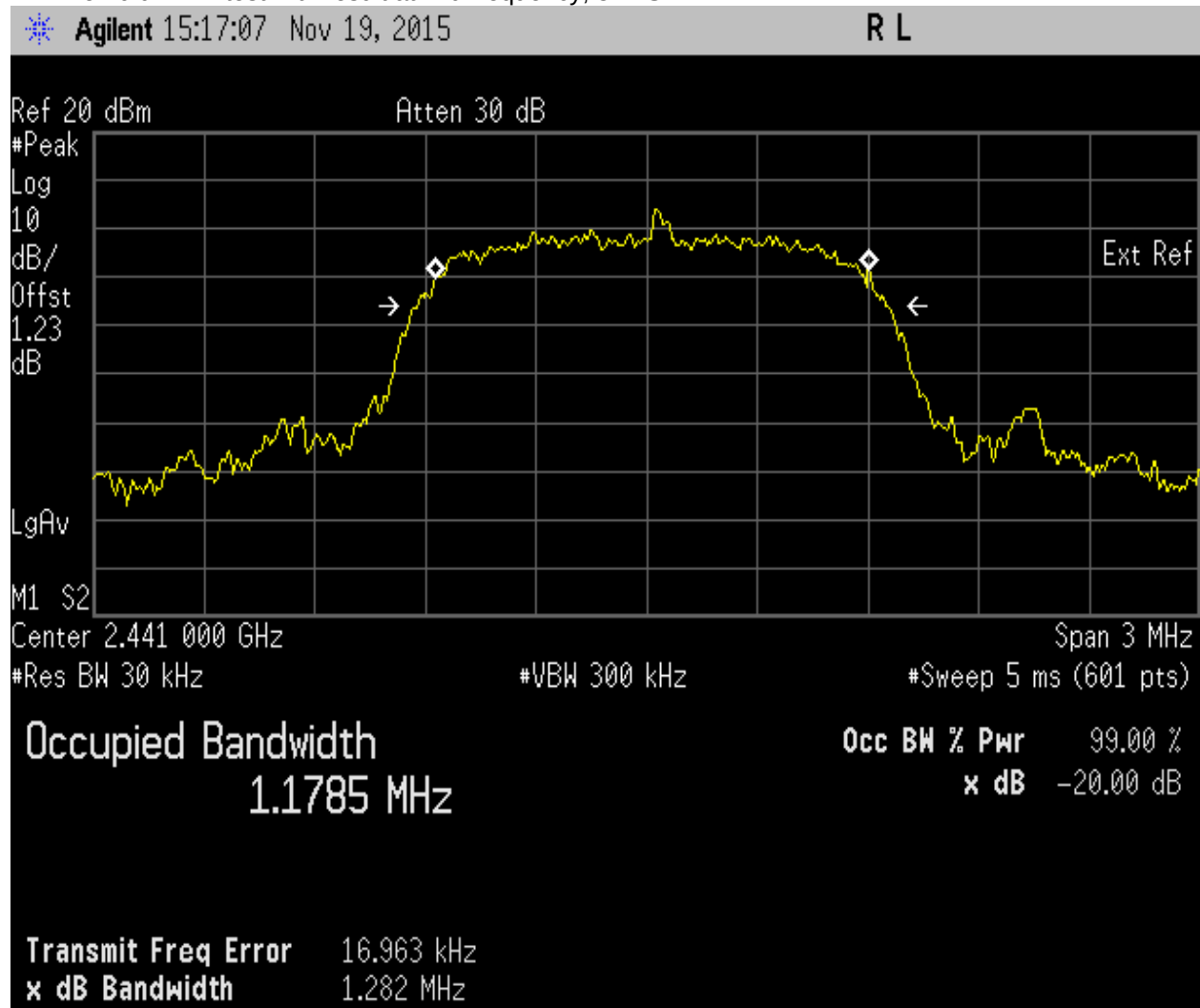
- The 20 dB BW test with result at high frequency, Pi/4DQPSK.



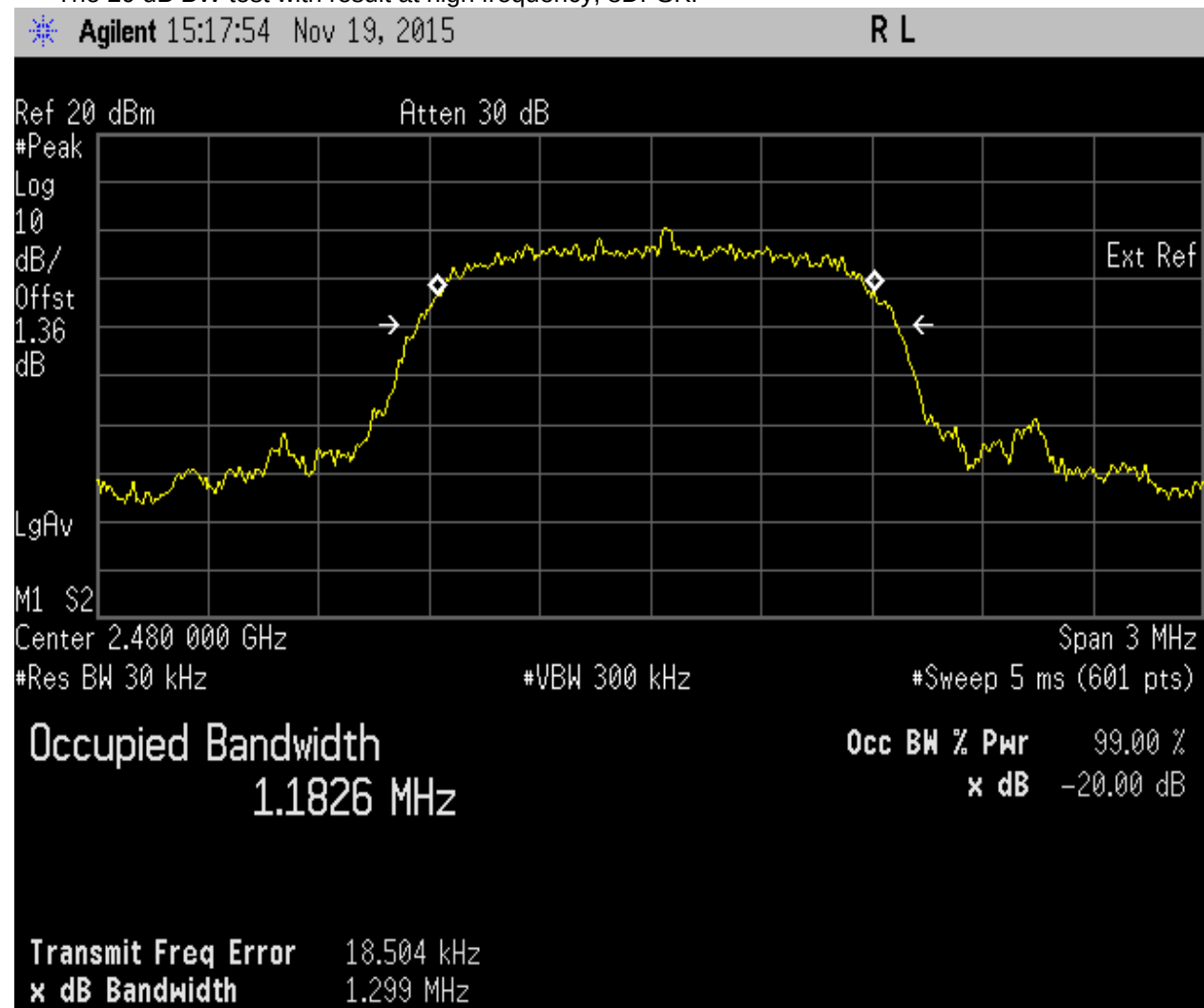
- The 20 dB BW test with result at low frequency, 8DPSK.



- The 20 dB BW test with result at mid frequency, 8DPSK.

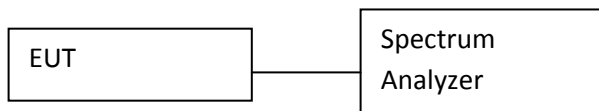


- The 20 dB BW test with result at high frequency, 8DPSK.



2.3. Band-edge Conducted Spurious Emission

2.3.1. Test Procedure



- Check and ensure the spectrum analyzer well calibrate.
- Turn on the EUT and keep the EUT in hopping mode.
- Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
- Setting of Spectrum analyzer :
 - RBW = 100 kHz
 - VBW = 300 kHz
 - SPAN = 4 MHz (Low channel) or 6MHz(High Channel)
 - Detector mode = Peak
 - AMPLITUDE → Scale/Div = 10 dB
 - Trace = Max hold
 - Sweep = auto
- Measure the captured band edge emission result and recording the plot.
- Repeat above on EUT with hopping disable.
- Repeat above procedure with other different test frequency.

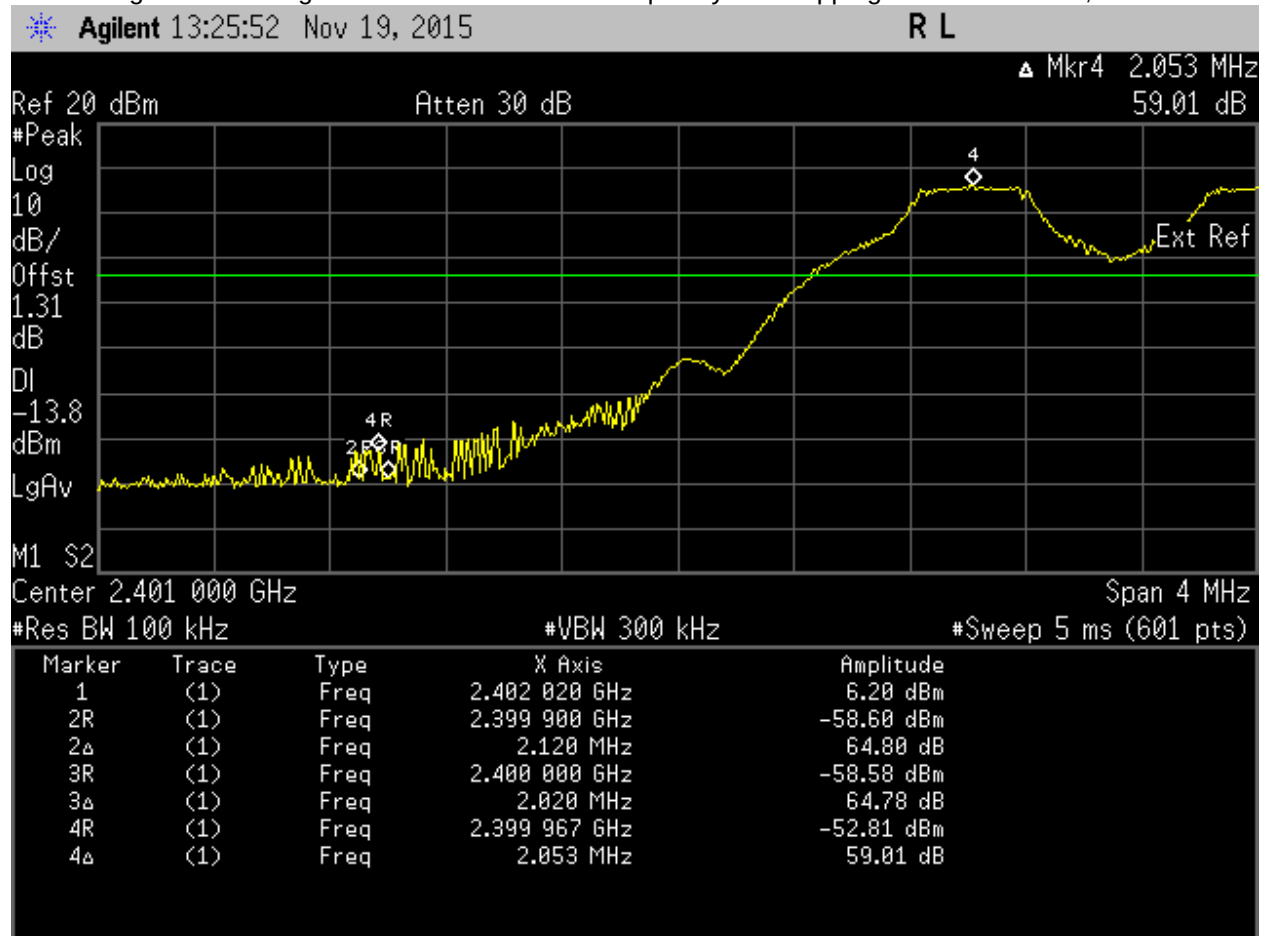
2.3.2. Test Limits:

Normal Condition (25 ° C)
Shall be at least 20 dB below the peak power.

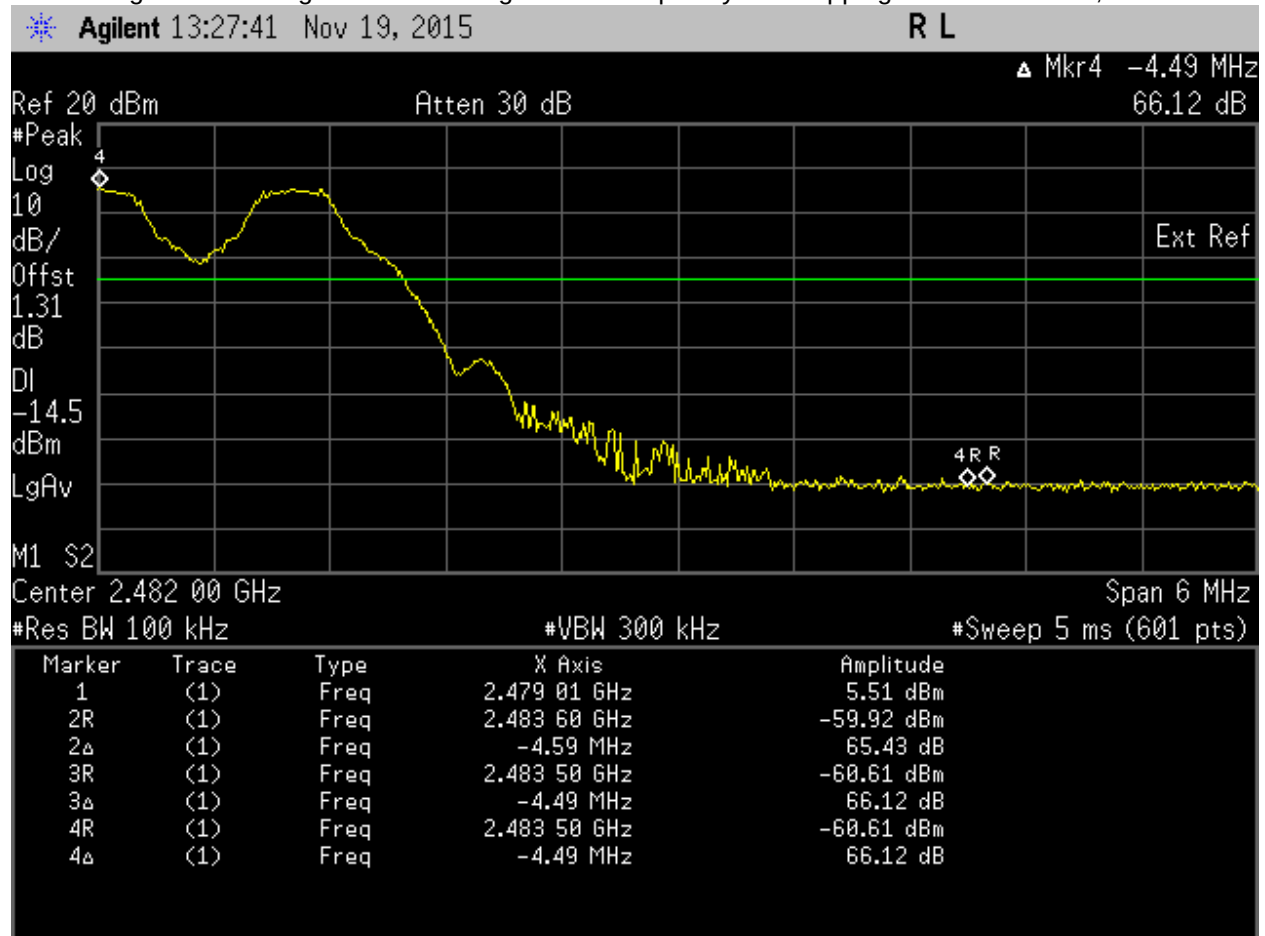
2.3.3. Test Data:

Test Conditions		Hopping Method	Test Frequency(GHz)	Results	
Modulation	Voltage(V)			dB	Status
GFSK	3.70	Enabled (continuously)	2.4010	59.01	Pass
			2.4820	66.12	Pass
		Disabled (constantly)	2.4010	57.10	Pass
			2.4820	64.16	Pass
Pi/4 DQPSK	3.70	Enabled (continuously)	2.4010	57.91	Pass
			2.4820	64.00	Pass
		Disabled (constantly)	2.4010	56.55	Pass
			2.4820	64.01	Pass
8 DPSK	3.70	Enabled (continuously)	2.4010	58.12	Pass
			2.4820	63.05	Pass
		Disabled (constantly)	2.4010	58.16	Pass
			2.4820	63.53	Pass

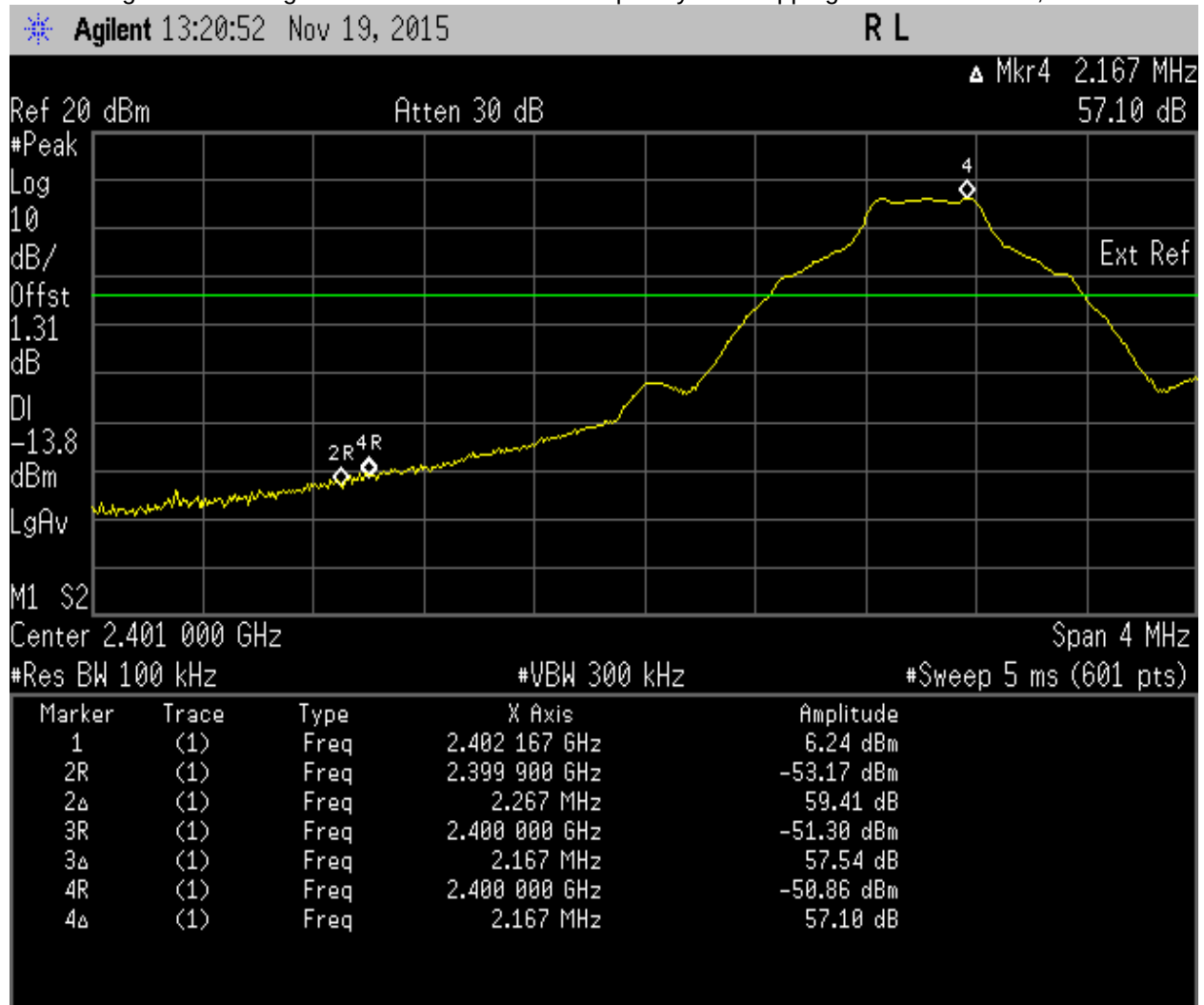
- The highest band edge emission at low carrier frequency with hopping function enabled, GFSK



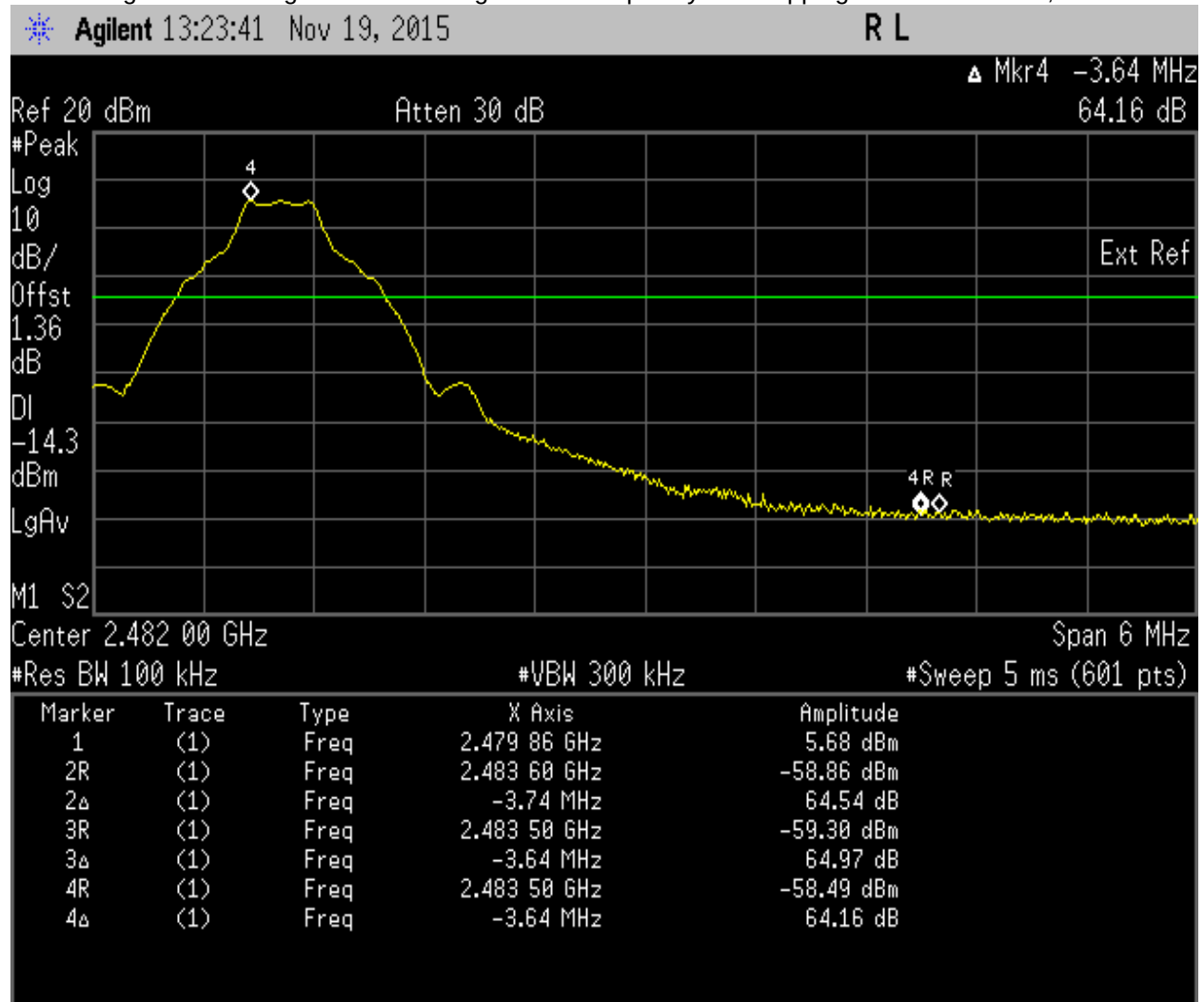
- The highest band edge emission at high carrier frequency with hopping function enabled, GFSK



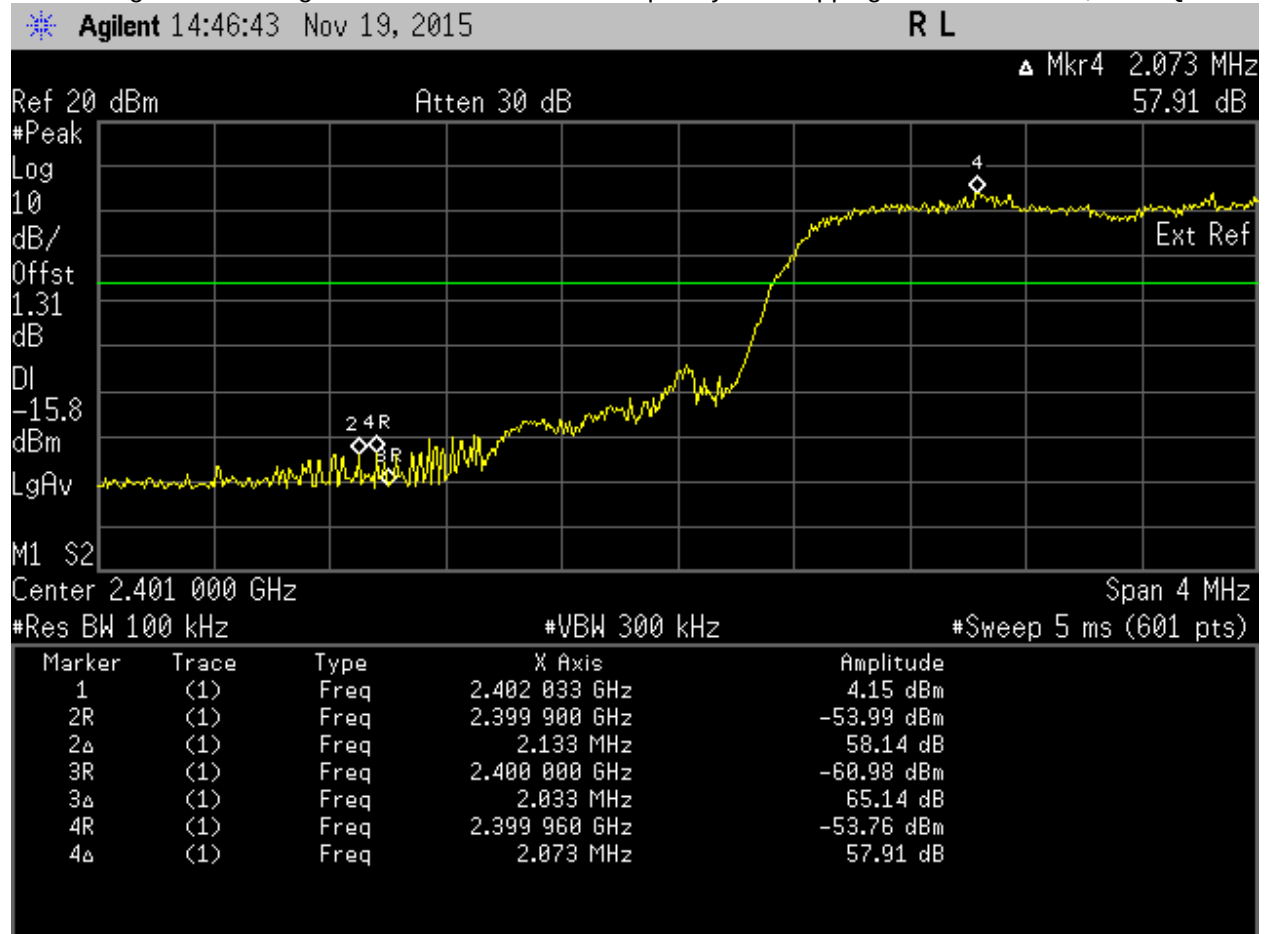
- The highest band edge emission at low carrier frequency with hopping function disabled, GFSK



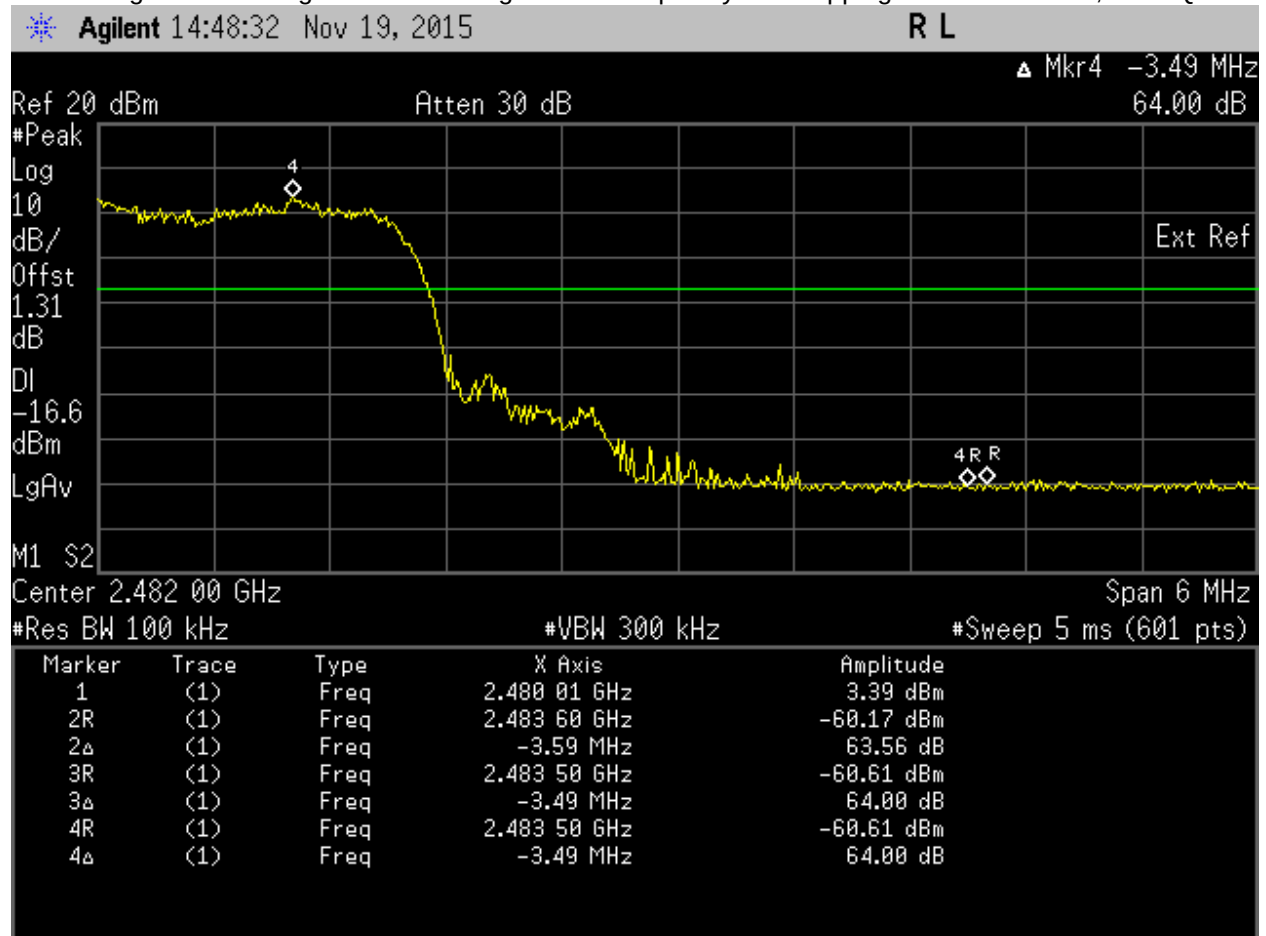
- The highest band edge emission at high carrier frequency with hopping function disabled, GFSK



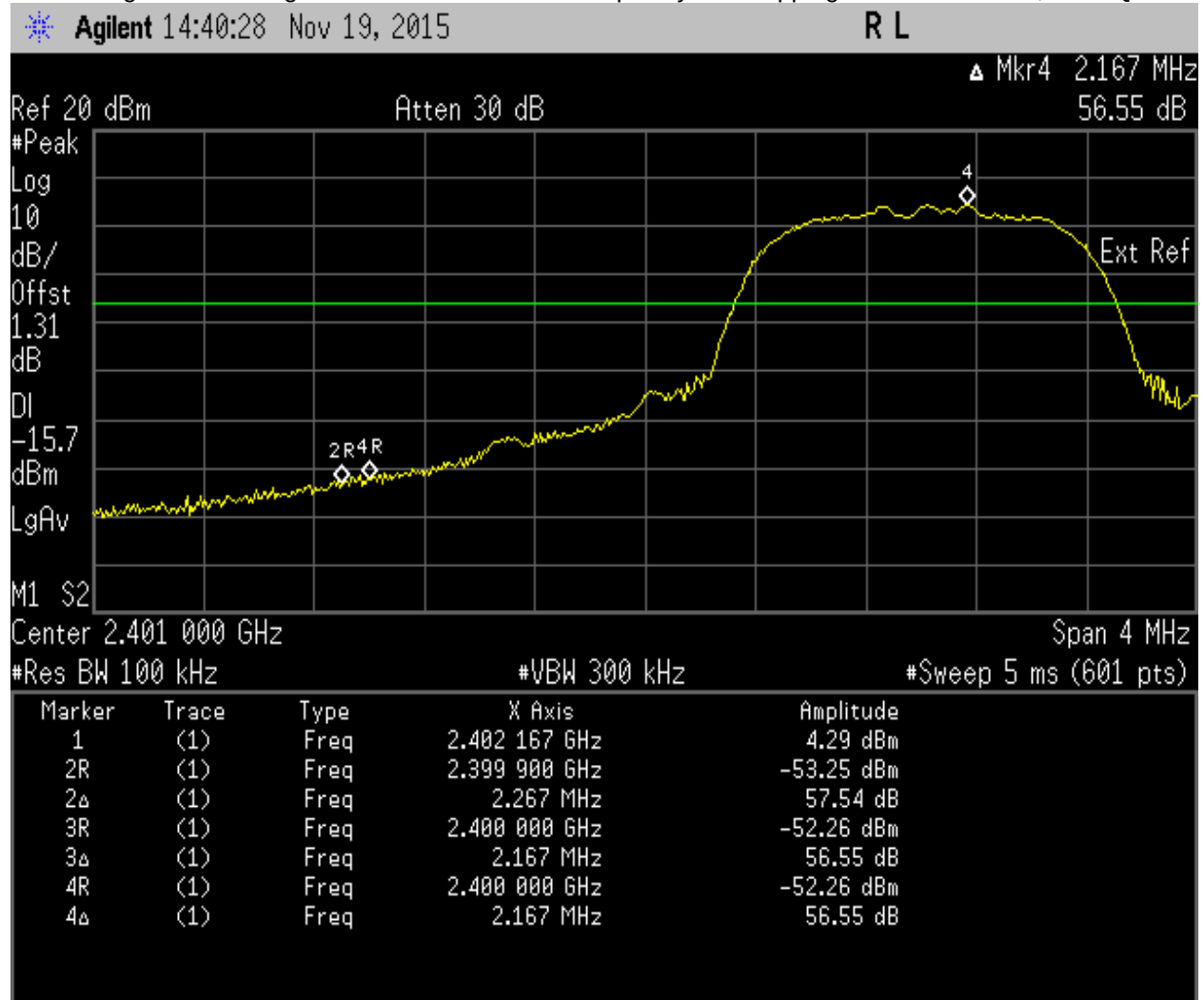
- The highest band edge emission at low carrier frequency with hopping function enabled, Pi/4DQPSK



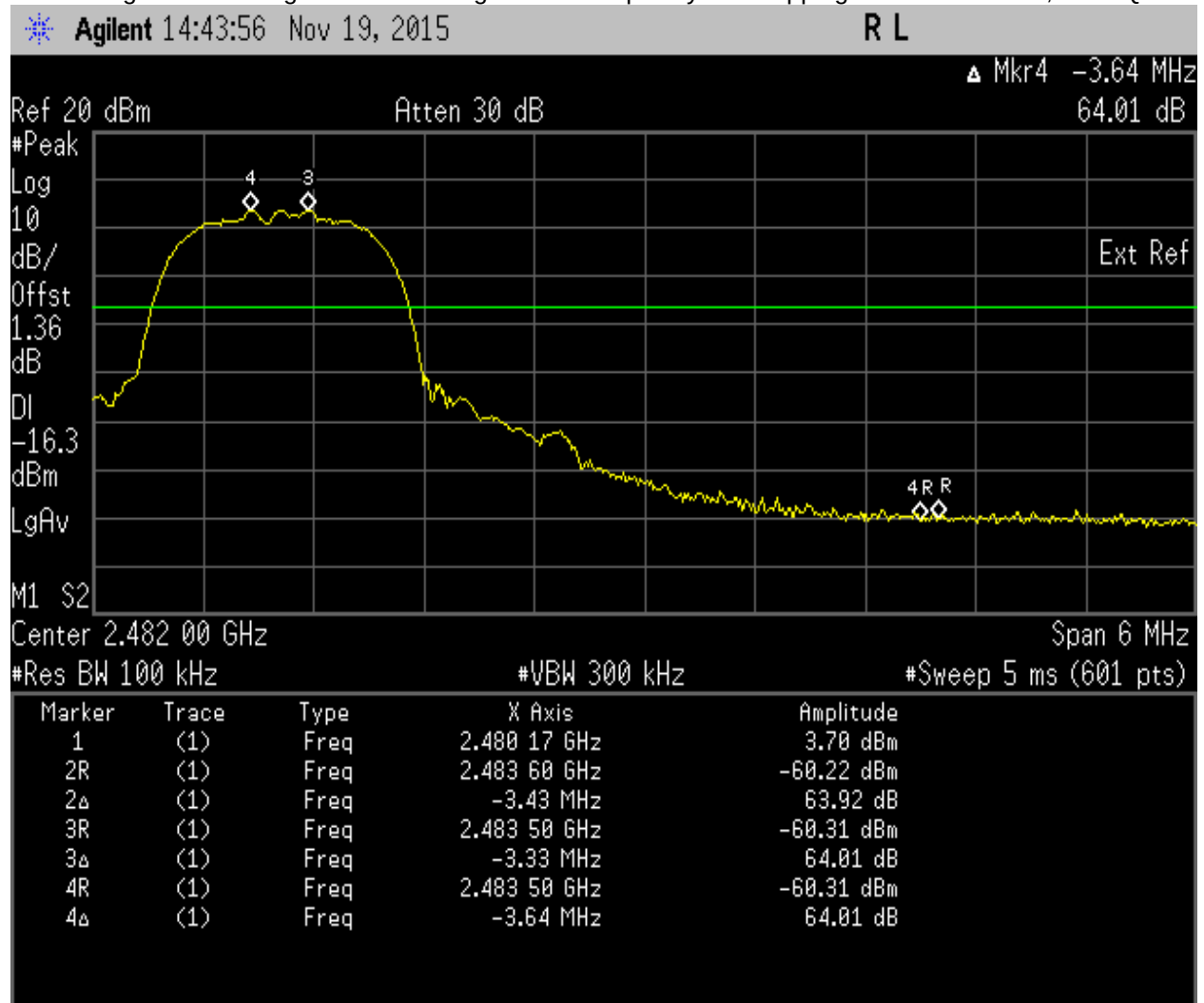
- The highest band edge emission at high carrier frequency with hopping function enabled, Pi/4DQPSK



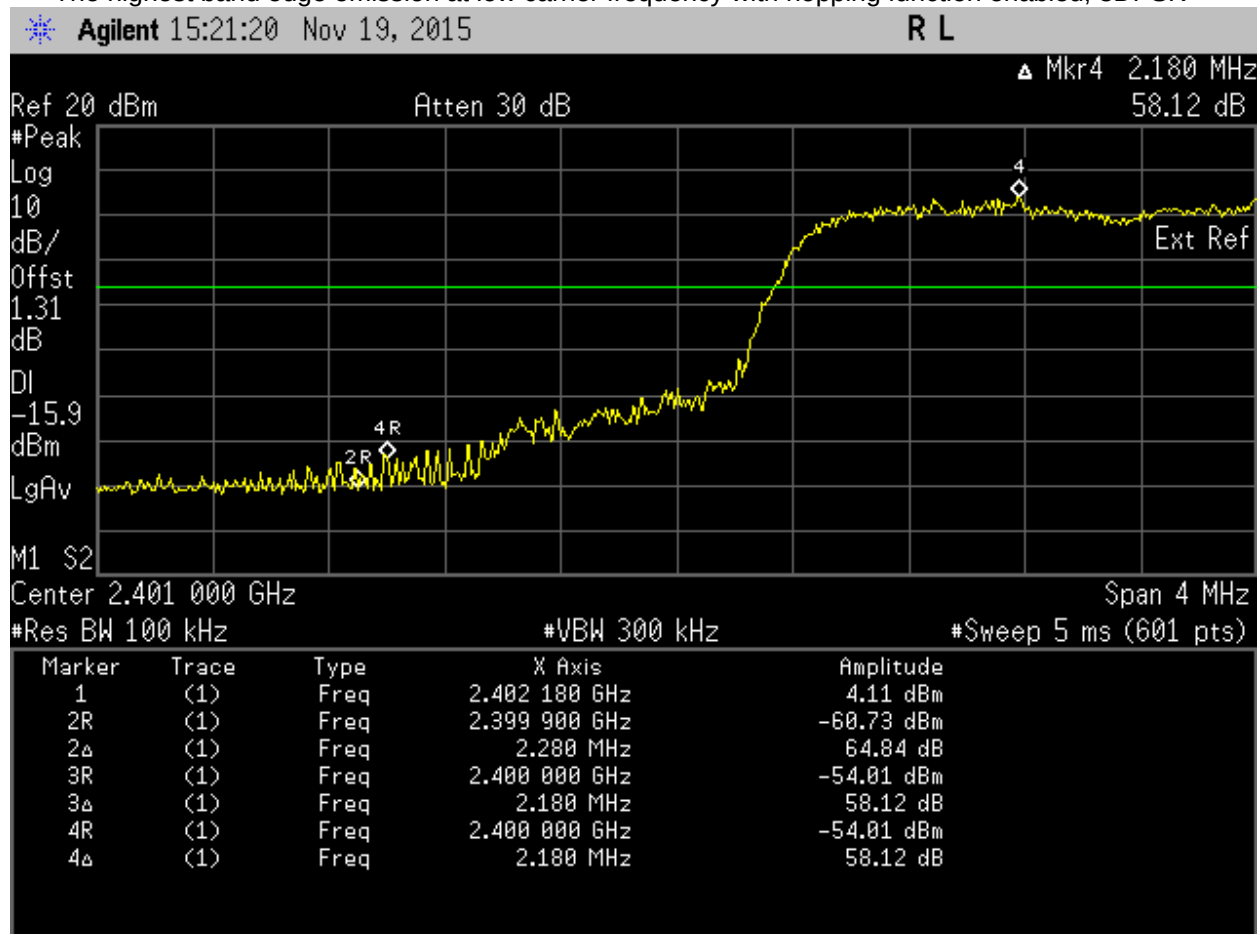
- The highest band edge emission at low carrier frequency with hopping function disabled, Pi/4DQPSK



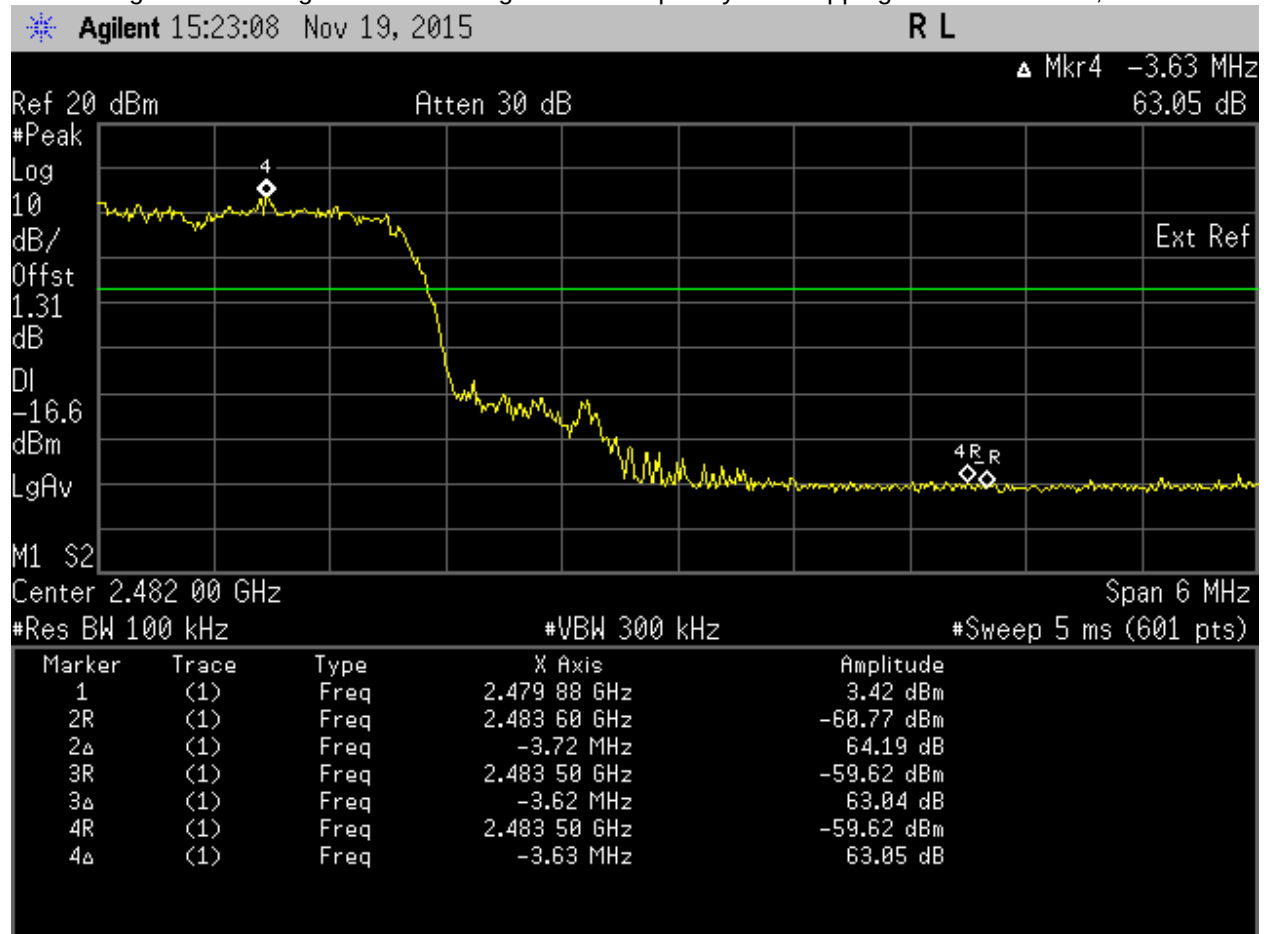
- The highest band edge emission at high carrier frequency with hopping function disabled, Pi/4DQPSK



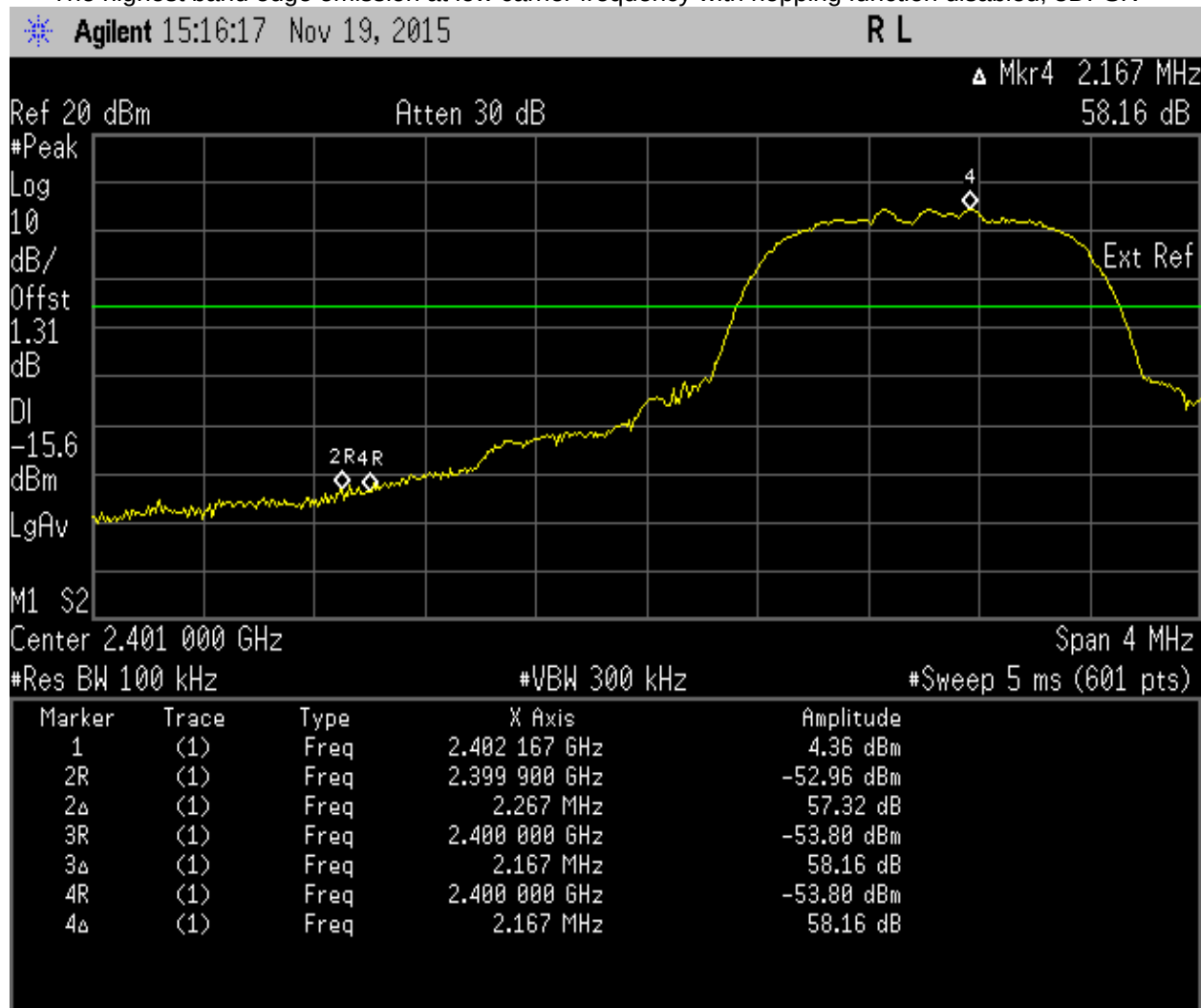
- The highest band edge emission at low carrier frequency with hopping function enabled, 8DPSK



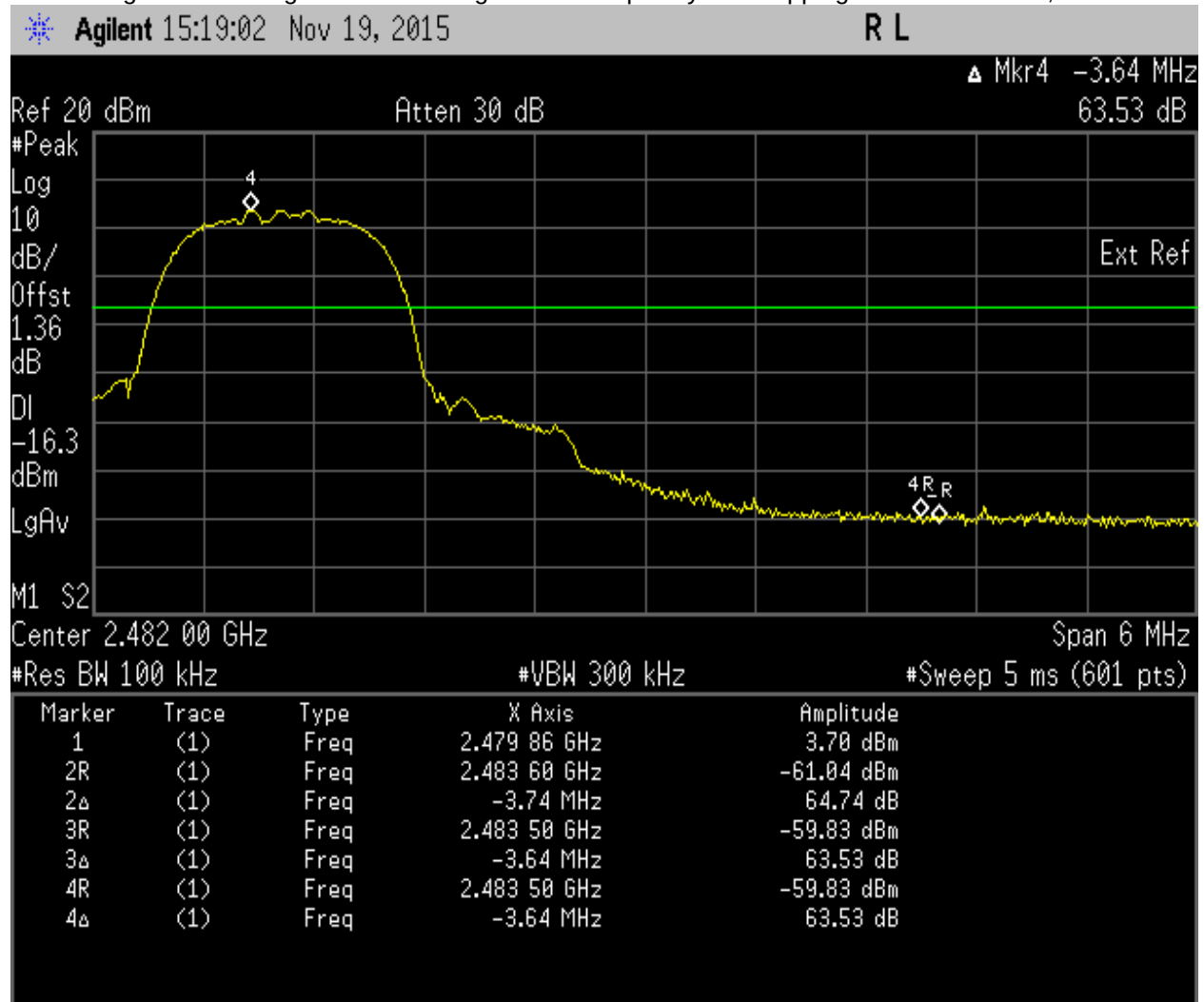
- The highest band edge emission at high carrier frequency with hopping function enabled, 8DPSK



- The highest band edge emission at low carrier frequency with hopping function disabled, 8DPSK

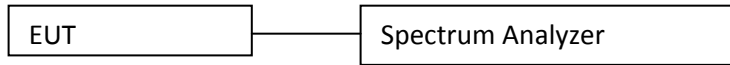


- The highest band edge emission at high carrier frequency with hopping function disabled, 8DPSK



2.4. Dwell time on each channel

2.4.1. Test Procedure



- a) Check and ensure the spectrum analyzer well calibrate.
- b) Turn on the EUT and keep the EUT in hopping mode.
- c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - a. RBW = 100 kHz
 - b. VBW = 300 kHz
 - c. SPAN = Zero SPAN, center on hopping frequency
 - d. Detector mode = Peak
 - e. Trace = Max hold
 - f. Sweep time = 5second
 - g. Sweep = Single
- e) Measure total numbers of transmissions occur in 5 second and save the plot.
- f) Change the setting of spectrum analyzer :
 - a. RBW = 100 kHz
 - b. VBW = 300 kHz
 - c. Sweep time = sufficient to capture dwell time for 1 transmission
 - d. Sweep = Single
- g) Measure dwell time for 1 transmission and save the plot.
- h) Calculate accumulate dwell time in a given period equal to number of hopping frequencies x 0.4
- i) Repeat above procedure with other different mode of operation.

2.4.2. Test Limits:

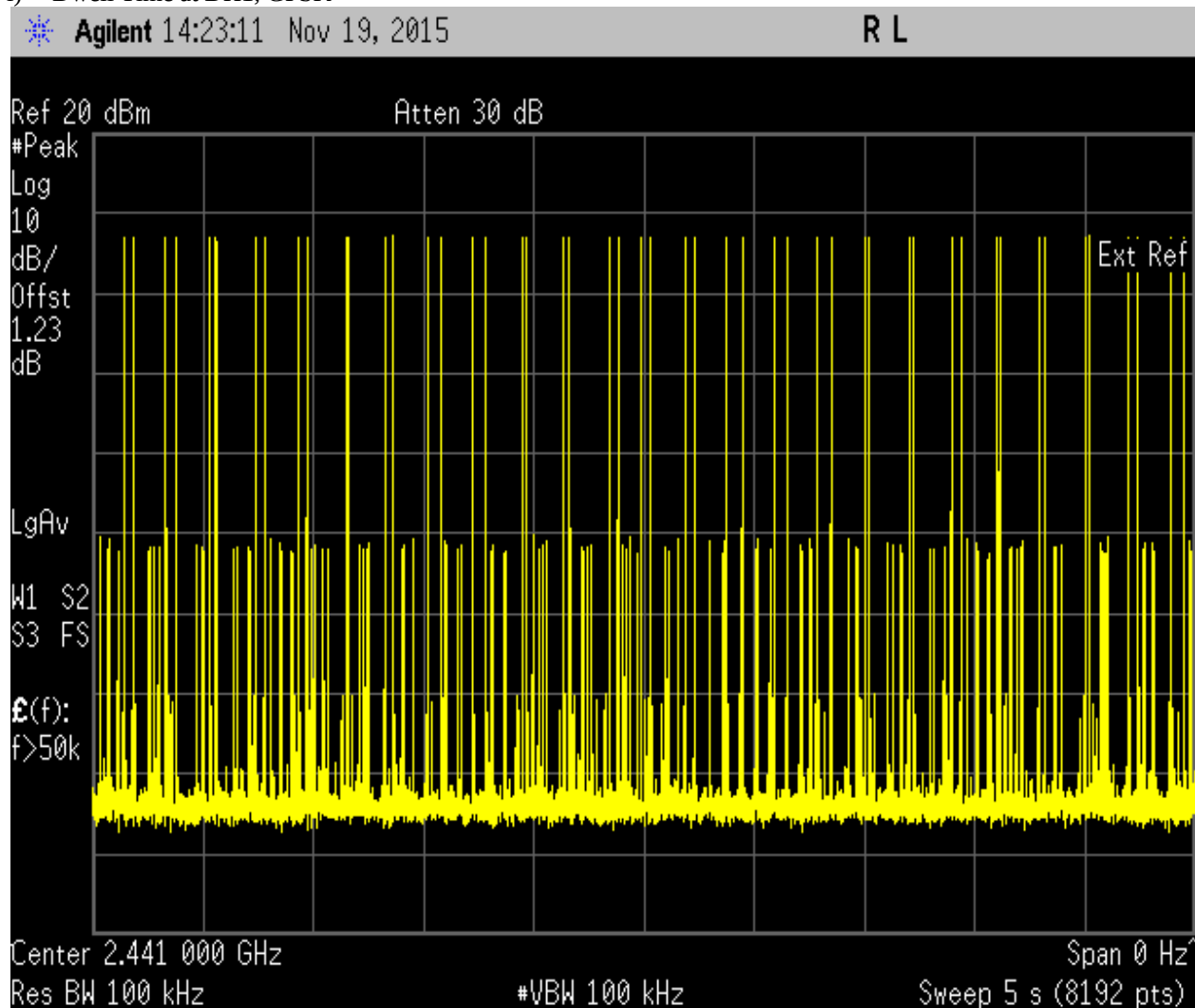
Normal Condition (25 ° C)
≤ 400ms

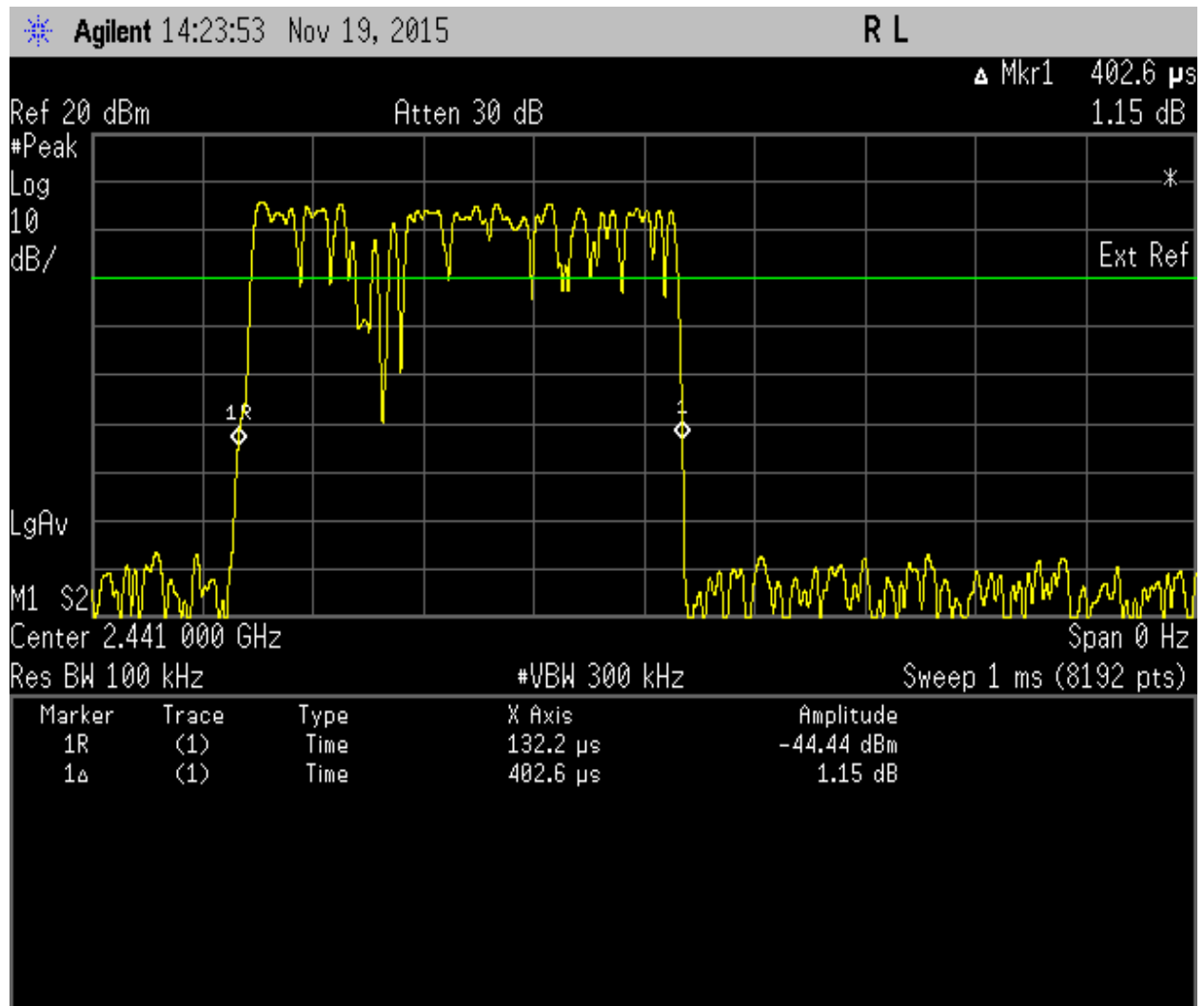
2.4.3. Test Data:

Test Conditions			Data Package	Results			
Modulation	Voltage (V)	Test Frequency (GHz)		No. of transmission in 5s (a)	Dwell time in one transmission (b) (msec)	Total accumulate dwell time in 31.6s. (c) (msec)	Status
GFSK	3.70	2.4410	DH1	50	0.403	127.348	Pass
			DH3	24	1.658	251.485	Pass
			DH5	17	2.908	312.436	Pass
Pi/4 DQPSK	3.70		DH1	50	0.409	129.244	Pass
			DH3	25	1.661	262.438	Pass
			DH5	12	2.910	220.694	Pass
8 DPSK	3.70		DH1	51	0.409	131.829	Pass
			DH3	23	1.660	241.298	Pass
			DH5	12	2.912	220.846	Pass

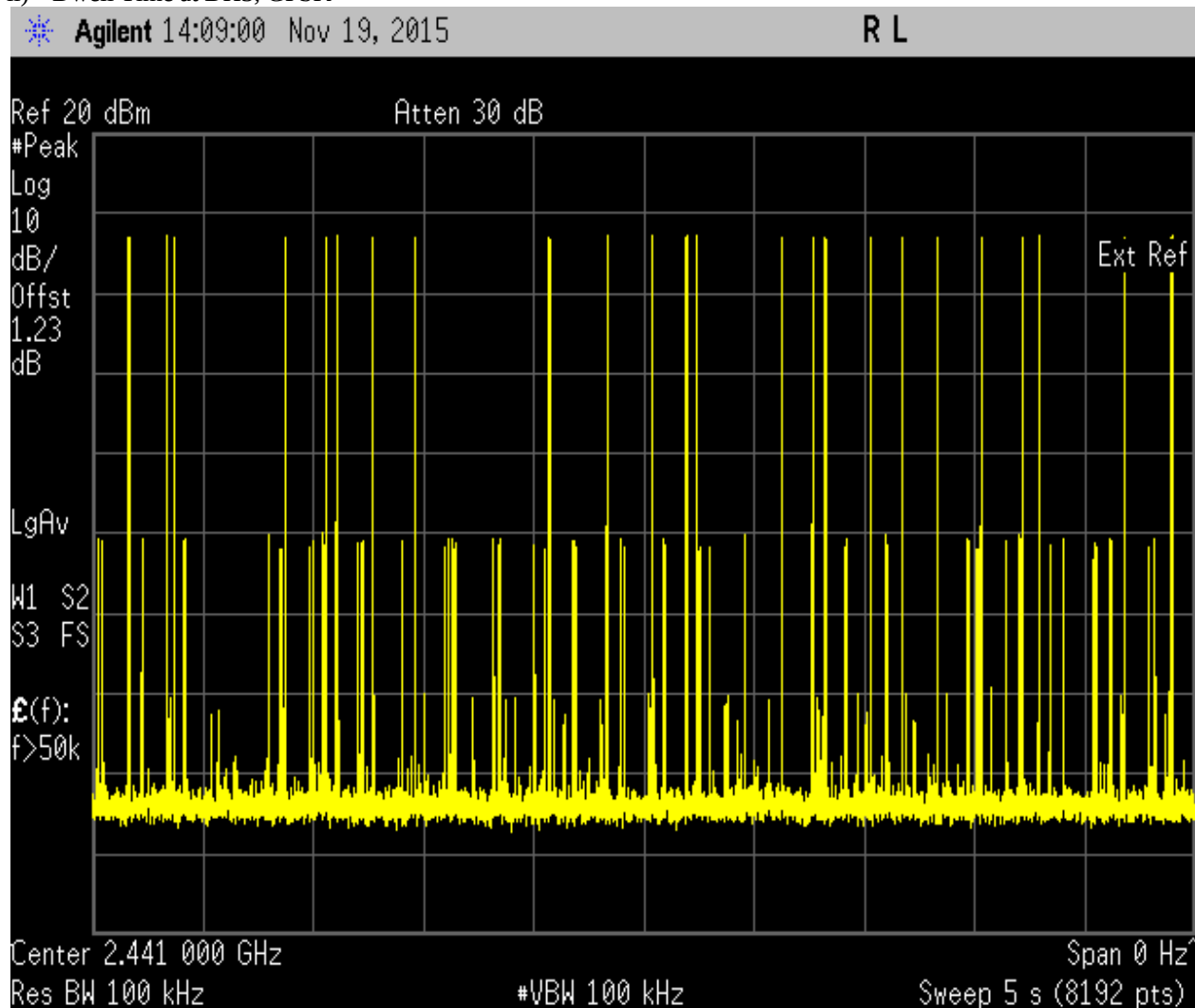
****Note:** Total dwell time 31.6s (79Hopping*0.4), (c) = (a) x 6.32 x (b)

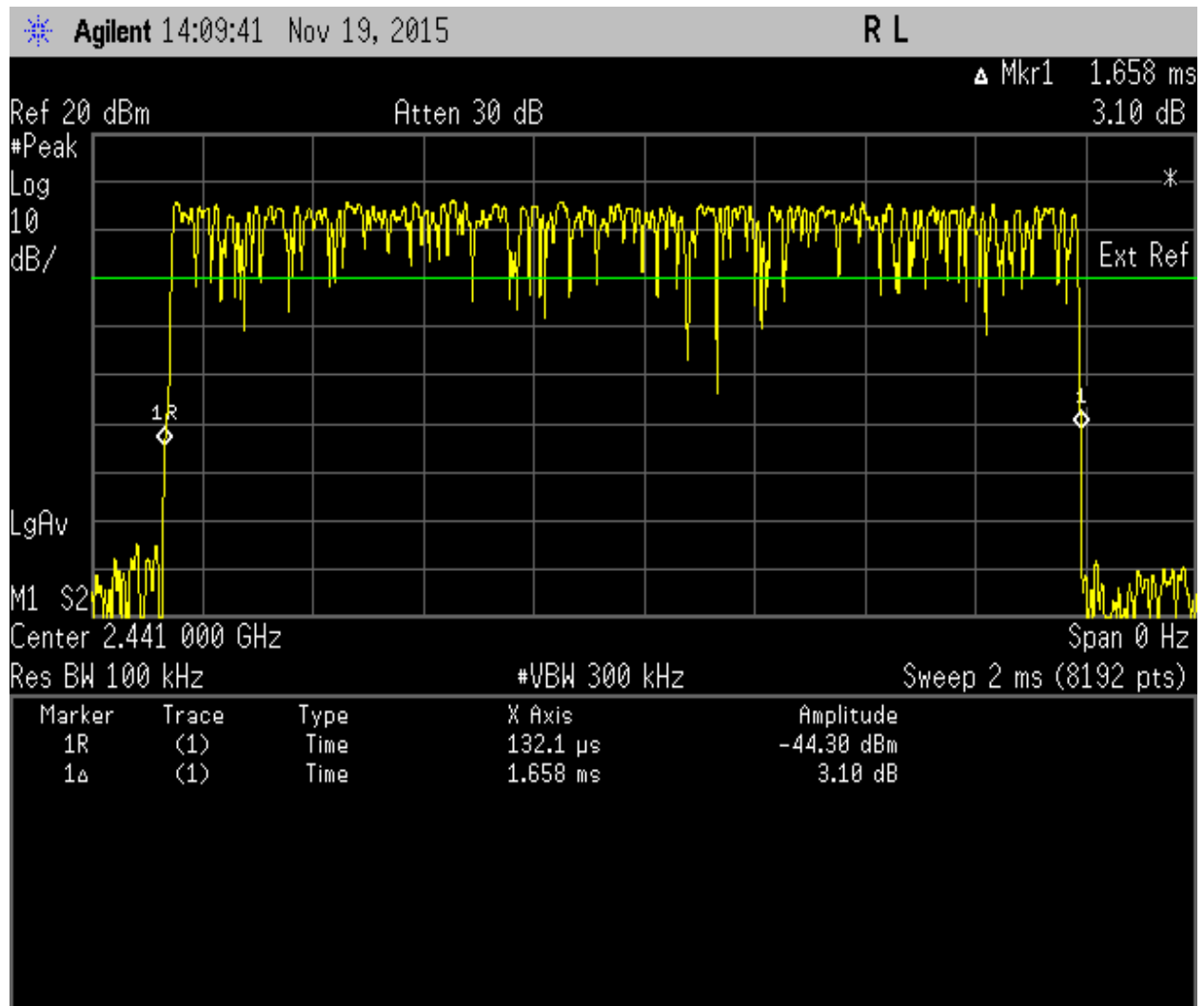
i) Dwell Time at DH1, GFSK



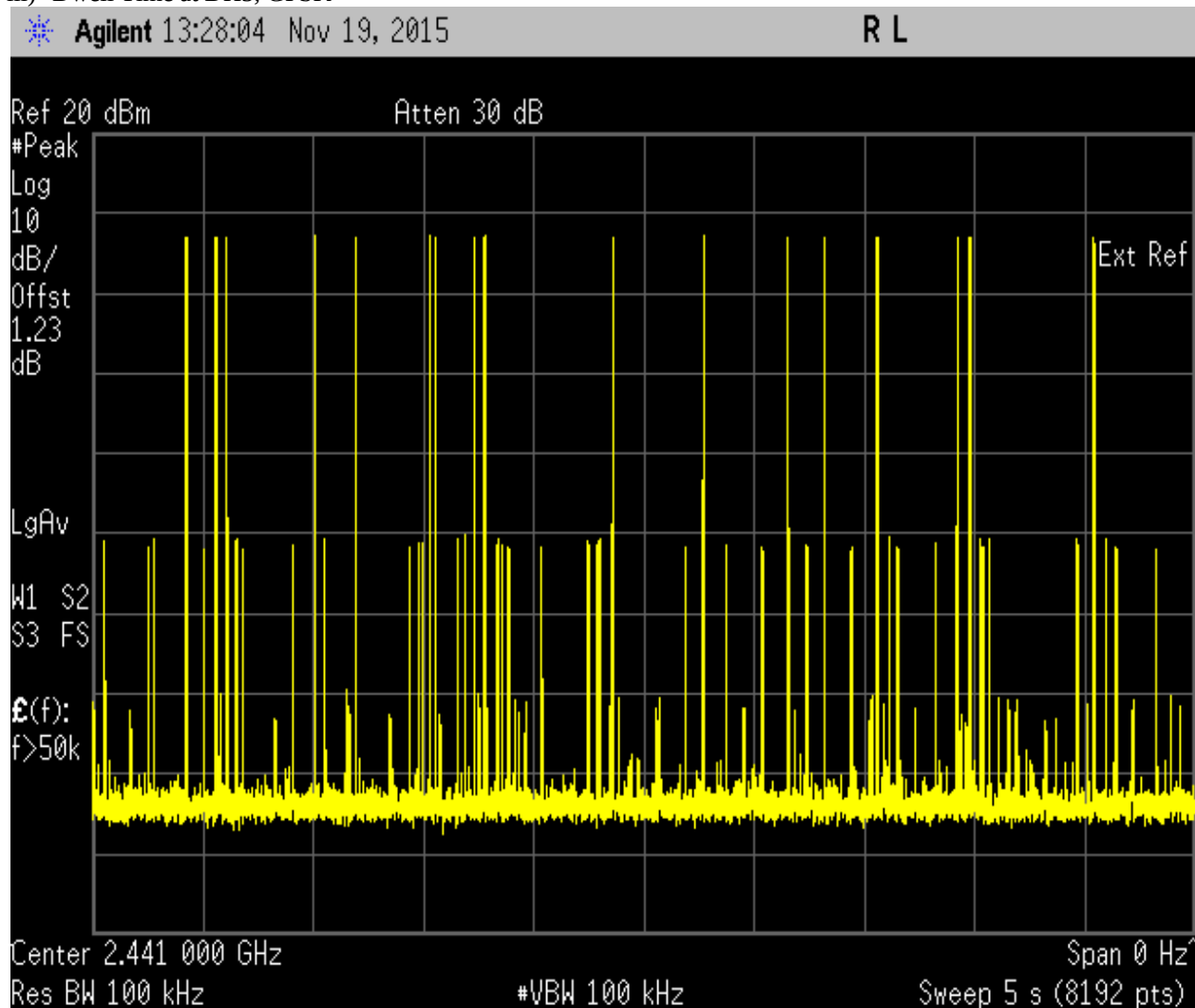


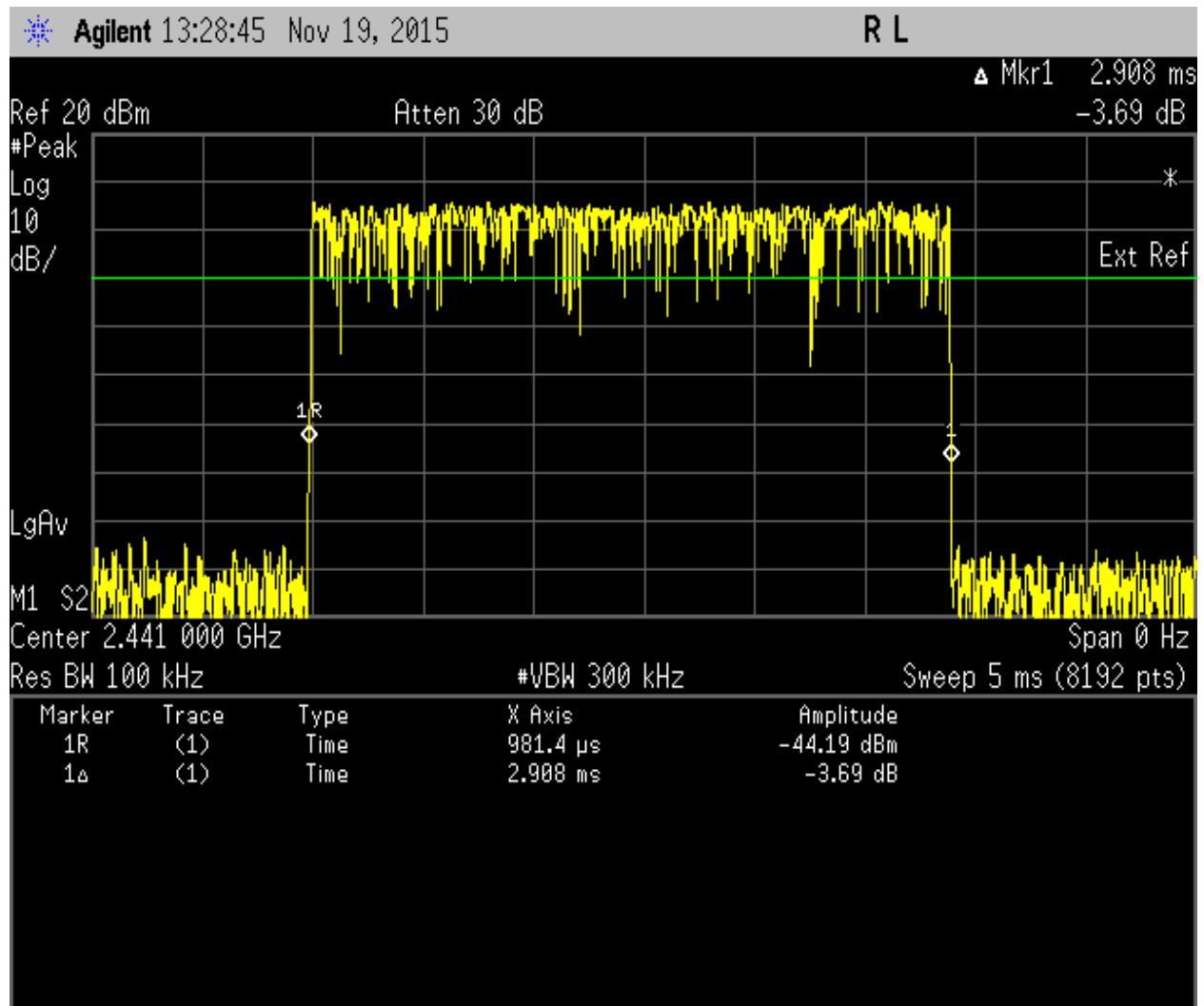
ii) Dwell Time at DH3, GFSK



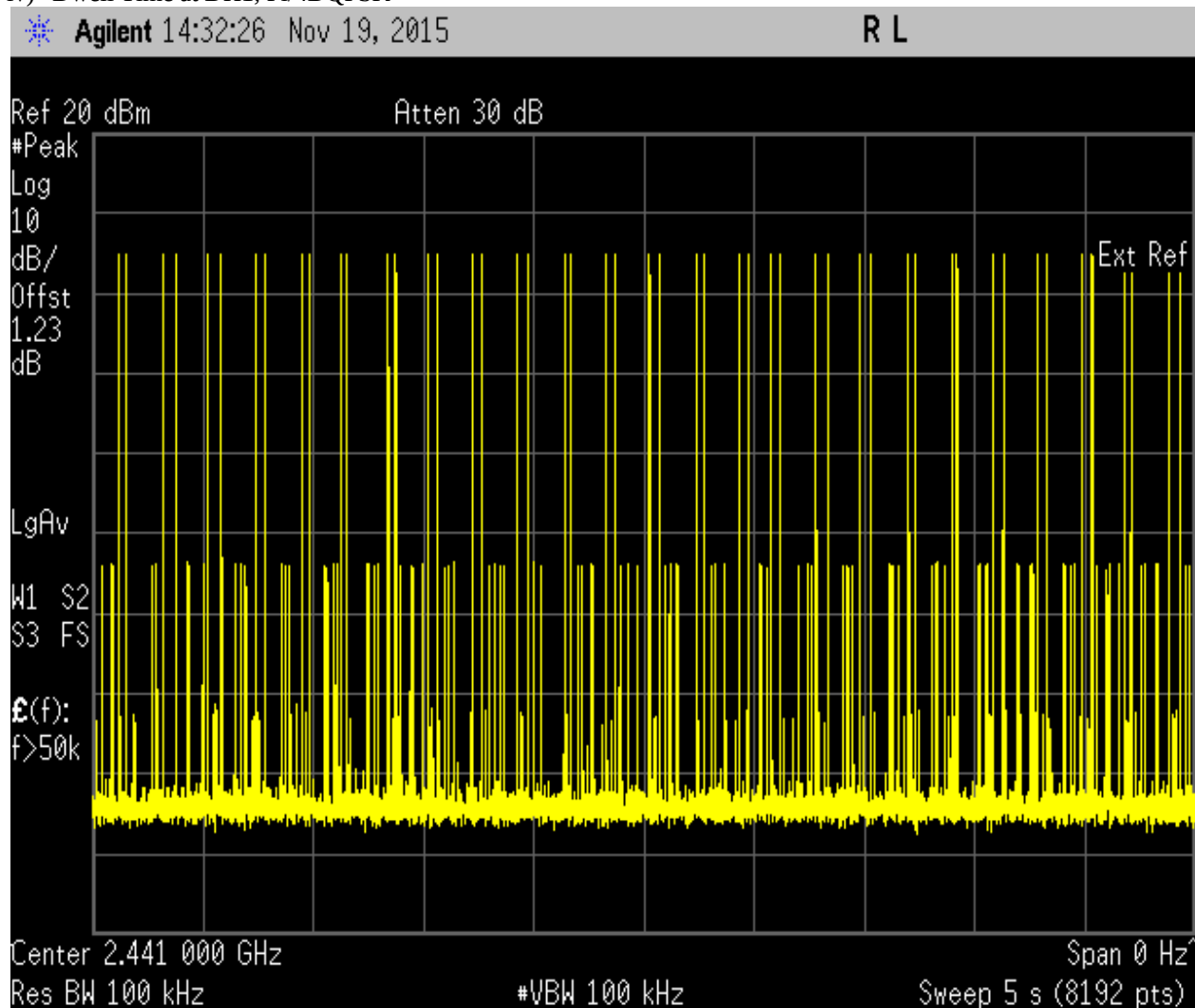


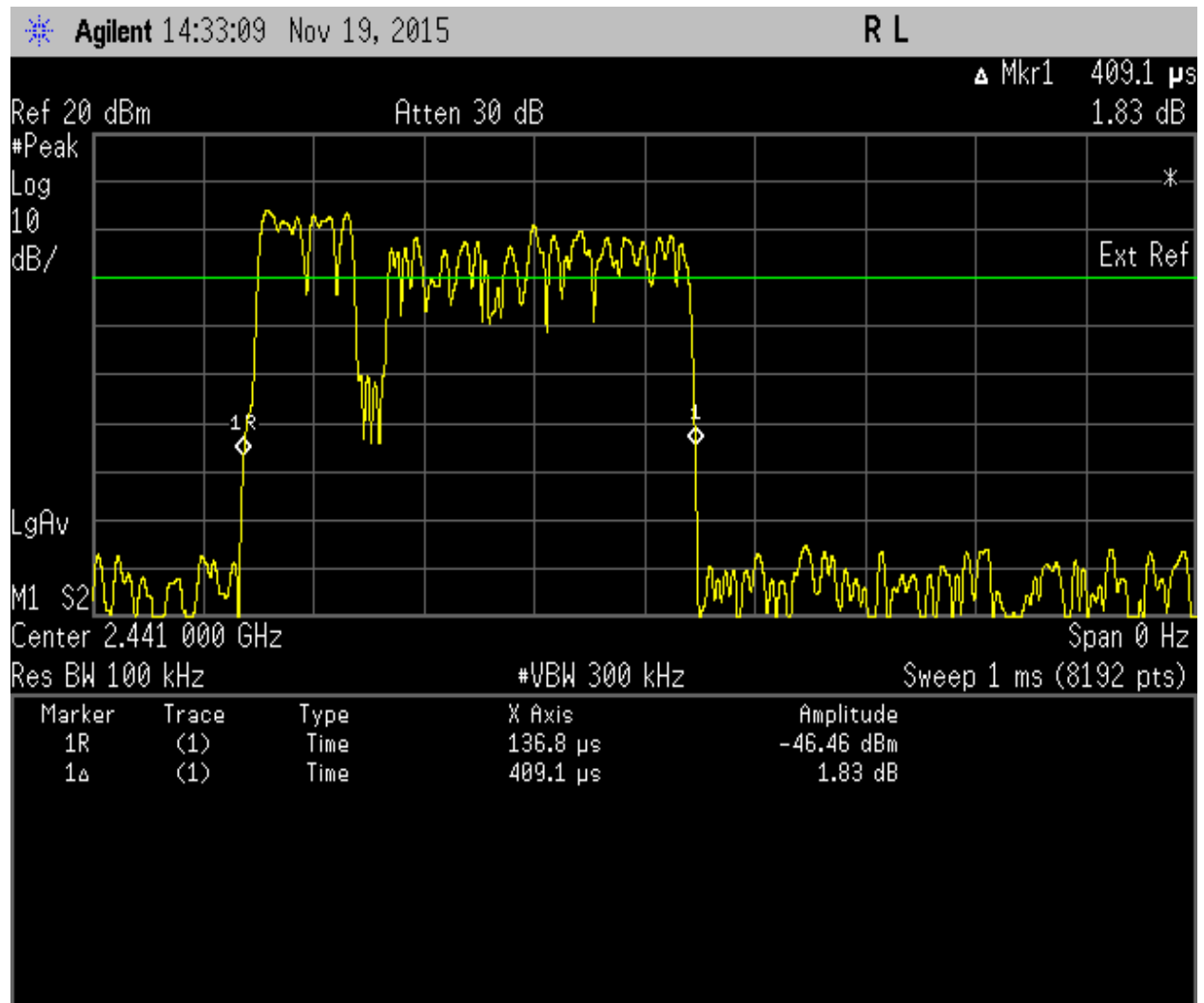
iii) Dwell Time at DH5, GFSK



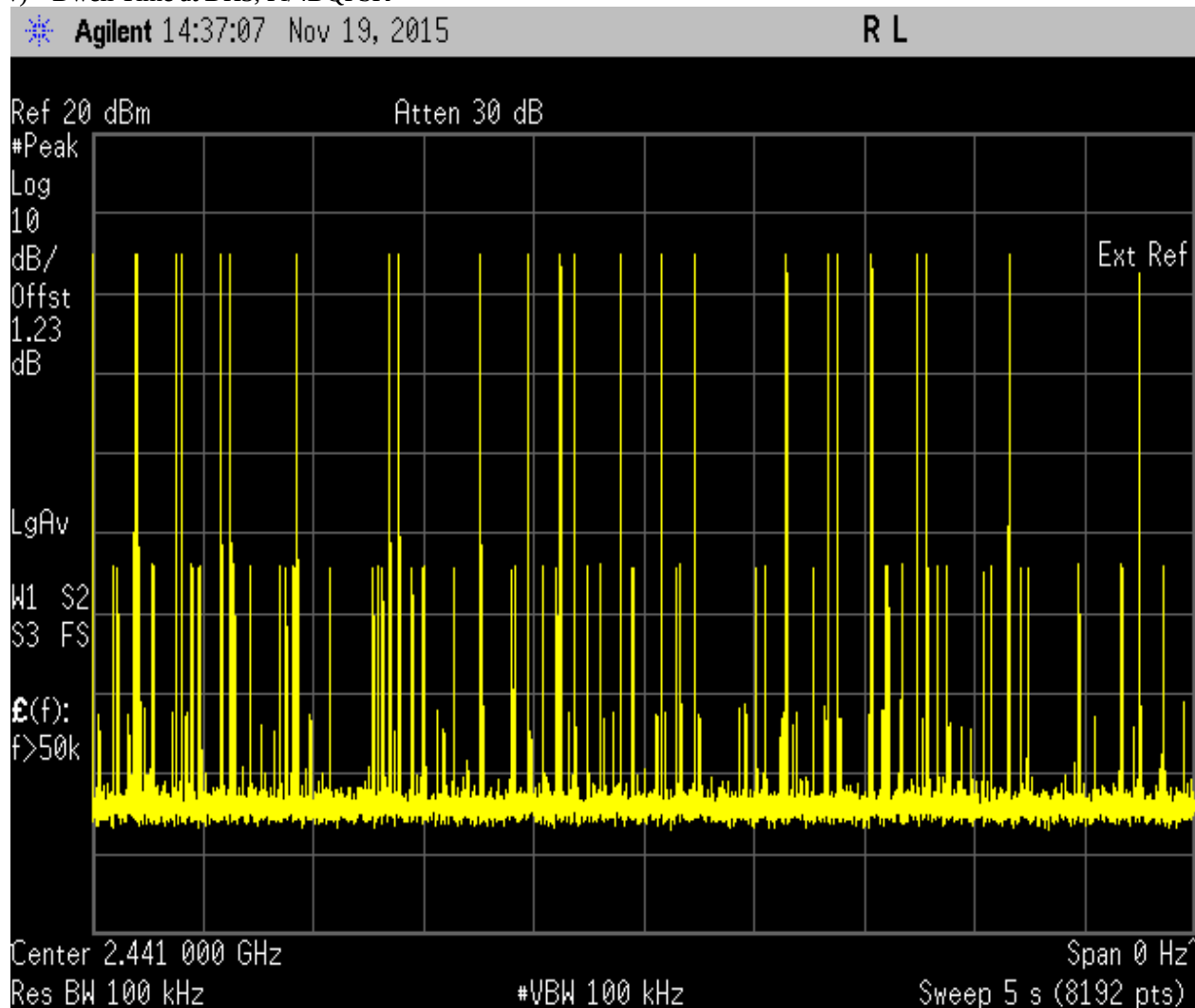


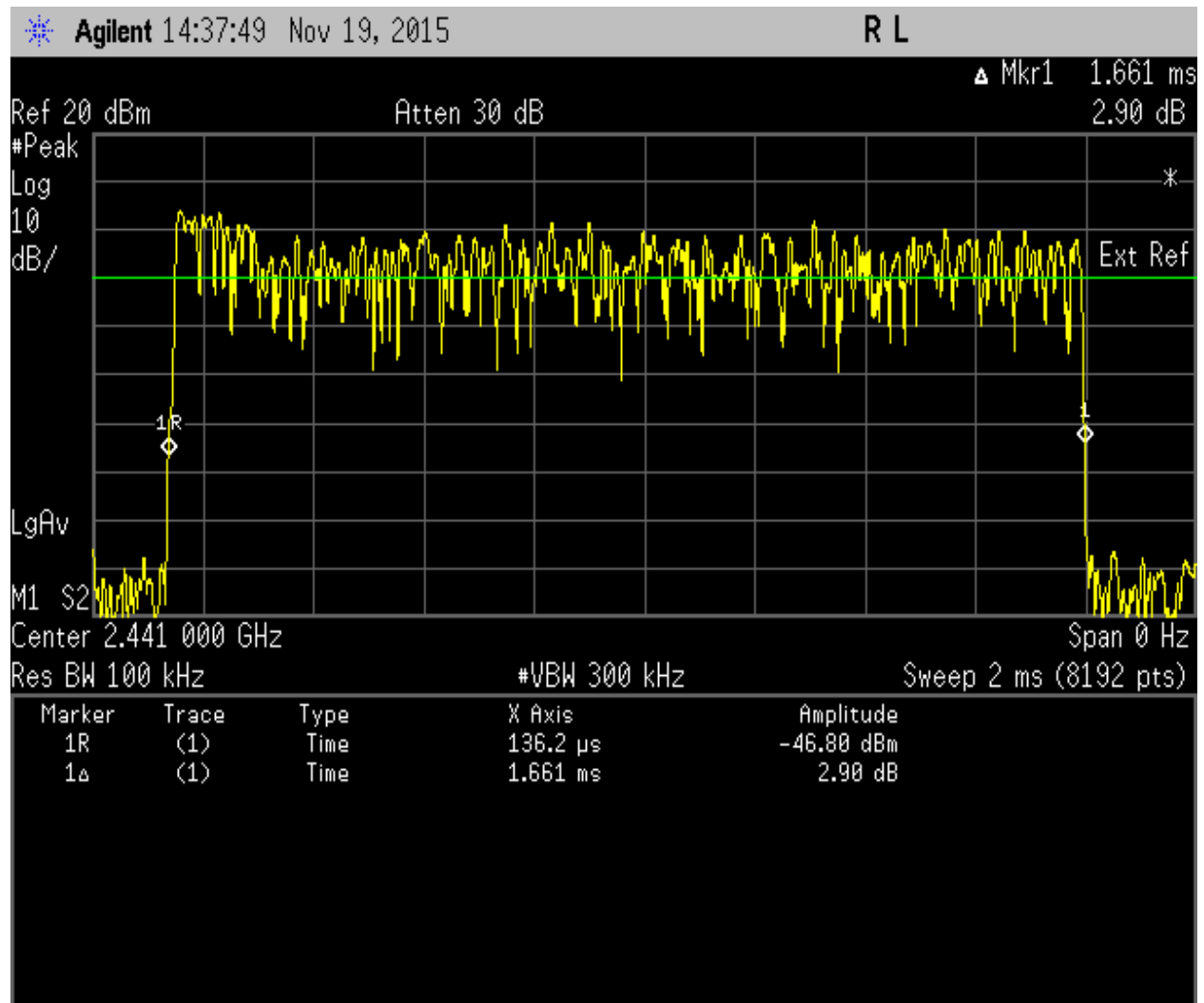
iv) Dwell Time at DH1, Pi/4DQPSK



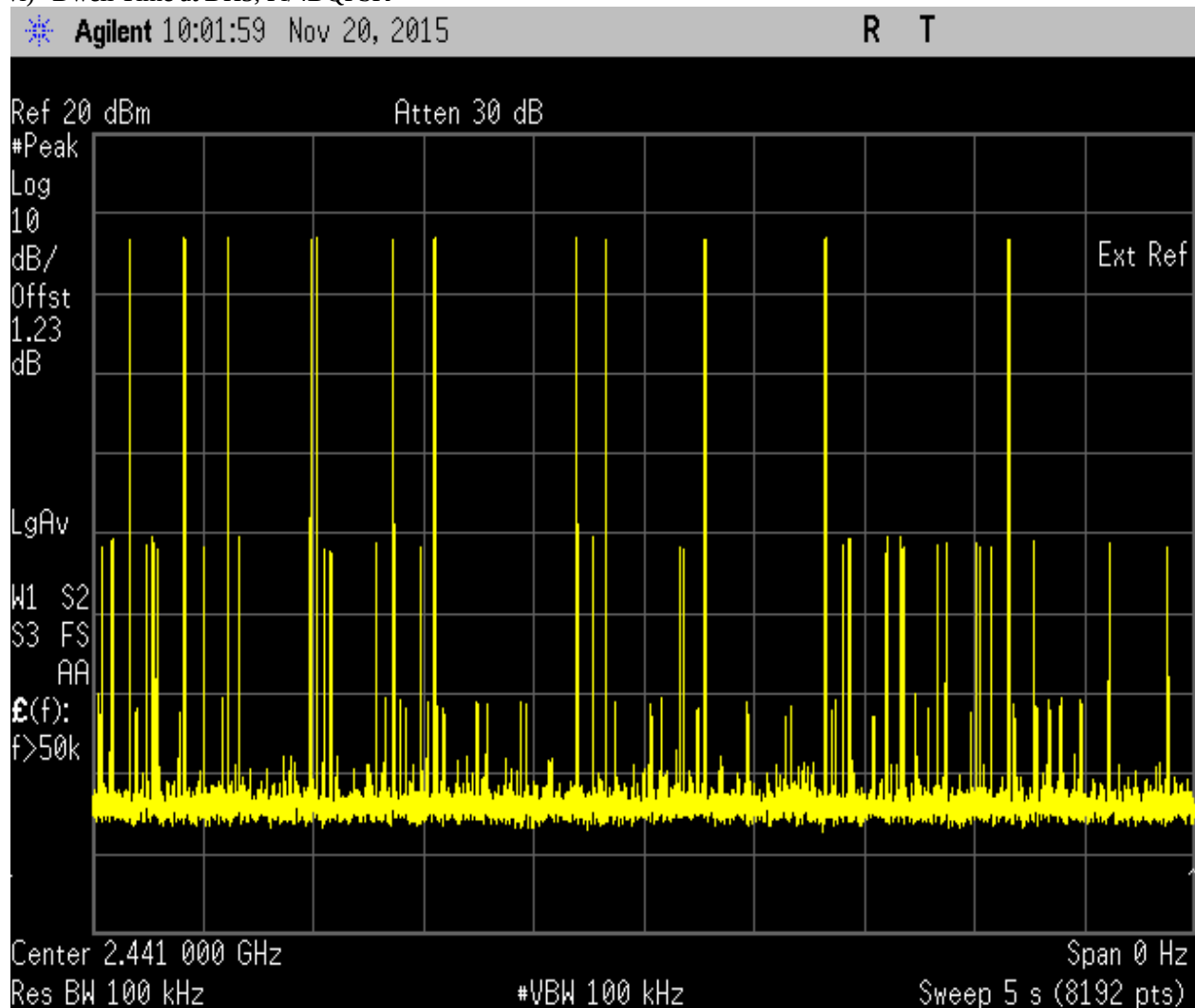


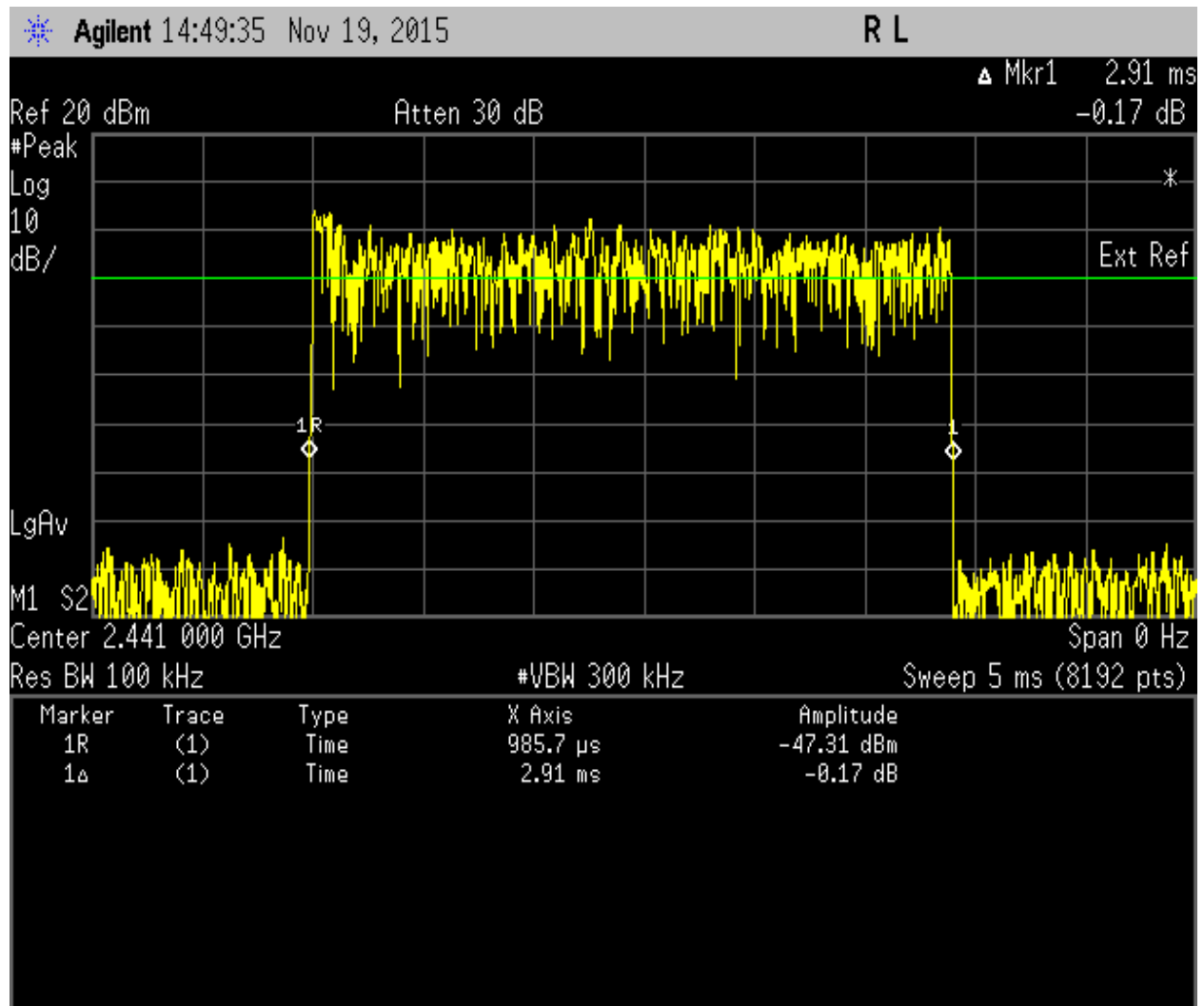
v) Dwell Time at DH3, Pi/4DQPSK



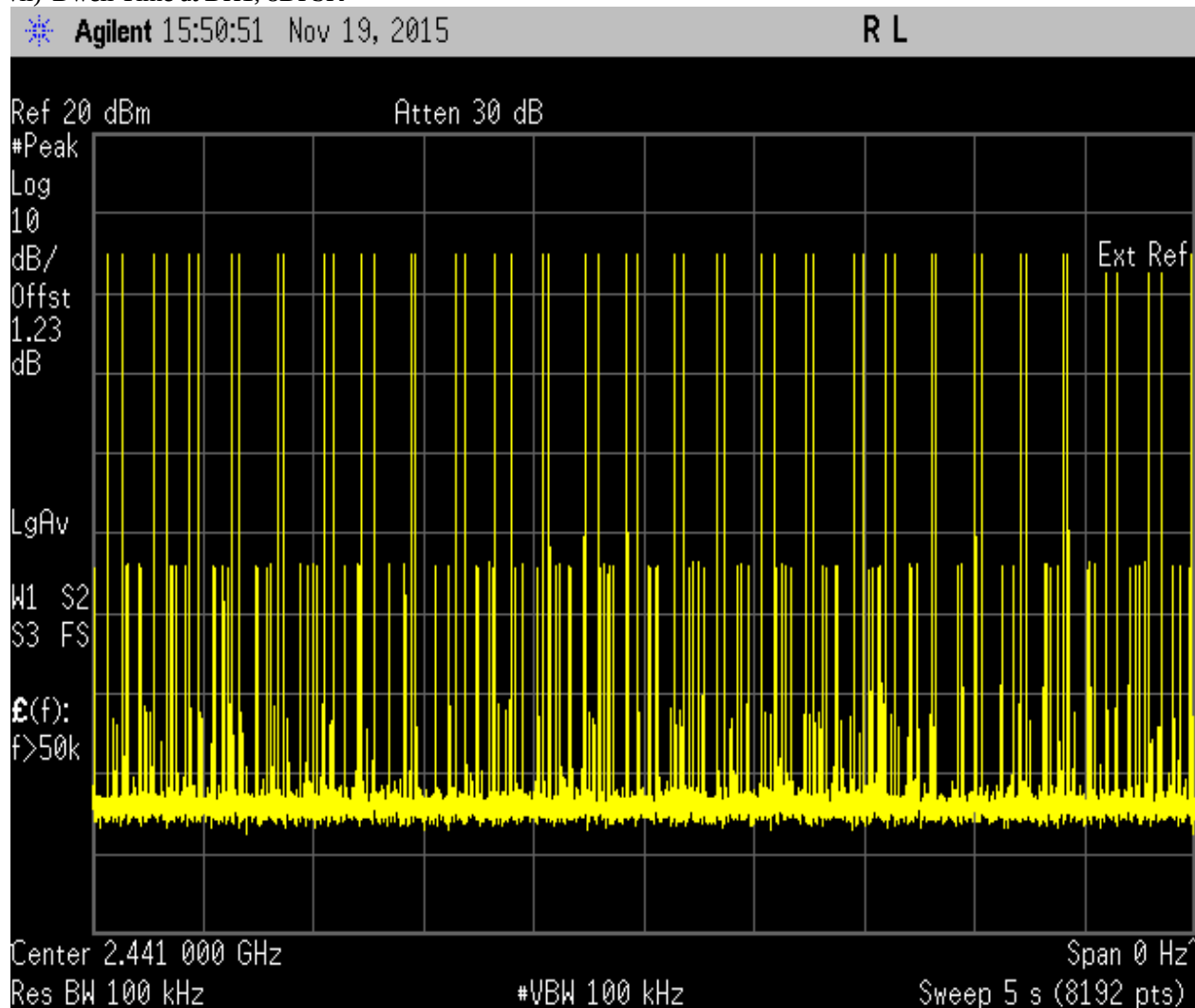


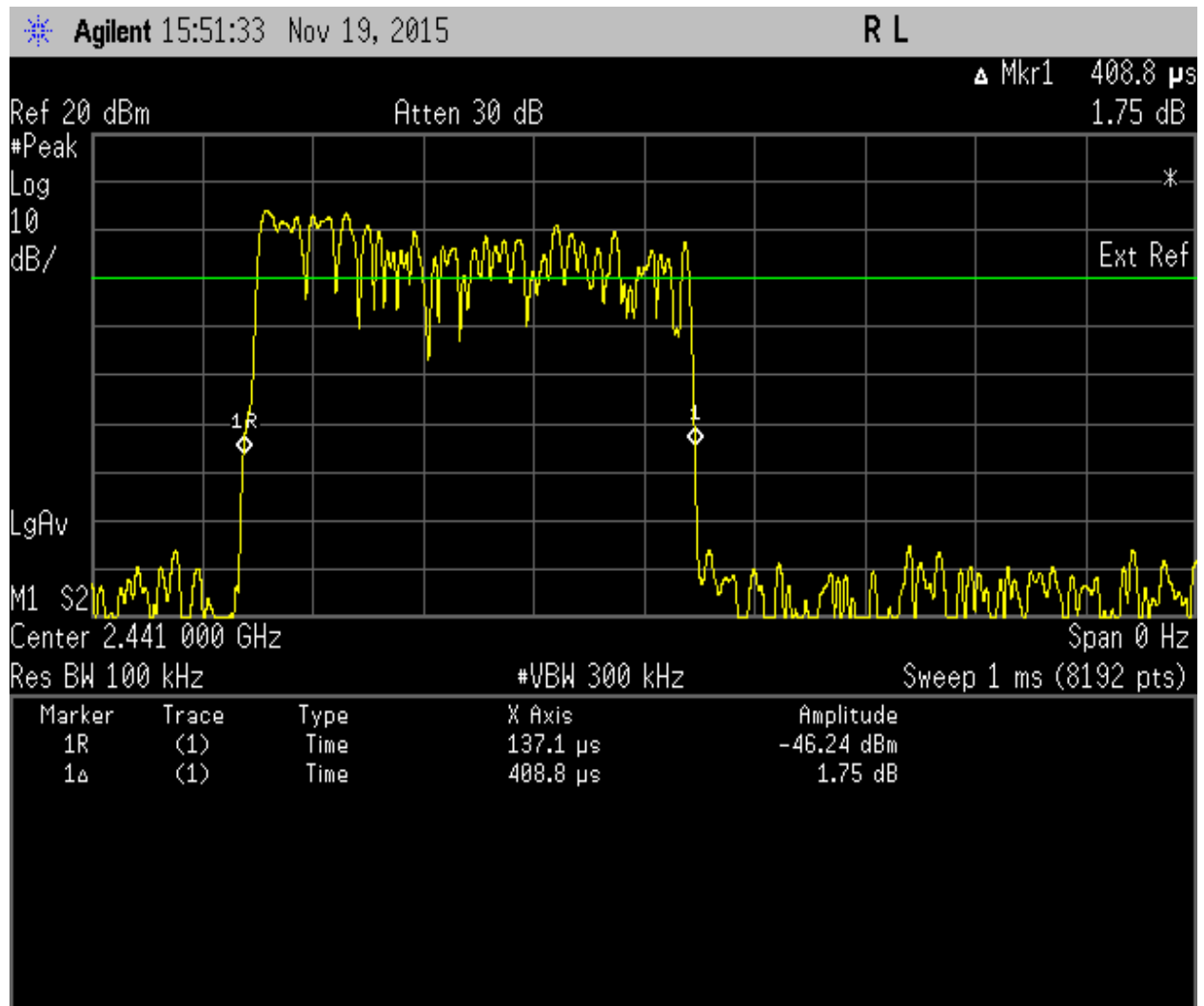
vi) Dwell Time at DH5, Pi/4DQPSK



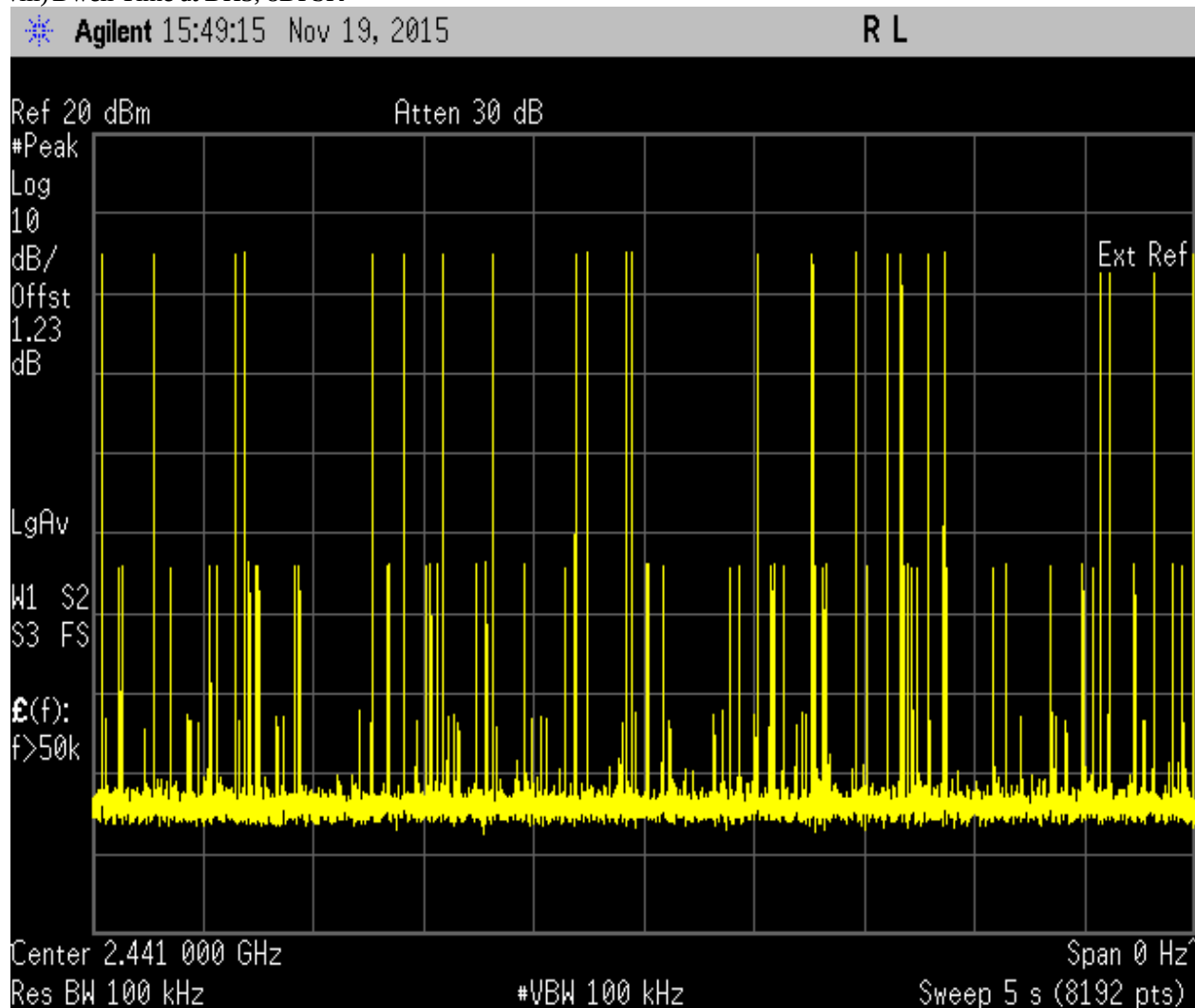


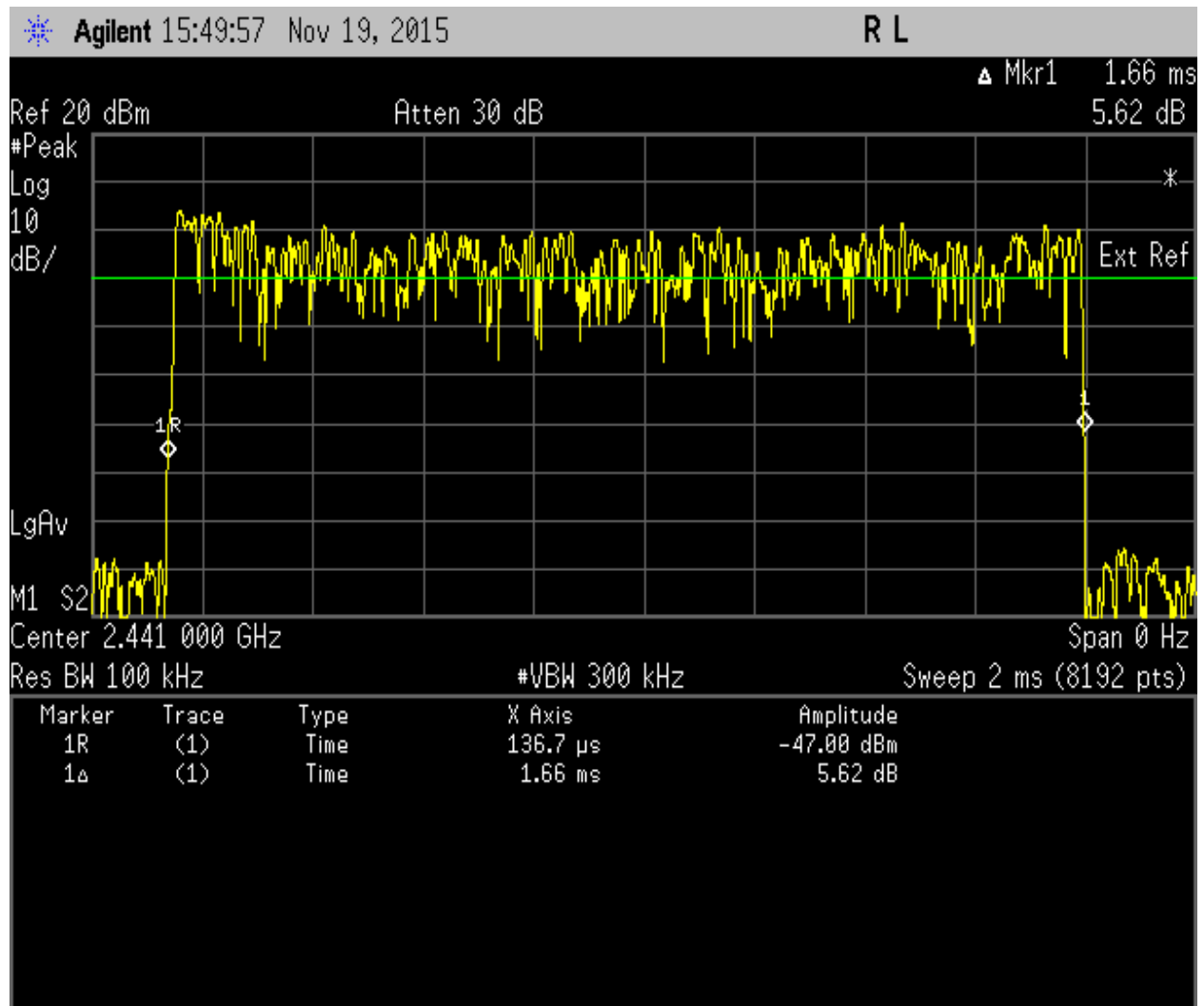
vii) Dwell Time at DH1, 8DPSK



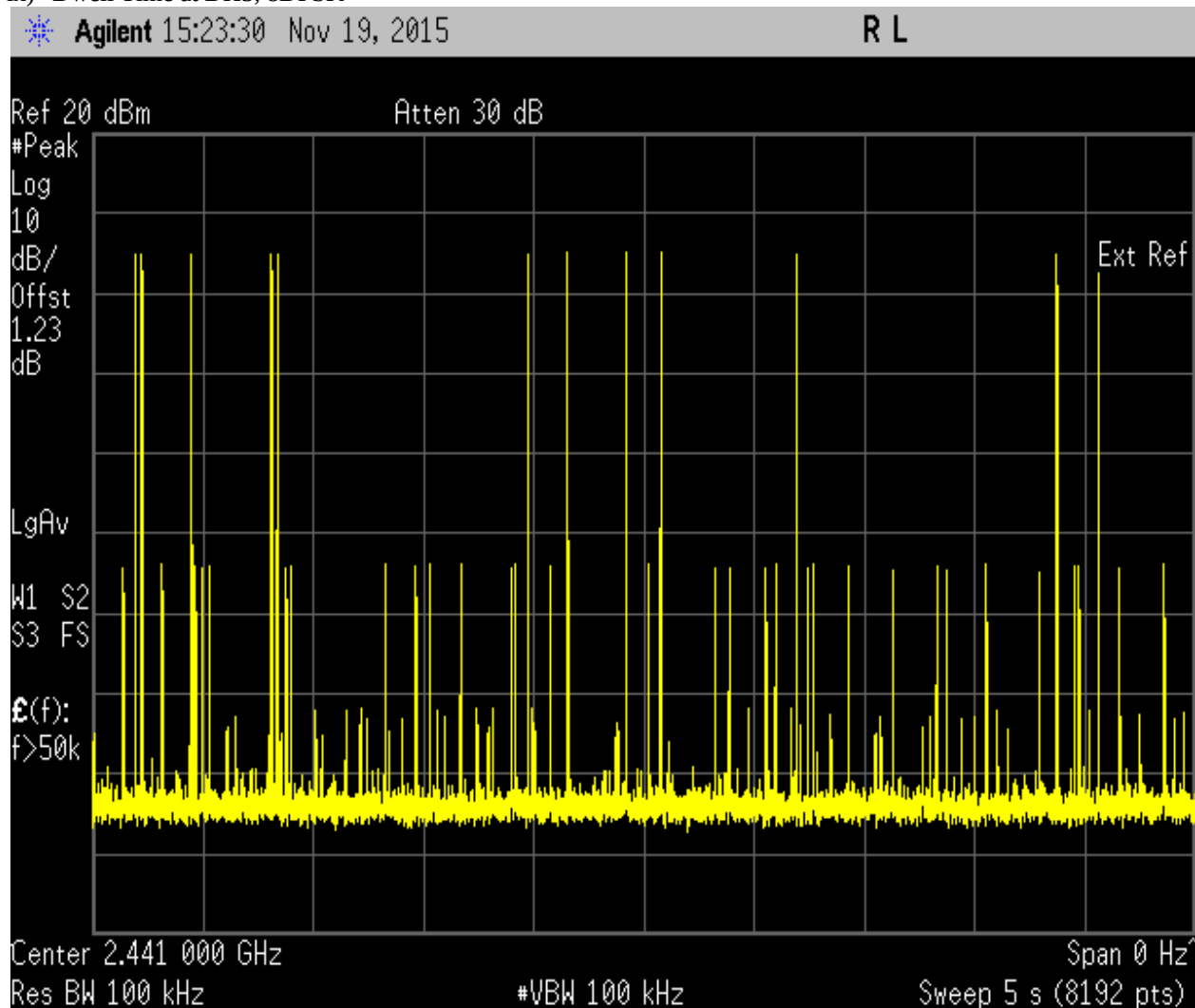


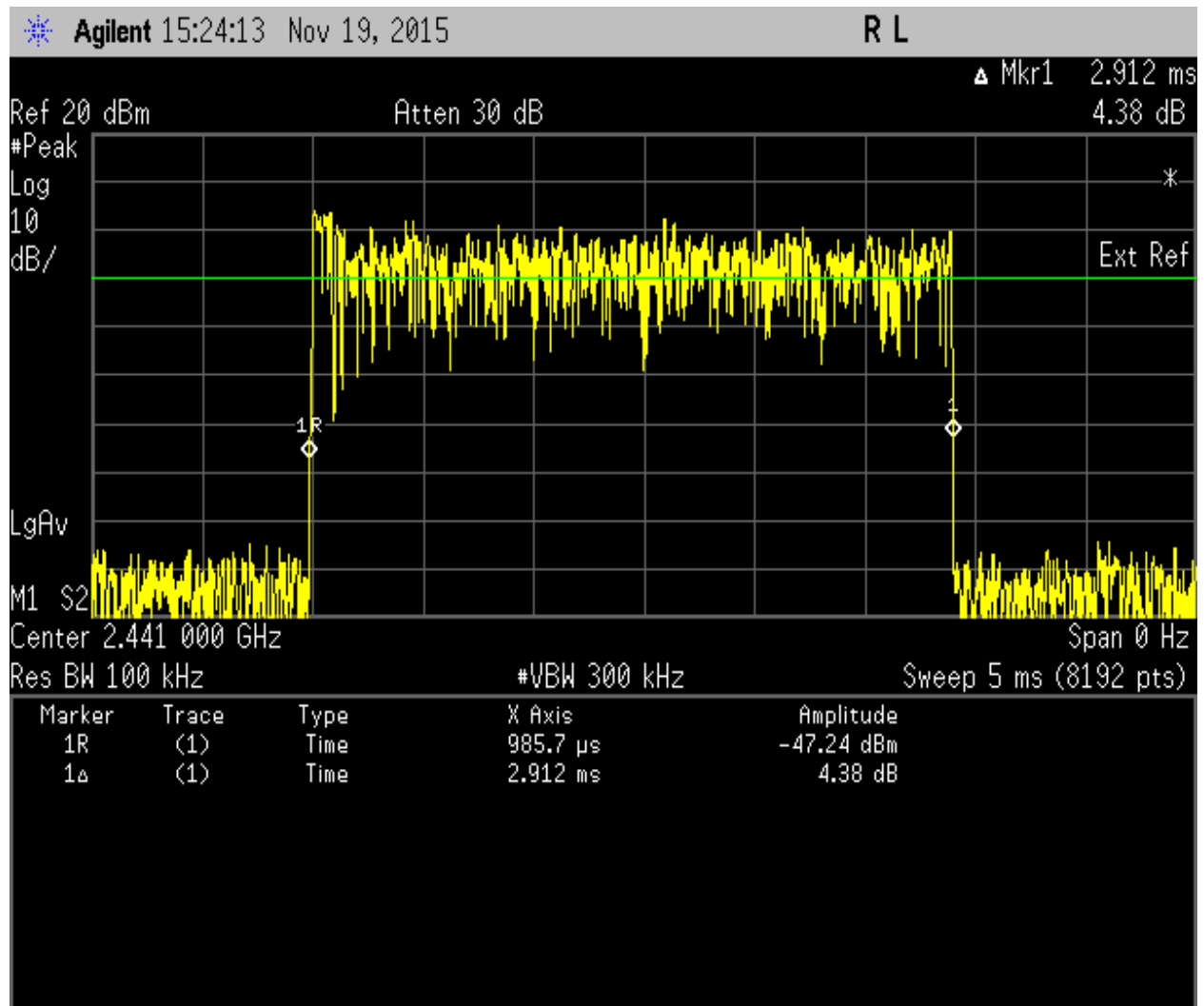
viii) Dwell Time at DH3, 8DPSK





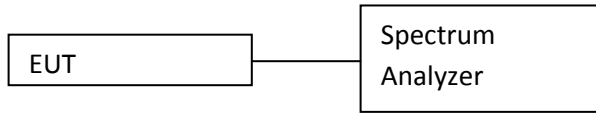
ix) Dwell Time at DH5, 8DPSK





2.5. Number of hopping Frequency

2.5.1. Test Procedure



- a) Check and ensure the spectrum analyzer well calibrate.
- b) Turn on the EUT and keep the EUT in hopping mode.
- c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - a. RBW = 300 kHz
 - b. VBW = 300 kHz
 - c. Detector mode = Peak
 - d. Trace = Max hold
- e) Allow the trace to stabilized & save the plot result from spectrum analyzer screen.
- f) Count number of channel frequency in the operating.
- g) Repeat above procedure for other test frequency.

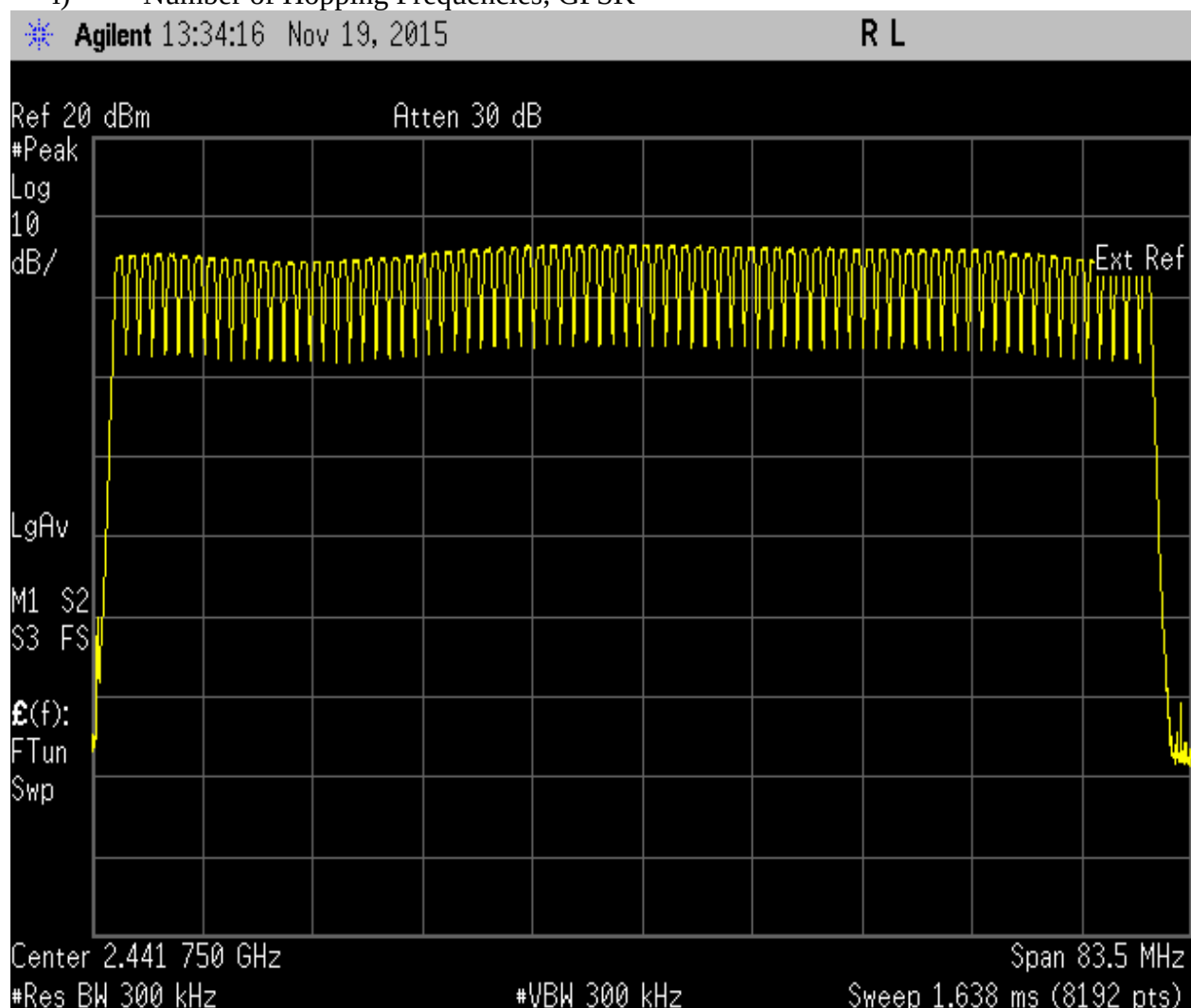
2.5.2. Test Limits:

Normal Condition (25 ° C)
≥ 15

2.5.3. Test Data:

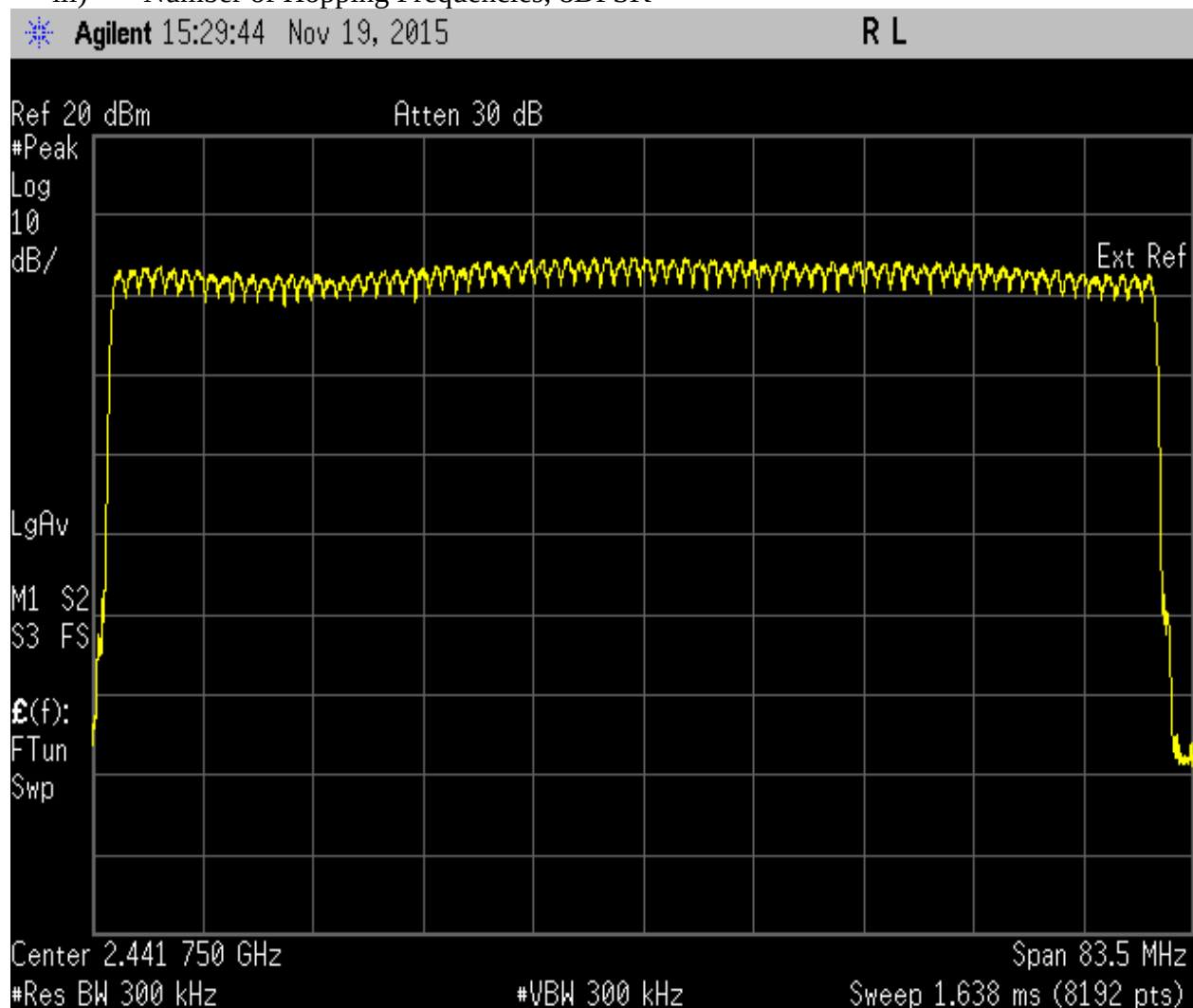
Test Conditions		Sweep Range (GHz)	Results	
Modulation	Voltage(V)		No. of Hopping Frequencies	Status
GFSK	3.70	2.4000-2.4835	79	Pass
Pi/4DQPSK	3.70	2.4000-2.4835	79	Pass
8DPSK	3.70	2.4000-2.4835	79	Pass

i) Number of Hopping Frequencies, GFSK



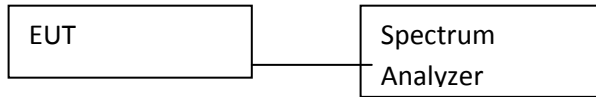


iii) Number of Hopping Frequencies, 8DPSK



2.6. Channel Separation

2.6.1. Test Procedure



- Check and ensure the spectrum analyzer well calibrate.
- Turn on the EUT and keep the EUT in hopping mode.
- Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
- Setting of Spectrum analyzer :
 - RBW = 300 kHz
 - VBW = 300 kHz
 - SPAN = 3 MHz, center on test frequency
 - AMPLITUDE → Scale/Div = 5 dB
 - Detector mode = Peak
 - Trace = Max hold
 - Sweep = auto
- Measure the frequency different of these two adjacent channels with marker delta function & record the measurement results.
- Repeat above procedure with other different mode of operation.

2.6.2. Test Limits:

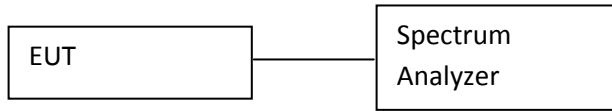
Normal Condition (25 ° C)
≥ 2/3 of 20dB Bandwidth

2.6.3. Test Data:

Test Conditions		Test Frequency (GHz)	Results			
Modulation	Voltage(V)		Test Data Adjacent Channel Separation (MHz)	20dB Bandwidth (MHz)	Min Limit = 2/3 of 20dB Bandwidth (MHz)	Status
GFSK	3.70	2.4020	1.000	0.993	0.662	Pass
		2.4410	0.996	1.003	0.669	Pass
		2.4800	1.158	0.993	0.662	Pass
Pi/4DQPSK	3.70	2.4020	1.009	1.281	0.854	Pass
		2.4410	0.996	1.302	0.868	Pass
		2.4800	1.002	1.288	0.859	Pass
8DPSK	3.70	2.4020	1.010	1.297	0.865	Pass
		2.4410	1.001	1.282	0.855	Pass
		2.4800	1.043	1.299	0.866	Pass

2.7. Conducted Spurious Emission

2.7.1. Test Procedure



- Check and ensure the spectrum analyzer well calibrate.
- Turn on the EUT and set EUT to transmit maximum data rate with hopping disable.
- Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
- Setting of Spectrum analyzer :
 - RBW = 100 kHz
 - VBW = 300 kHz
 - SPAN = Cover until 10th harmonic
 - Detector mode = Peak
 - AMPLITUDE → Scale/Div = 10 dB
 - Trace = Max hold
 - Sweep = auto
- Measure the captured spurious emission result and recording the plot.
- Repeat above procedure with other different mode of operation.

2.7.2. Test Limits:

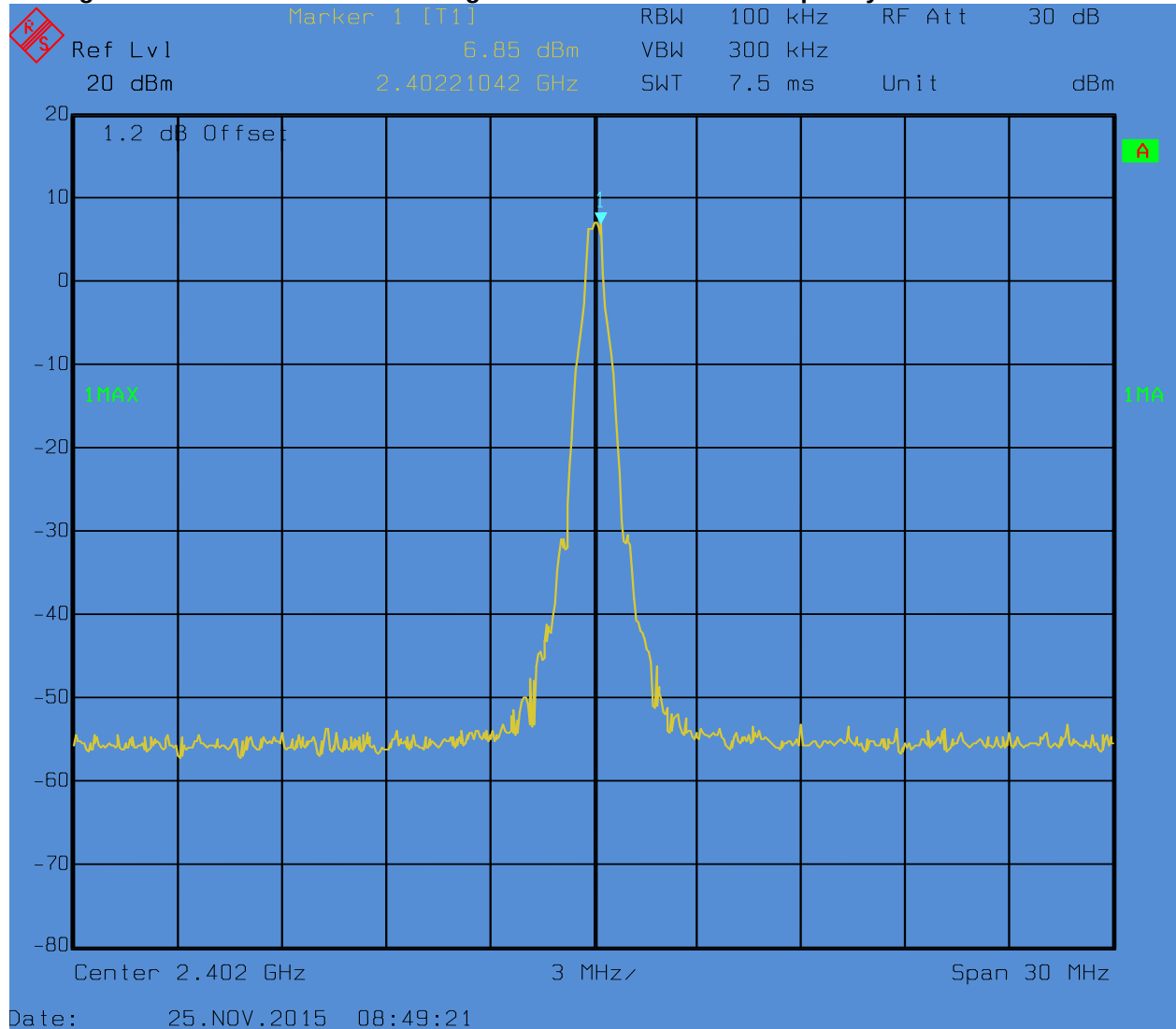
Normal Condition (25 ° C)
Shall be at least 20 dB below for peak power.

2.7.3. Test Data:

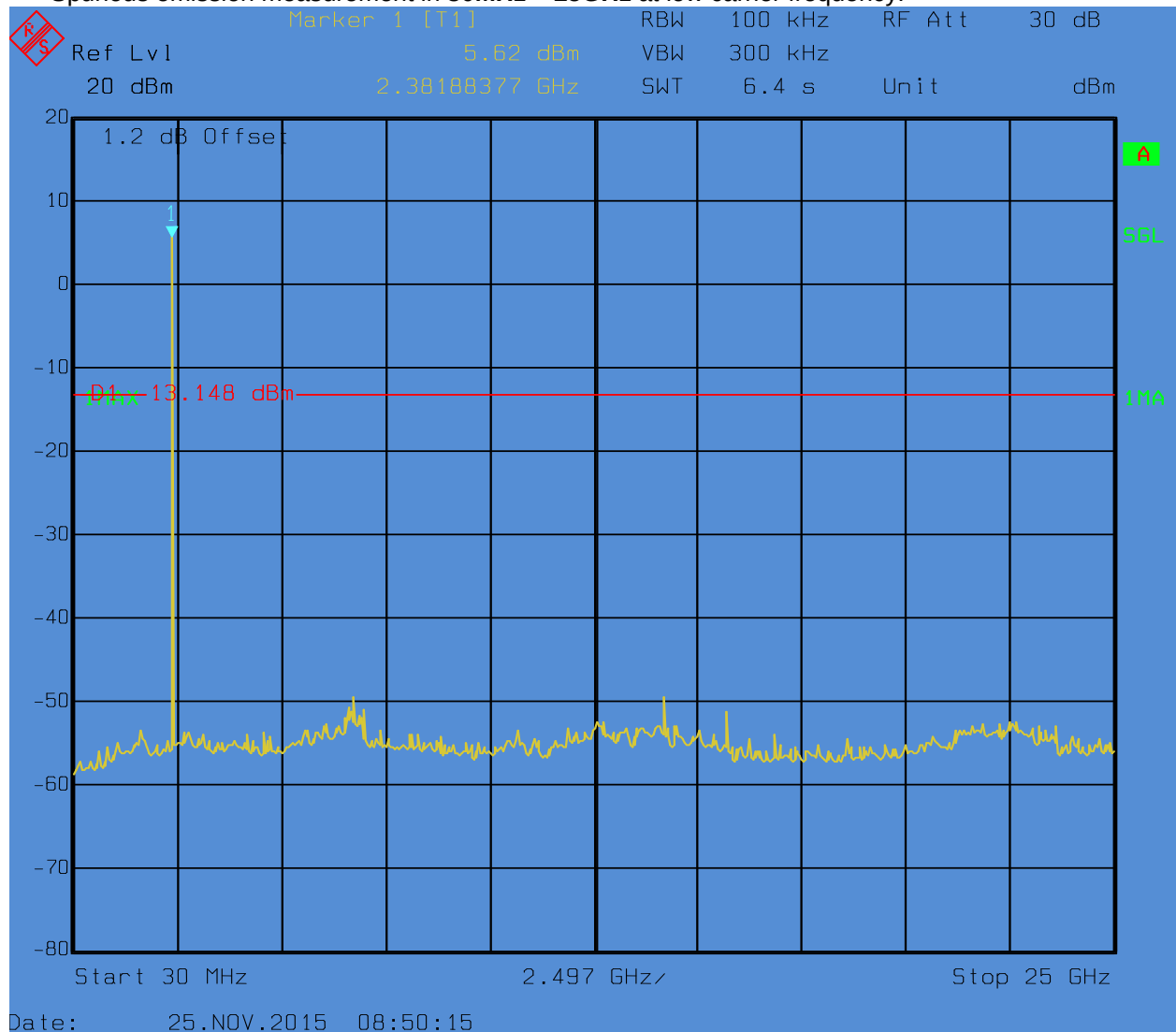
Test Conditions		Test Frequency (GHz)	Results
Modulation	Voltage(V)		Status
GFSK	3.70	2.4020	Pass
		2.4410	Pass
		2.4800	Pass
Pi/4DQPSK	3.70	2.4020	Pass
		2.4410	Pass
		2.4800	Pass
8DPSK	3.70	2.4020	Pass
		2.4410	Pass
		2.4800	Pass

GFSK Modulation:

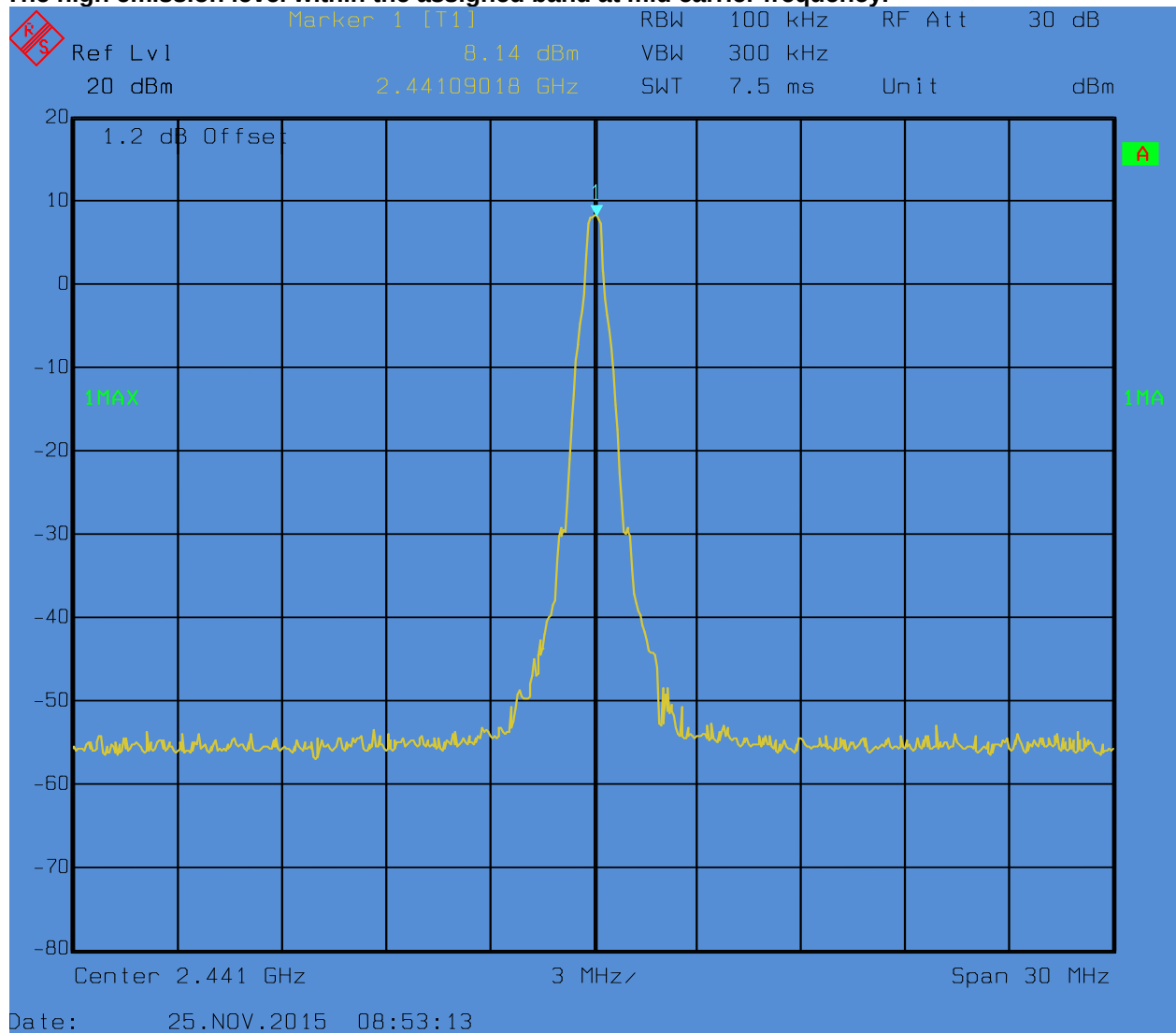
- The high emission level within the assigned band at low carrier frequency.



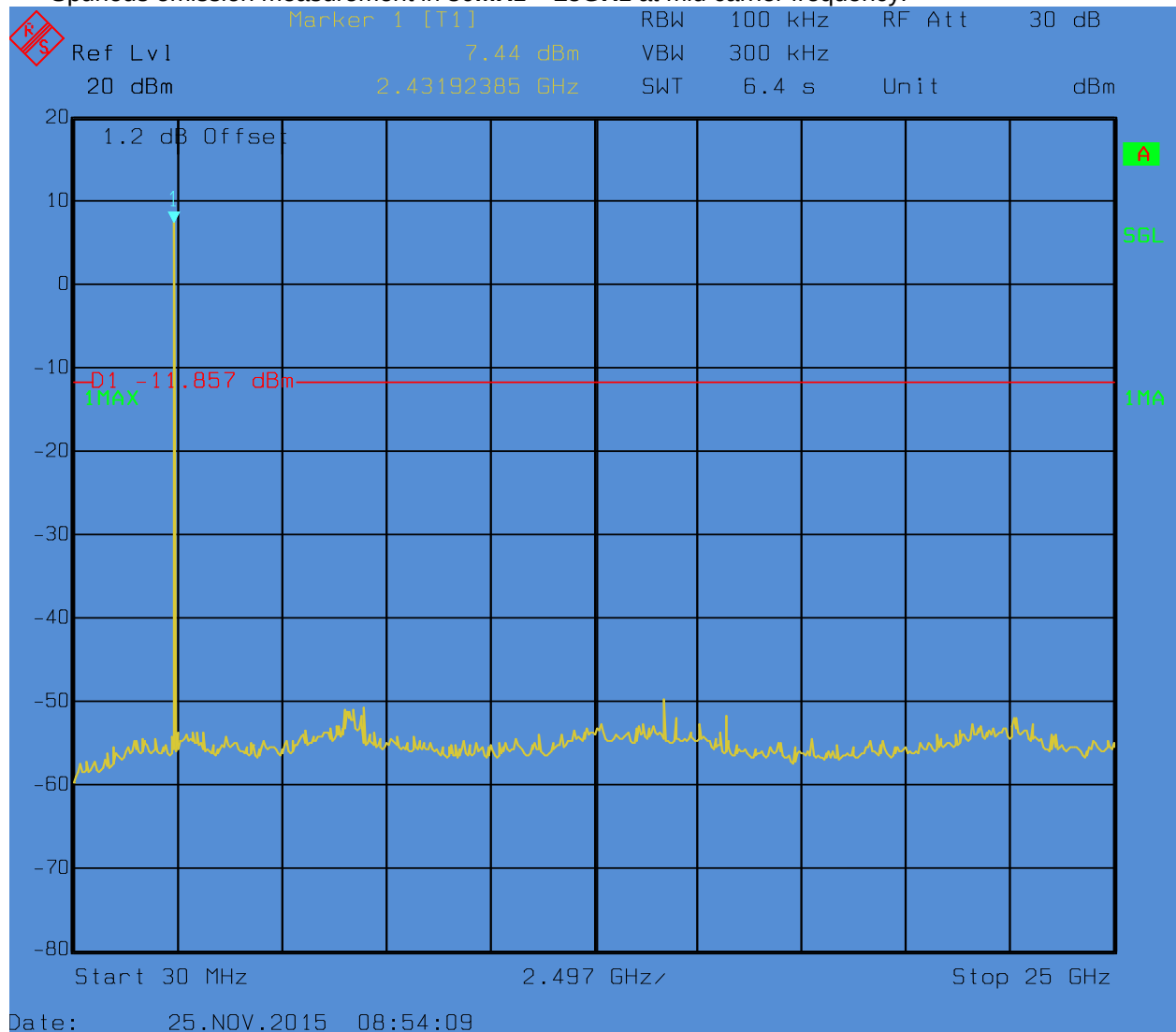
- Spurious emission measurement in **30MHz – 25GHz** at low carrier frequency.



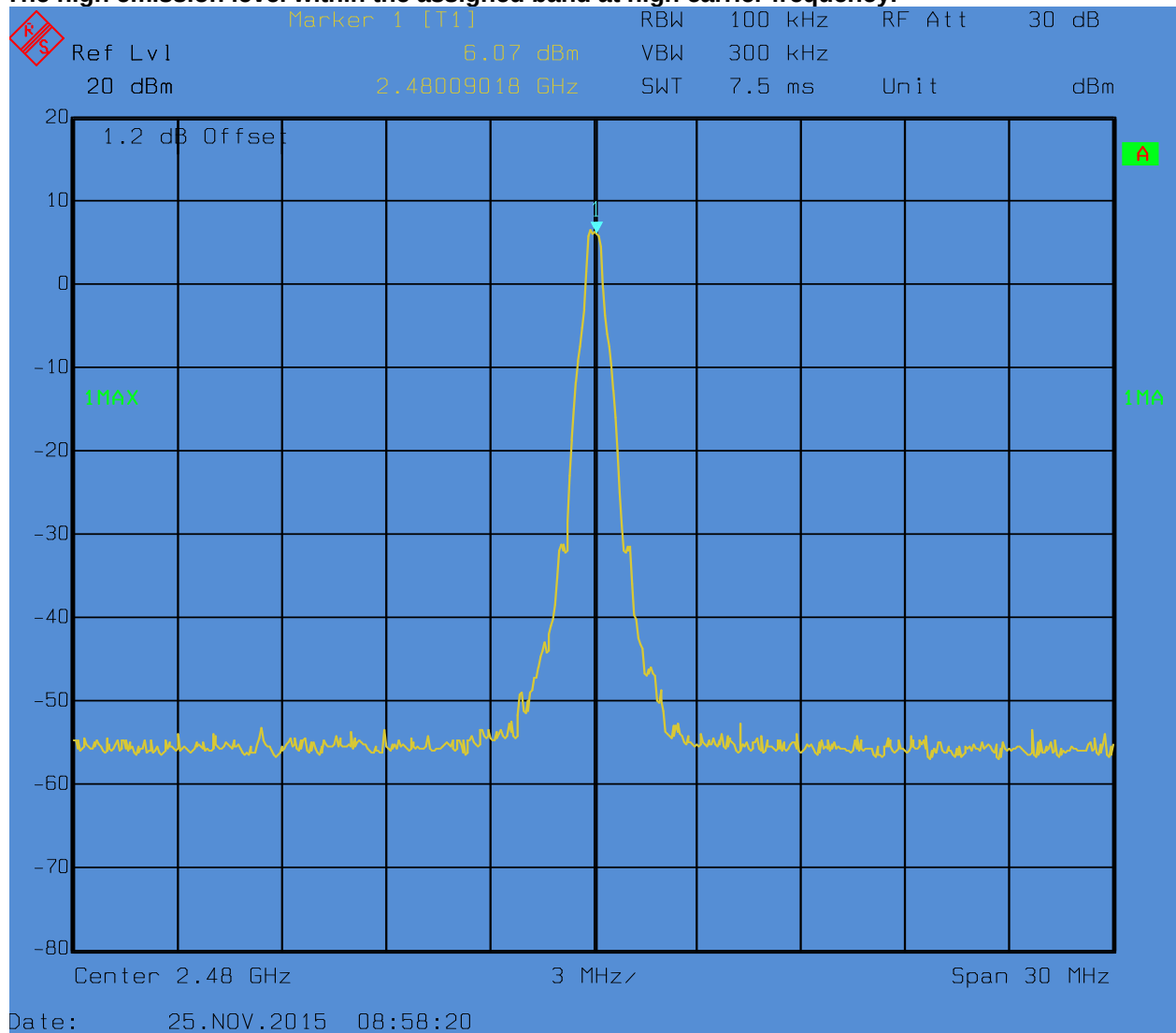
- The high emission level within the assigned band at mid carrier frequency.



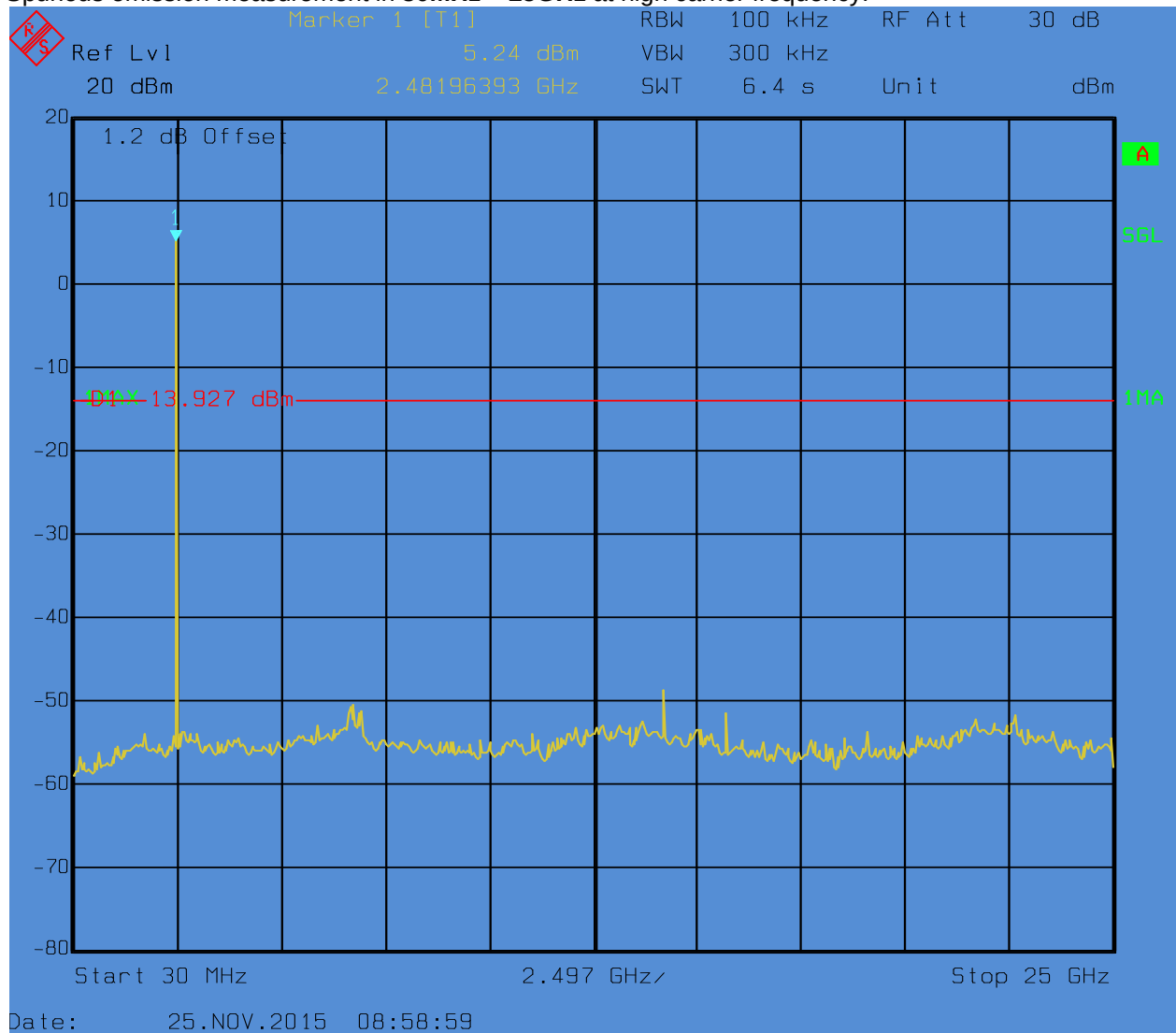
- Spurious emission measurement in **30MHz – 25GHz** at mid carrier frequency.



- The high emission level within the assigned band at high carrier frequency.

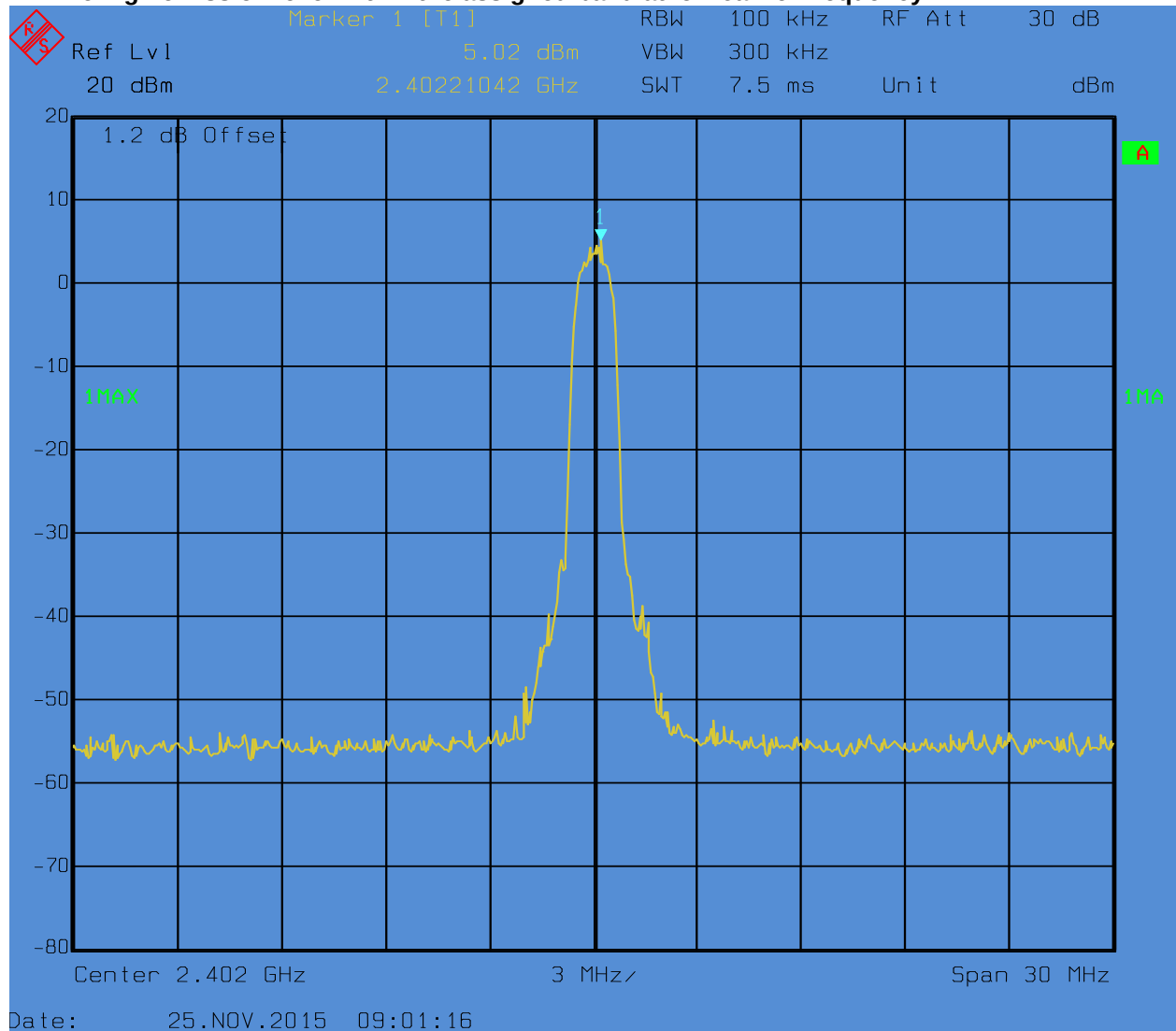


- Spurious emission measurement in **30MHz – 25GHz** at high carrier frequency.

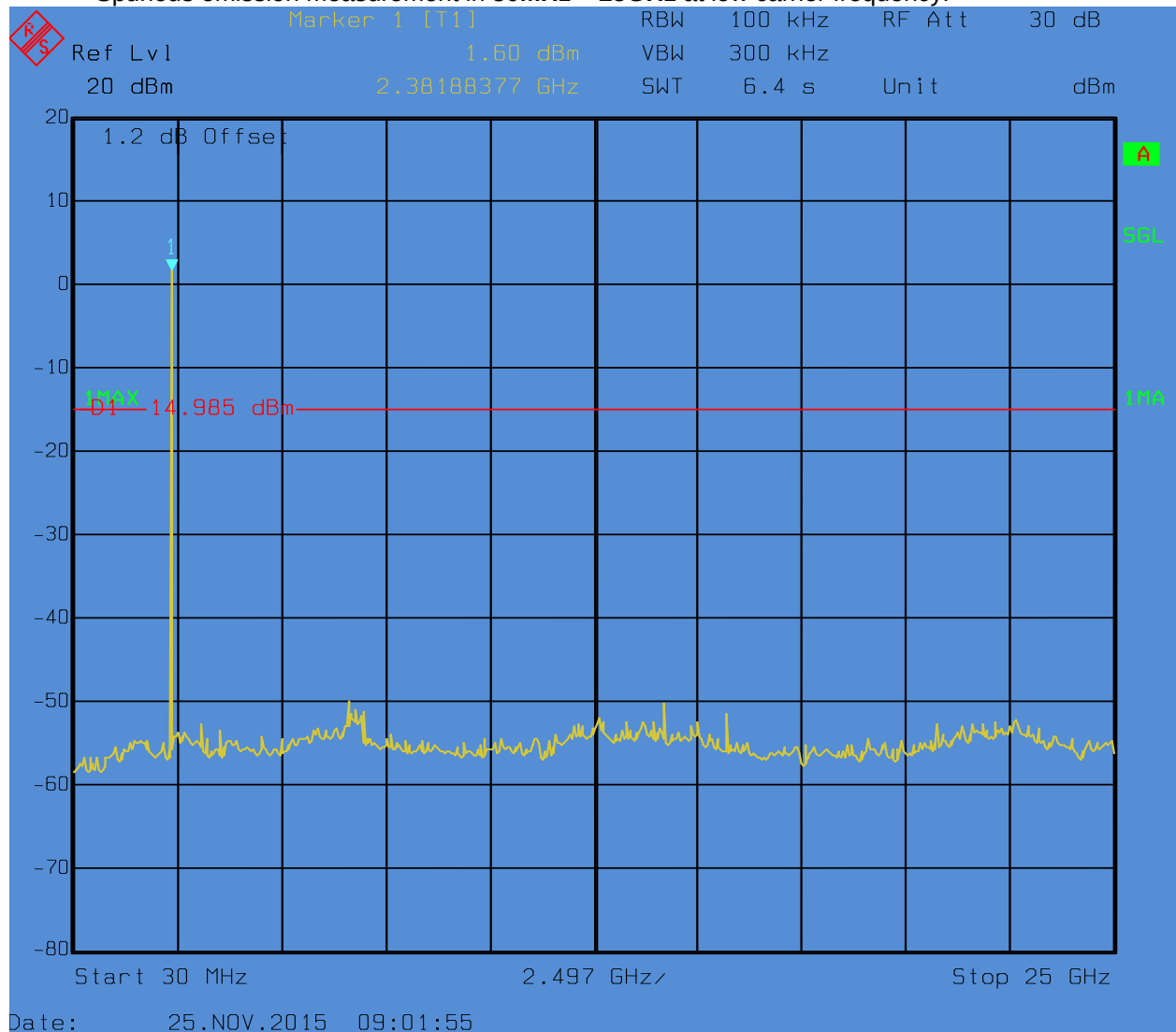


Pi/4DQPSK Modulation:

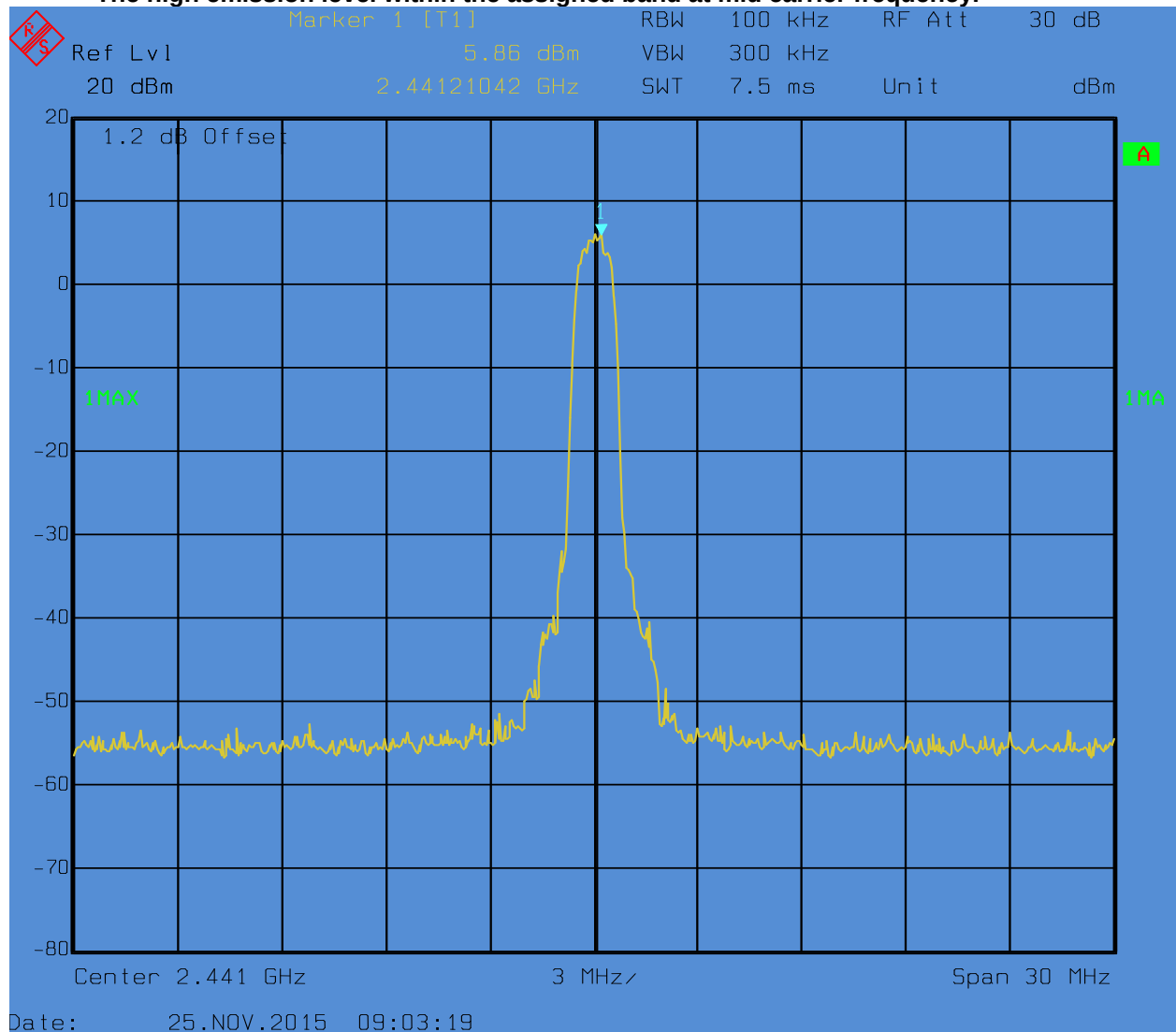
- The high emission level within the assigned band at low carrier frequency.



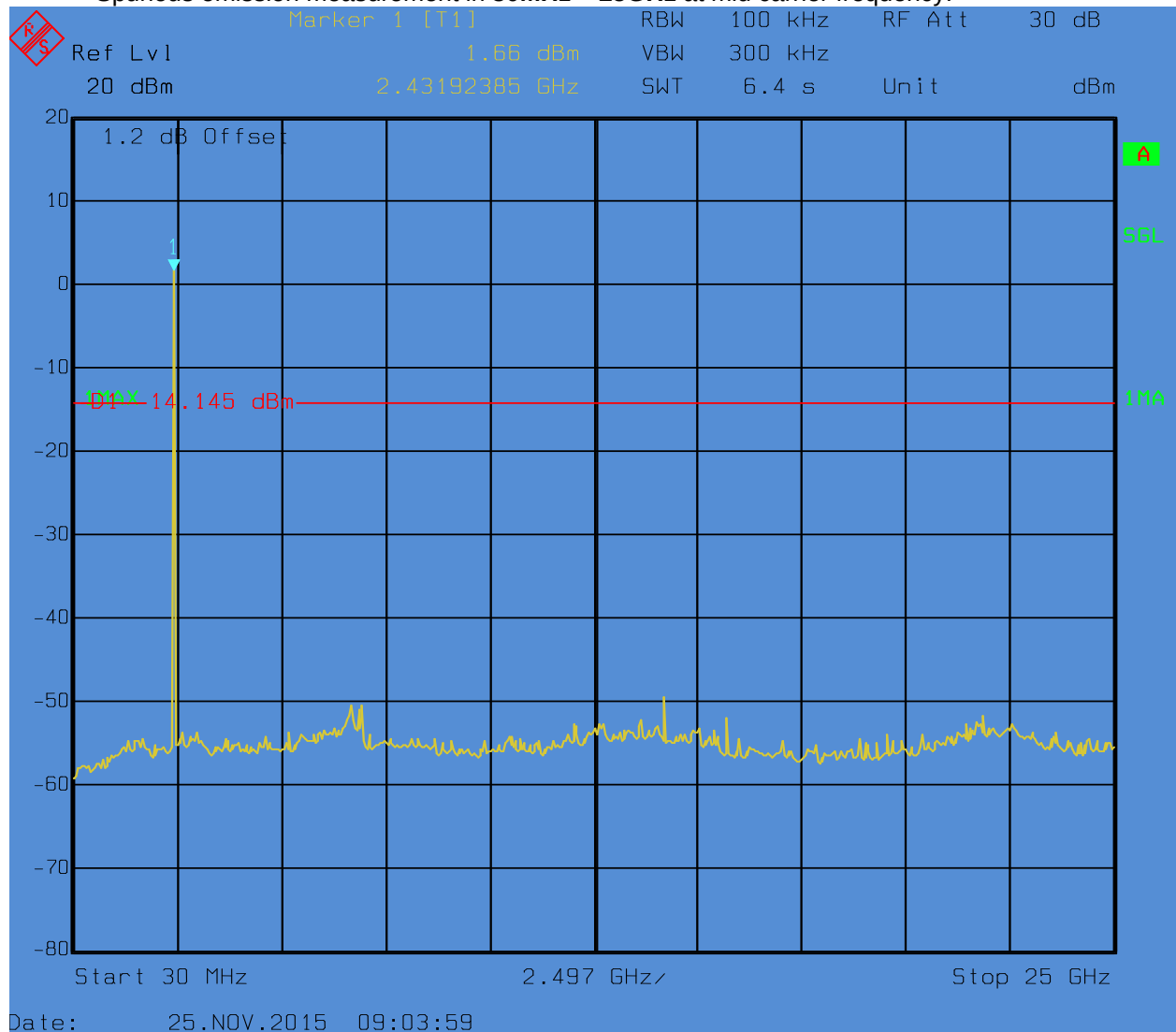
- Spurious emission measurement in **30MHz – 25GHz** at low carrier frequency.



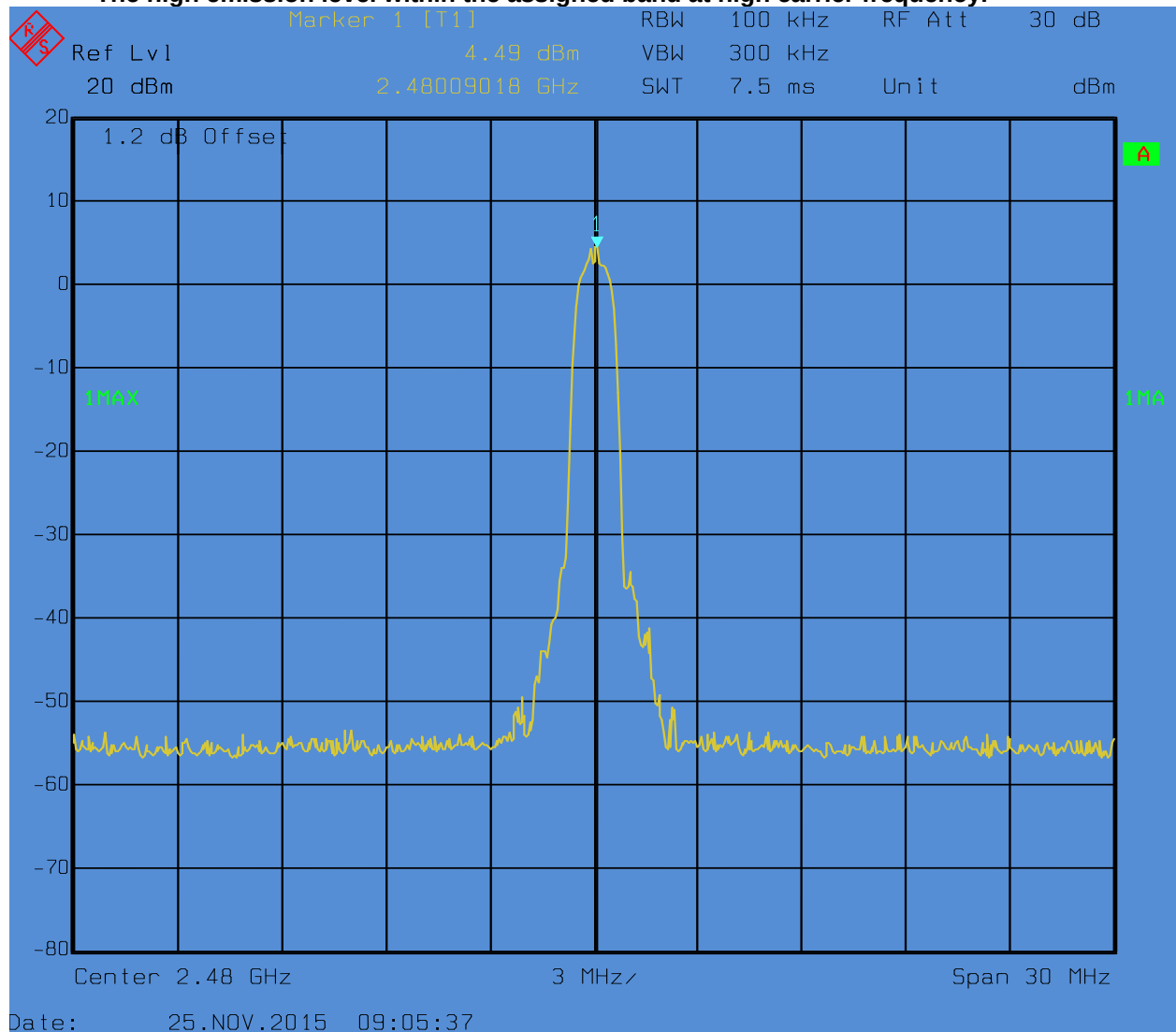
- The high emission level within the assigned band at mid carrier frequency.



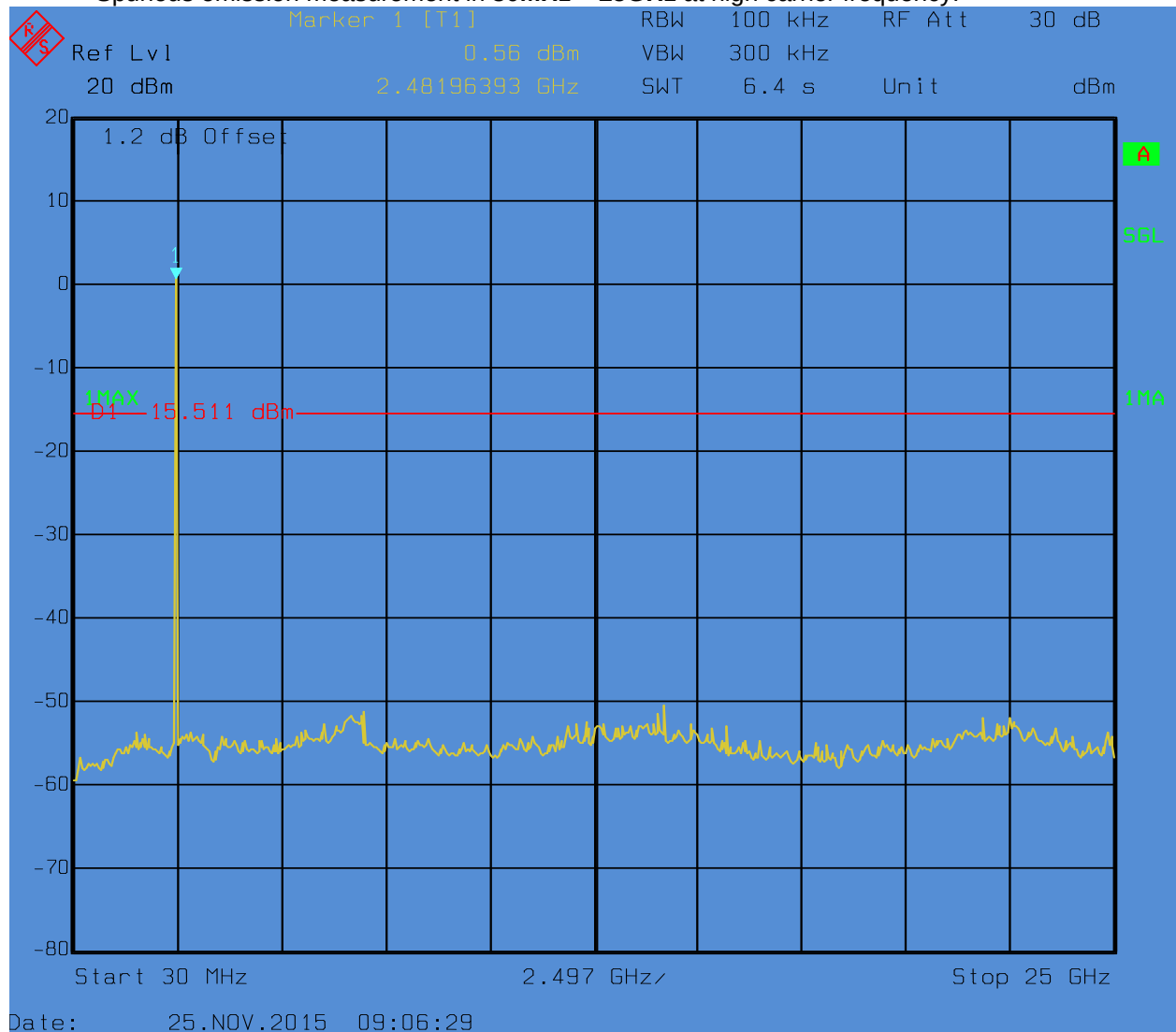
- Spurious emission measurement in **30MHz – 25GHz** at mid carrier frequency.



- **The high emission level within the assigned band at high carrier frequency.**

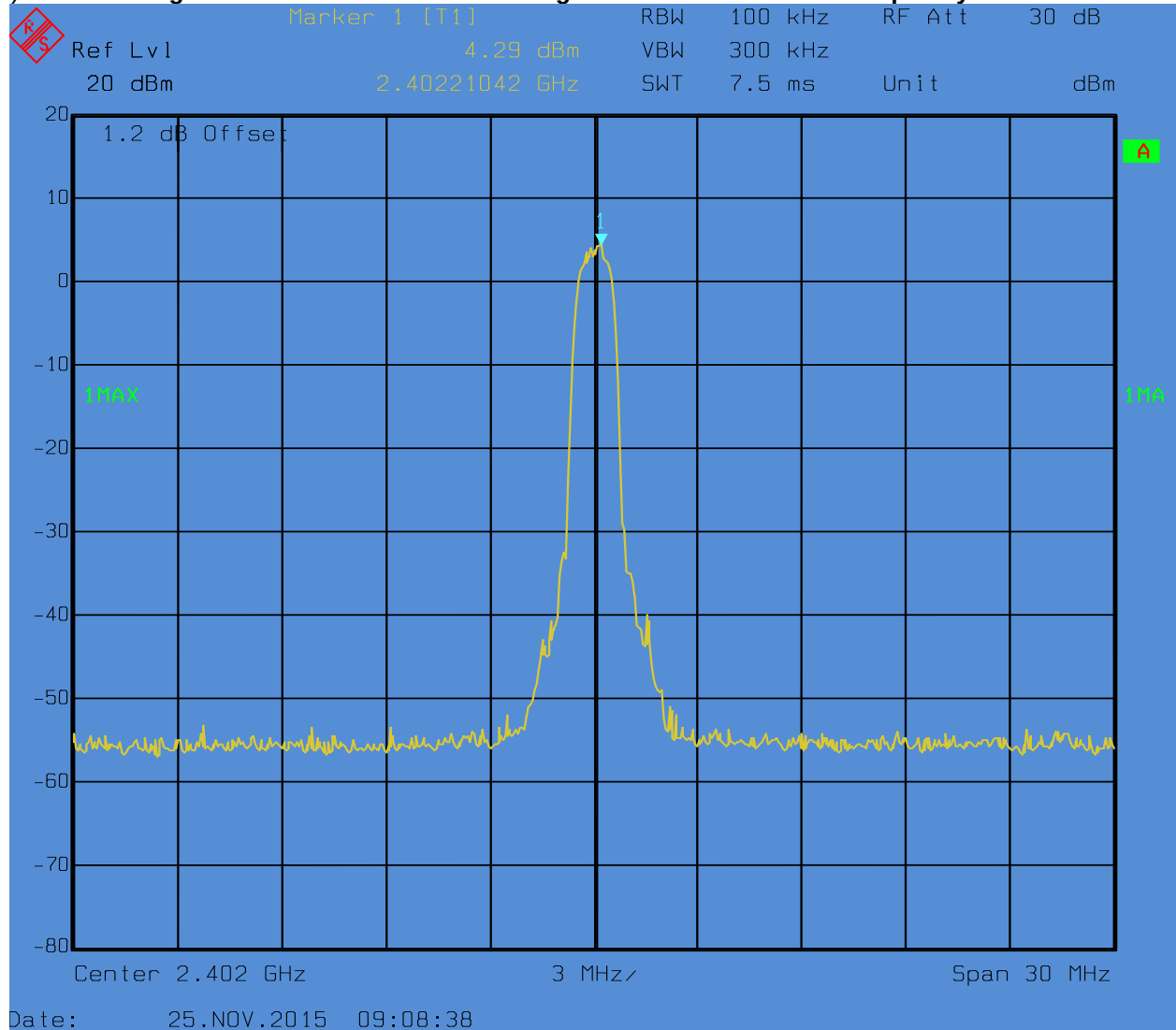


- Spurious emission measurement in **30MHz – 25GHz** at high carrier frequency.

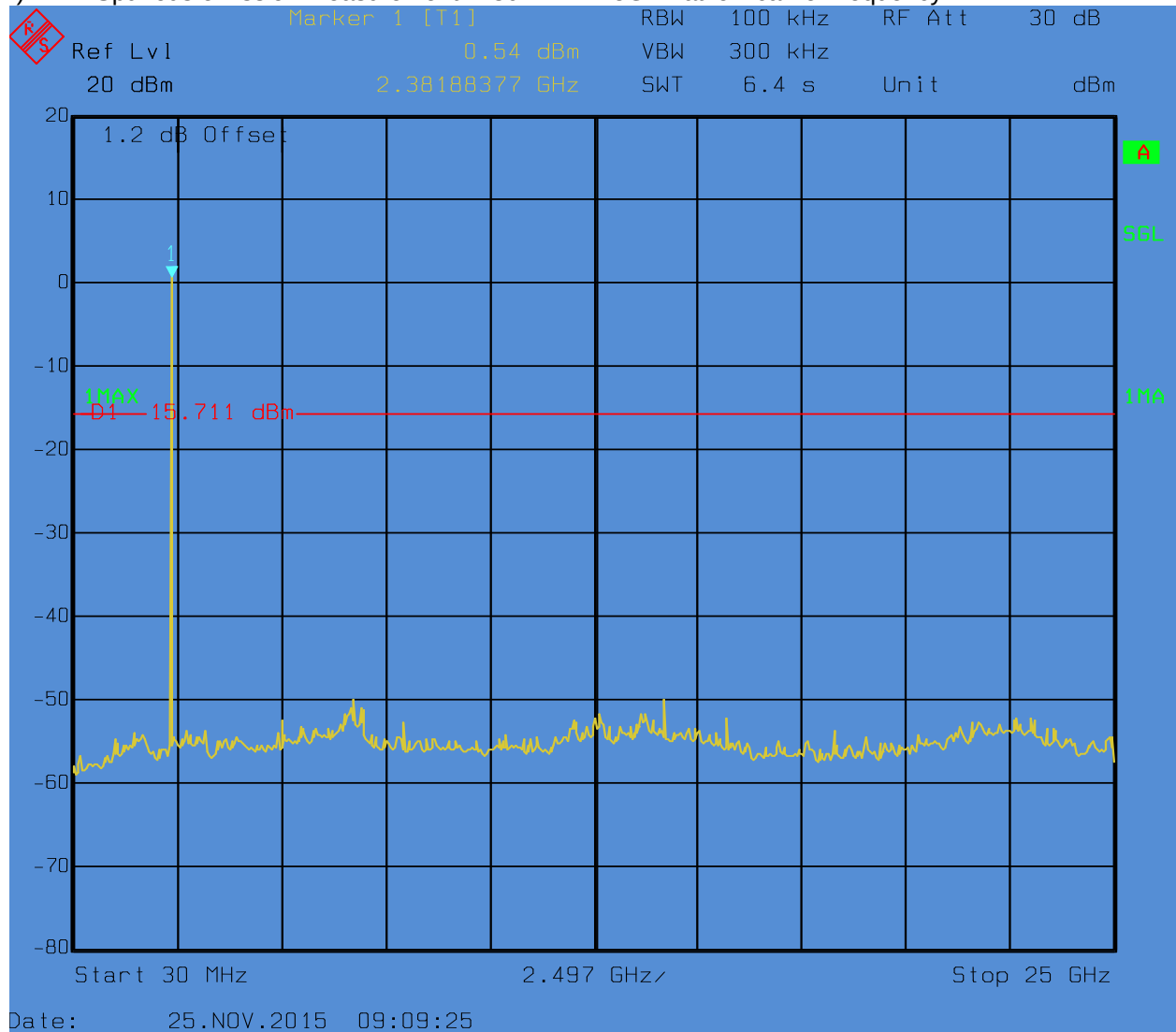


8DPSK Modulation:

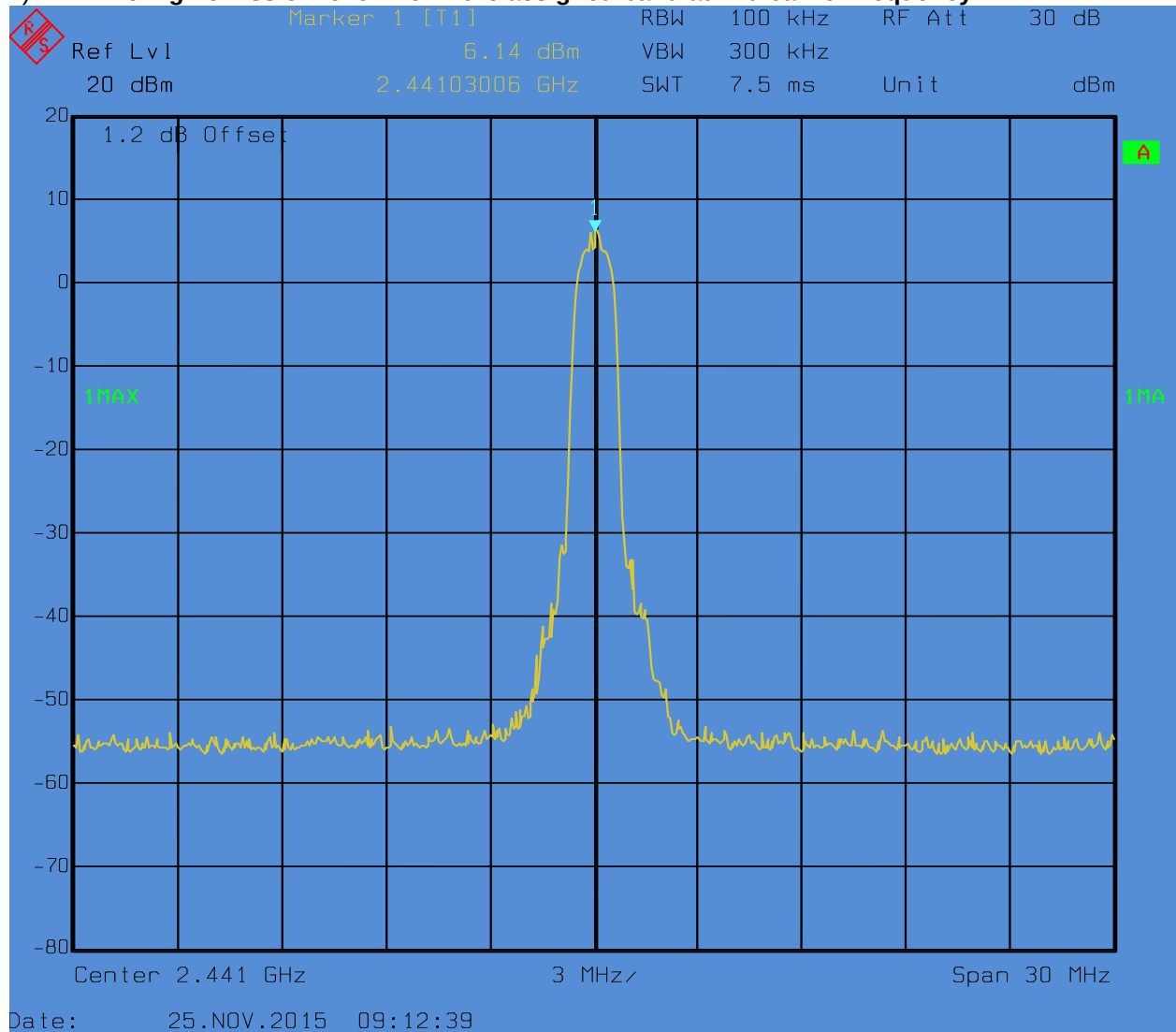
i) The high emission level within the assigned band at low carrier frequency.



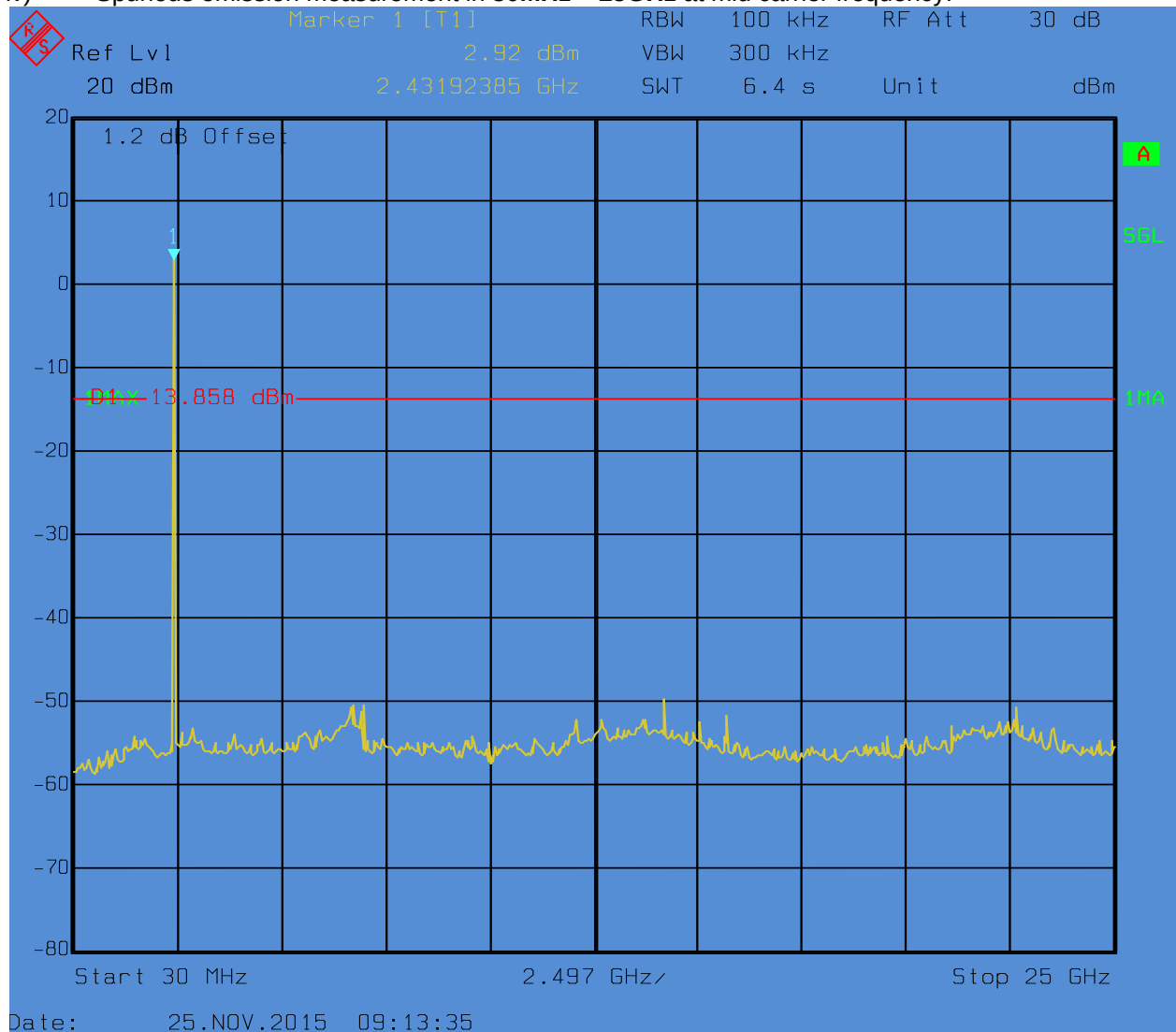
ii) Spurious emission measurement in **30MHz – 25GHz** at low carrier frequency.



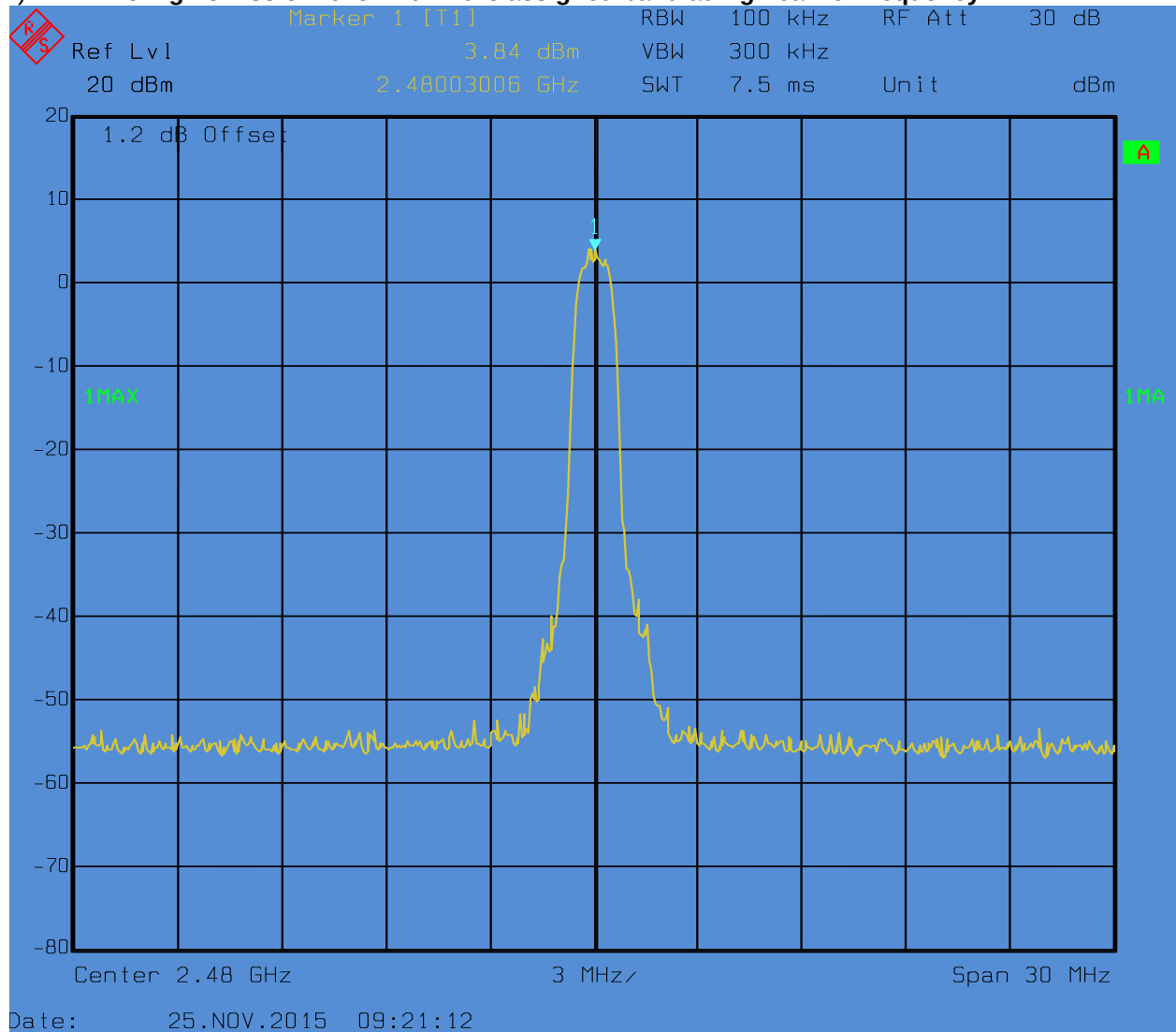
iii) **The high emission level within the assigned band at mid carrier frequency.**



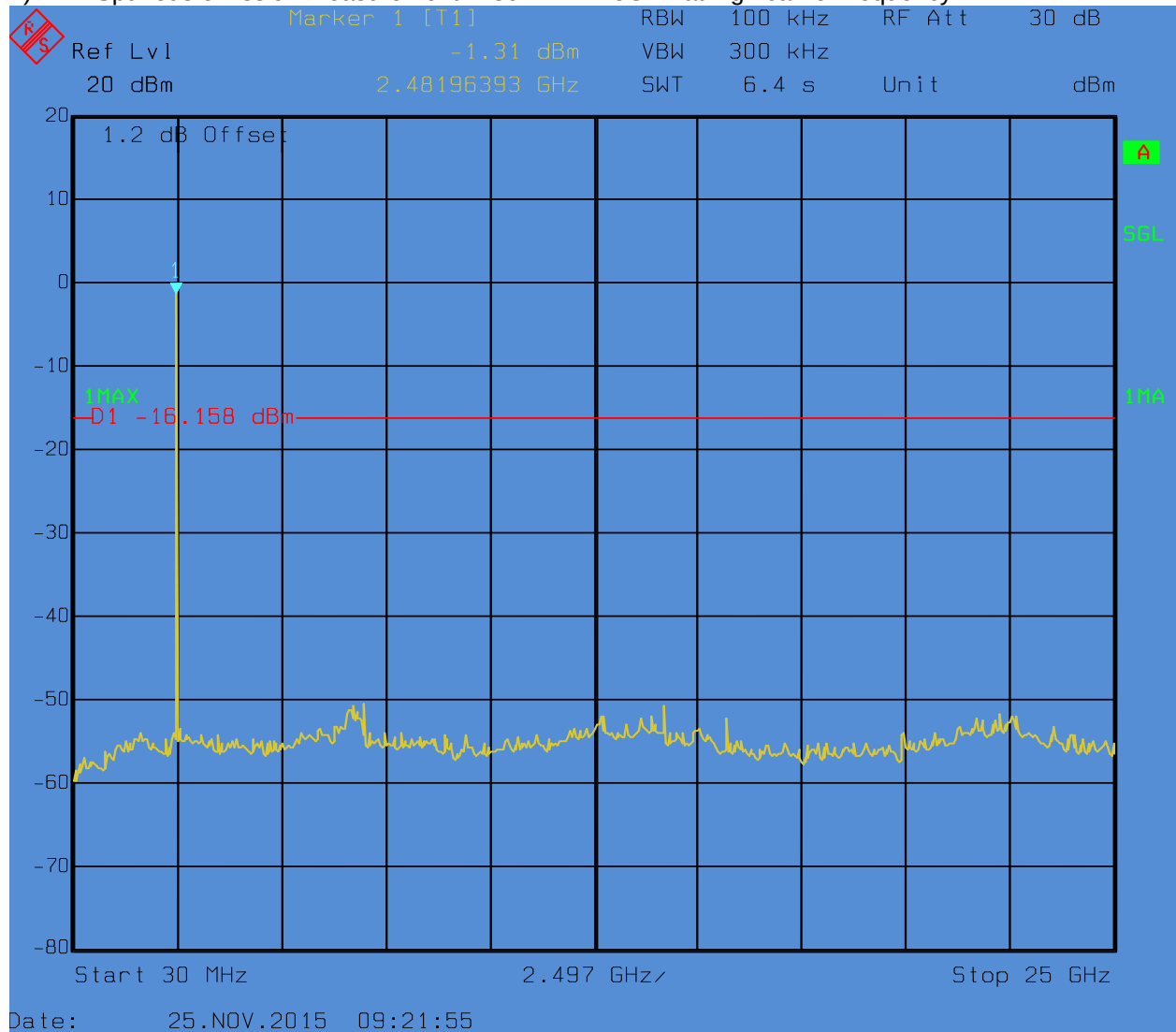
iv) Spurious emission measurement in **30MHz – 25GHz** at mid carrier frequency.



v) **The high emission level within the assigned band at high carrier frequency.**

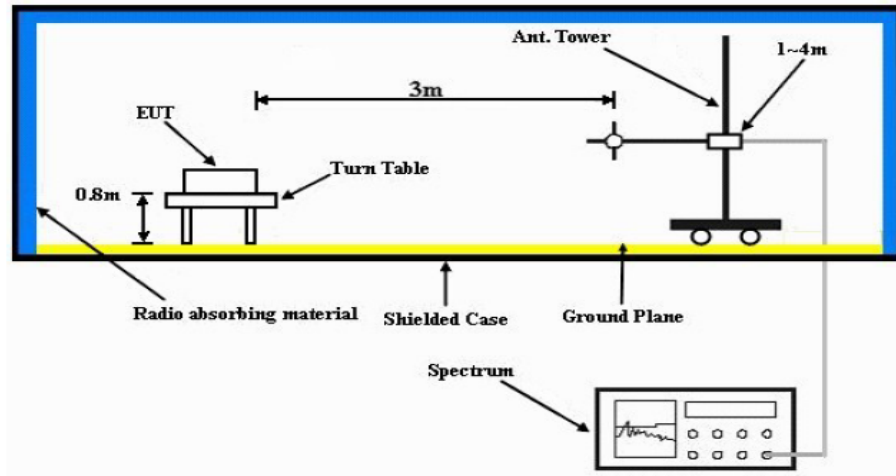


vi) Spurious emission measurement in **30MHz – 25GHz** at high carrier frequency.



2.8. Radiated Emission within Restricted Bands

2.8.1. Test Procedure



- The EUT is placed on the top of a rotating table 0.8m above the ground at a 3m semi-anechoic chamber. The table is rotated 360 degrees to determine the position of the highest radiation.
- The EUT is set 3m away from the interference-receiving antenna, which is mounted on the top of a variable-height antenna tower.
- The antenna is Bilog/Horn antenna depend on which frequency range uses, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT is arranged to its worst case and then the antenna is tuned to heights from 1m to 4m and the rotatable table is turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system is set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode is fall within the range of 10dB from the limit specified, the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. Otherwise, the testing could be stopped and the peak values of the EUT would be reported.

NOTE:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection at frequency below 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1 GHz.
- All modes of operation were investigated and the worst-case emissions are reported.

2.8.2. Test Limits:

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power.

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

NOTE:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

2.8.3. Test Data:

Test: SAC Transmitter Radiated Emission

Model#: LEX L10i **S/N:** 171PRQ1569 **EMC SR ID#:** 03360-EMC-00079
Battery: PMNN4472A **Accessory:** 3360-HKTN4009A-3, 3360-CB000262A01-3
Test Channel: Mid **Test Frequency:** 2.441000 GHz **Test Standard:** FCC Part 15C/ IC RSS 247
Worst Case Plane: Y-Plane (GFSK) (Bluetooth)

Vertical Radiated Emission Result									
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)	Carrier AV Power (dBµV/m)
4882	**	**	**	74	54	**	**	**	**
7323	**	**	**	74	54	**	**	**	**
9764	**	**	**	74	54	**	**	**	**
12205	**	**	**	74	54	**	**	**	**
14646	**	**	**	74	54	**	**	**	**
17087	**	**	**	74	54	**	**	**	**
19528	**	**	**	74	54	**	**	**	**
21969	**	**	**	74	54	**	**	**	**
24410	**	**	**	74	54	**	**	**	**
Horizontal Radiated Emission Result									
4882	**	**	**	74	54	**	**	**	**
7323	**	**	**	74	54	**	**	**	**
9764	**	**	**	74	54	**	**	**	**
12205	**	**	**	74	54	**	**	**	**
14646	**	**	**	74	54	**	**	**	**
17087	**	**	**	74	54	**	**	**	**
19528	**	**	**	74	54	**	**	**	**
21969	**	**	**	74	54	**	**	**	**
24410	**	**	**	74	54	**	**	**	**

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

Temperature (degC): 24.7 **Humidity (%):** 65.3
Test Performed by: Nazrin/Qawiman **Test Date:** Fri, Jan 22, 2016 **System MU:** 5.01dB
Remarks:** Indicates the spurious emission could not be detected due to noise limitations or ambients.

Test: SAC Transmitter Radiated Emission
Model#: LEX L10i **S/N: 171PRQ1569** **EMC SR ID#: 03360-EMC-00079**
Battery: PMNN4472A **Accessory: 3360-HKTN4009A-3, 3360-CB000262A01-3**
Test Channel: High **Test Frequency: 2.480000 GHz** **Test Standard: FCC Part 15C/ IC RSS 247**
Worst Case Plane: Y-Plane (DQPSK) (Bluetooth)

Vertical Radiated Emission Result									
Spur Freq (MHz)	Spur level QPK (dBμV/m)	Spur level PK (dBμV/m)	Spur level AV (dBμV/m)	Limit PK (dBμV/m)	Limit AV (dBμV/m)	Margin PK (dBμV/m)	Margin AV (dBμV/m)	Carrier PK Power (dBμV/m)	Carrier AV Power (dBμV/m)
4960	**	**	**	74	54	**	**	**	**
7440	**	**	**	74	54	**	**	**	**
9920	**	**	**	74	54	**	**	**	**
12400	**	**	**	74	54	**	**	**	**
14880	**	**	**	74	54	**	**	**	**
17360	**	**	**	74	54	**	**	**	**
19840	**	**	**	74	54	**	**	**	**
22320	**	**	**	74	54	**	**	**	**
24800	**	**	**	74	54	**	**	**	**
Horizontal Radiated Emission Result									
4960	**	**	**	74	54	**	**	**	**
7440	**	**	**	74	54	**	**	**	**
9920	**	**	**	74	54	**	**	**	**
12400	**	**	**	74	54	**	**	**	**
14880	**	**	**	74	54	**	**	**	**
17360	**	**	**	74	54	**	**	**	**
19840	**	**	**	74	54	**	**	**	**
22320	**	**	**	74	54	**	**	**	**
24800	**	**	**	74	54	**	**	**	**

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

Temperature (degC): 24.7 **Humidity (%): 65.3**
Test Performed by: Nazrin/Qawiman **Test Date: Fri, Jan 22, 2016** **System MU: 5.01dB**
Remarks: Indicates the spurious emission could not be detected due to noise limitations or ambients.**

Test: SAC Transmitter Radiated Emission
Model#: LEX L10i **S/N: 171PRQ1569** **EMC SR ID#: 03360-EMC-00079**
Battery: PMNN4472A **Accessory: 3360-HKTN4009A-3, 3360-CB000262A01-3**
Test Channel: Low **Test Frequency: 2.402000 GHz** **Test Standard: FCC Part 15C/ IC RSS 247**
Worst Case Plane: Y-Plane (8DPSK) (Bluetooth)

Vertical Radiated Emission Result									
Spur Freq (MHz)	Spur level QPK (dBμV/m)	Spur level PK (dBμV/m)	Spur level AV (dBμV/m)	Limit PK (dBμV/m)	Limit AV (dBμV/m)	Margin PK (dBμV/m)	Margin AV (dBμV/m)	Carrier PK Power (dBμV/m)	Carrier AV Power (dBμV/m)
4804	**	**	**	74	54	**	**	**	**
7206	**	**	**	74	54	**	**	**	**
9608	**	**	**	74	54	**	**	**	**
12010	**	**	**	74	54	**	**	**	**
14412	**	**	**	74	54	**	**	**	**
16814	**	**	**	74	54	**	**	**	**
19216	**	**	**	74	54	**	**	**	**
21618	**	**	**	74	54	**	**	**	**
24020	**	**	**	74	54	**	**	**	**
Horizontal Radiated Emission Result									
4804	**	**	**	74	54	**	**	**	**
7206	**	**	**	74	54	**	**	**	**
9608	**	**	**	74	54	**	**	**	**
12010	**	**	**	74	54	**	**	**	**
14412	**	**	**	74	54	**	**	**	**
16814	**	**	**	74	54	**	**	**	**
19216	**	**	**	74	54	**	**	**	**
21618	**	**	**	74	54	**	**	**	**
24020	**	**	**	74	54	**	**	**	**

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

Temperature (degC): 24.7 **Humidity (%): 65.3**
Test Performed by: Nazrin/Qawiman **Test Date: Fri, Jan 22, 2016** **System MU: 5.01dB**
Remarks: Indicates the spurious emission could not be detected due to noise limitations or ambients.**

Test: SAC Transmitter Radiated Emission
Model#: LEX L10i **S/N: 171PRQ1569** **EMC SR ID#: 03360-EMC-00079**
Battery: PMNN4472A **Accessory: 3360-HKTN4009A-3, 3360-CB000262A01-3**
Test Channel: Mid **Test Frequency: 2.441000 GHz** **Test Standard: FCC Part 15C/ IC RSS 247**
Worst Case Plane: Y-Plane (8DPSK) (Bluetooth)

Vertical Radiated Emission Result									
Spur Freq (MHz)	Spur level QPK (dBμV/m)	Spur level PK (dBμV/m)	Spur level AV (dBμV/m)	Limit PK (dBμV/m)	Limit AV (dBμV/m)	Margin PK (dBμV/m)	Margin AV (dBμV/m)	Carrier PK Power (dBμV/m)	Carrier AV Power (dBμV/m)
4882	**	**	**	74	54	**	**	**	**
7323	**	**	**	74	54	**	**	**	**
9764	**	**	**	74	54	**	**	**	**
12205	**	**	**	74	54	**	**	**	**
14646	**	**	**	74	54	**	**	**	**
17087	**	**	**	74	54	**	**	**	**
19528	**	**	**	74	54	**	**	**	**
21969	**	**	**	74	54	**	**	**	**
24410	**	**	**	74	54	**	**	**	**
Horizontal Radiated Emission Result									
4882	**	**	**	74	54	**	**	**	**
7323	**	**	**	74	54	**	**	**	**
9764	**	**	**	74	54	**	**	**	**
12205	**	**	**	74	54	**	**	**	**
14646	**	**	**	74	54	**	**	**	**
17087	**	**	**	74	54	**	**	**	**
19528	**	**	**	74	54	**	**	**	**
21969	**	**	**	74	54	**	**	**	**
24410	**	**	**	74	54	**	**	**	**

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

Temperature (degC): 24.7 **Humidity (%): 65.3**
Test Performed by: Nazrin/Qawiman **Test Date: Fri, Jan 22, 2016** **System MU: 5.01dB**
Remarks: Indicates the spurious emission could not be detected due to noise limitations or ambients.**

Test: SAC Transmitter Radiated Emission
Model#: LEX L10i **S/N: 171PRQ1569** **EMC SR ID#: 03360-EMC-00079**
Battery: PMNN4472A **Accessory: 3360-HKTN4009A-3, 3360-CB000262A01-3**
Test Channel: High **Test Frequency: 2.480000 GHz** **Test Standard: FCC Part 15C/ IC RSS 247**
Worst Case Plane: Y-Plane (8DPSK) (Bluetooth)

Vertical Radiated Emission Result									
Spur Freq (MHz)	Spur level QPK (dBμV/m)	Spur level PK (dBμV/m)	Spur level AV (dBμV/m)	Limit PK (dBμV/m)	Limit AV (dBμV/m)	Margin PK (dBμV/m)	Margin AV (dBμV/m)	Carrier PK Power (dBμV/m)	Carrier AV Power (dBμV/m)
4960	**	**	**	74	54	**	**	**	**
7440	**	**	**	74	54	**	**	**	**
9920	**	**	**	74	54	**	**	**	**
12400	**	**	**	74	54	**	**	**	**
14880	**	**	**	74	54	**	**	**	**
17360	**	**	**	74	54	**	**	**	**
19840	**	**	**	74	54	**	**	**	**
22320	**	**	**	74	54	**	**	**	**
24800	**	**	**	74	54	**	**	**	**
Horizontal Radiated Emission Result									
4960	**	**	**	74	54	**	**	**	**
7440	**	**	**	74	54	**	**	**	**
9920	**	**	**	74	54	**	**	**	**
12400	**	**	**	74	54	**	**	**	**
14880	**	**	**	74	54	**	**	**	**
17360	**	**	**	74	54	**	**	**	**
19840	**	**	**	74	54	**	**	**	**
22320	**	**	**	74	54	**	**	**	**
24800	**	**	**	74	54	**	**	**	**

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

Temperature (degC): 24.7 **Humidity (%): 65.3**
Test Performed by: Nazrin/Qawiman **Test Date: Fri, Jan 22, 2016** **System MU: 5.01dB**
Remarks: Indicates the spurious emission could not be detected due to noise limitations or ambients.**

2.9. AC Powerline Conducted Emission

2.9.1. Test Procedure

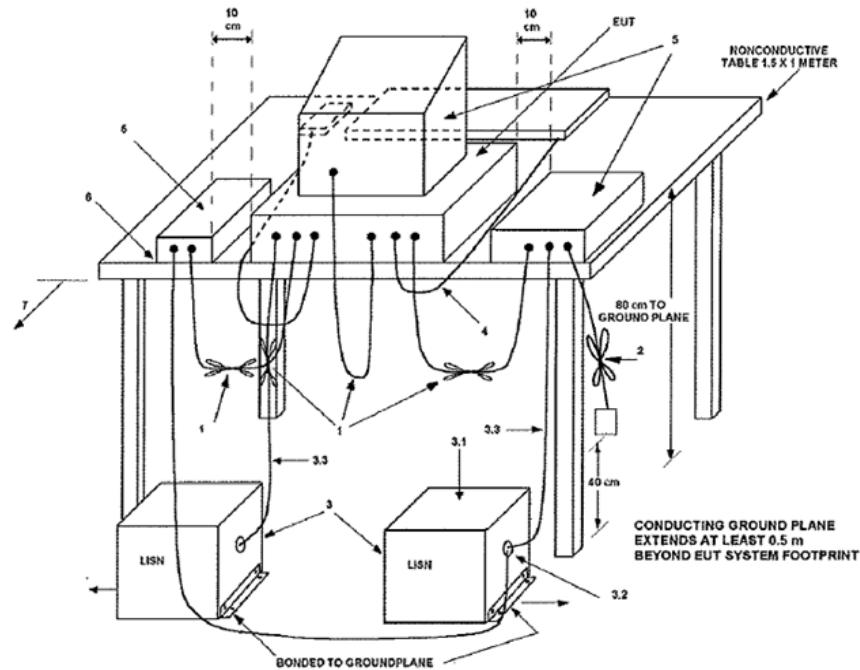


Figure 1: AC Power Line Conducted Emission Test Setup Diagram (Table Top Equipment)

a. The EUT set up is shown as Figure 1 above and the details legend for the figure 1 as below:

1. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
2. I/O cables that are not connected to a peripheral shall be bundled in the center and not more than 40cm. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
3. EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω . LISN can be placed on top of, or immediately beneath, reference ground plane.
 - 3.1) all other equipment powered from additional LISN(s).
 - 3.2) multiple outlet strip can be used for multiple power cords of non-EUT equipment.
 - 3.3) LISN is setup at least 80 cm from nearest part of EUT chassis.
4. Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
5. Non-EUT components of EUT system being tested.
6. Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop. (for table top equipments only).
7. Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane. (For table top equipments only).
8. EUT and cables shall be insulated from the horizontal ground reference plane by up to 15cm. (for floor standing equipments only).

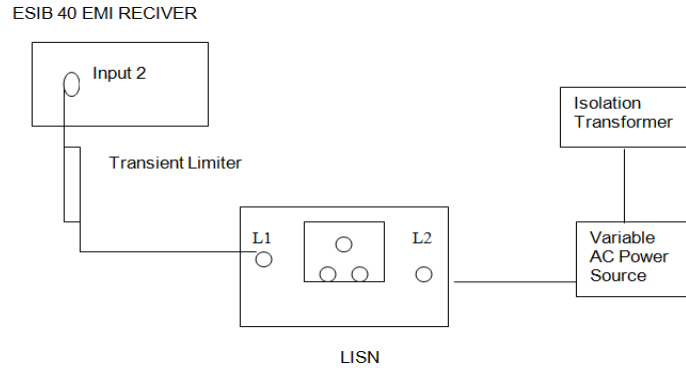


Figure 2: AC Power Line Conducted Emission Test System General Equipment Block Diagram.

The measurements were performed at power terminals with the LISN port L1/L or LISN port L2/N, connected to a spectrum analyzer or EMI receiver in the frequency range referred to Table 1 or Table 2. Unused coaxial connector of the LISN is terminated with 50 Ohm. Quasi-peak and average detectors were used throughout the testing.

2.9.2. Test Limits:

For AC Power Line Conducted Test Limit can be Class A or B depends on product classification.

Limits for conducted disturbance at the mains ports of class A ITE

Frequency range MHz	Limits dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	79	66
0,50 to 30	73	60
NOTE The lower limit shall apply at the transition frequency.		

Table 1: Limits for Conducted Disturbance at the Mains Ports of Class A ITE.

Limits for conducted disturbance at the mains ports of class B ITE

Frequency range MHz	Limits dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50
NOTE 1 The lower limit shall apply at the transition frequencies.		
NOTE 2 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.		

Table 2: Limits for Conducted Disturbance at the Mains Ports of Class B ITE

2.9.3. Test Data:

Conducted Emission

Radio Model	: LEX L10i
Serial No.	: 171PRQ1027
Battery No.	: PMNN4472A
Accy Serial No.	: HKTN4009A, HKTN4007A, CB000262A01, 1054-89409N
Ambient Temperature:	: 22.4 °C
Humidity:	: 68.6 %
Tester:	: Madi/Rudy
Date of test:	: 17 January 2016

EMI Auto Test Template: Voltage with 2-Line-LISN

Hardware Setup: Voltage with 2-Line-LISN
Measurement Type: 2 Line LISN
Frequency Range: 150 kHz - 30 MHz
Graphics Level Range: 0 dBµV - 80 dBµV

Preview Measurements:
Scan Test Template: Voltage with 2-Line-LISN pre

Data Reduction:
Limit Line #1: EN 55022 Voltage on Mains QP Class B
Limit Line #2: EN 55022 Voltage on Mains AV Class B
Peak Search: 6 dB , Maximum Results: 20
Subrange Maxima: 10 Subranges , Maxima per Subrange: 1
Acceptance Offset: -20 dB
Maximum Number of Results: 20

Maximization Measurements:
Template for Single Meas.: Voltage with 2-Line-LISN max

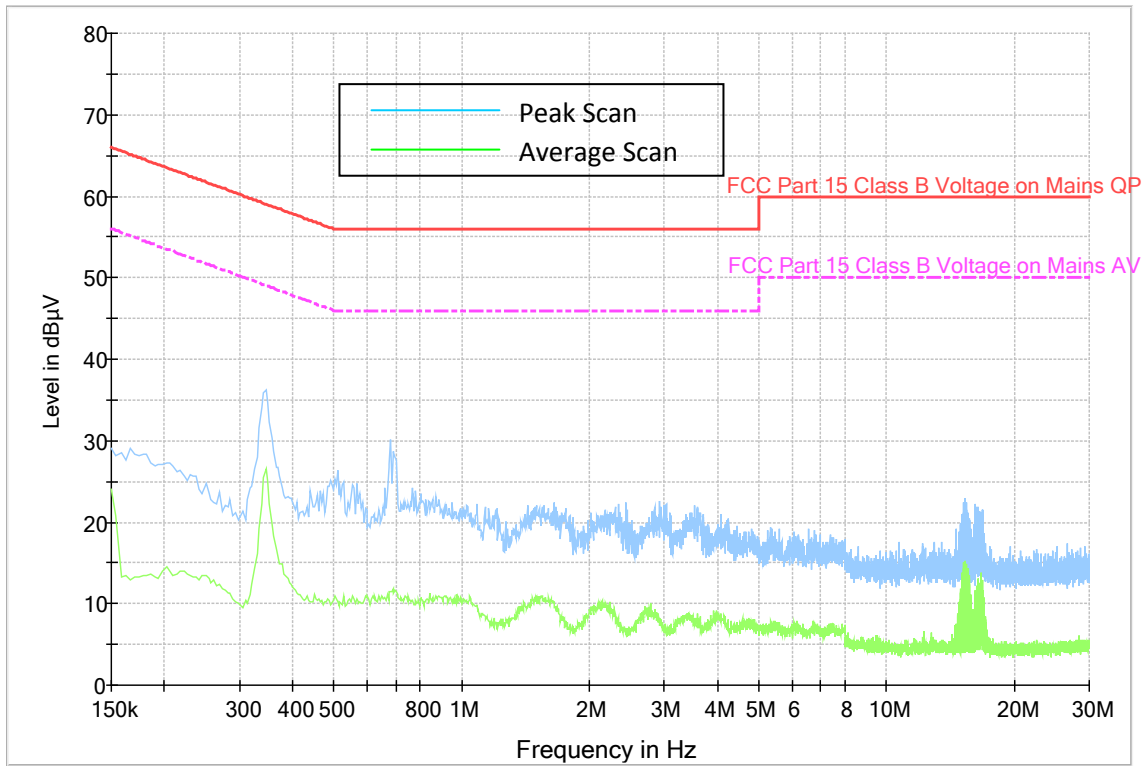
Final Measurements:
Template for Single Meas.: Voltage with 2-Line-LISN fin

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4.5 kHz	QPK; AVG	9 kHz	1 s	0 dB
Receiver:	[ESCI 3]				

Test Data

1) Ambient Noise

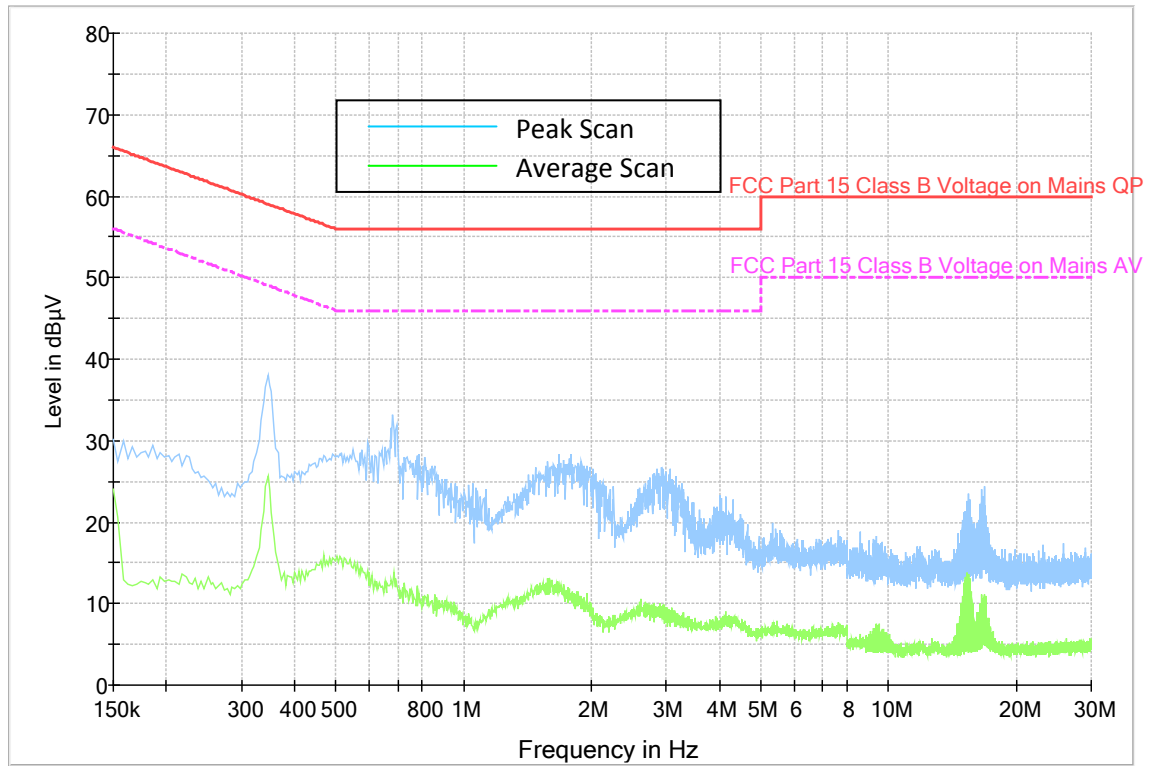
Voltage with 2-Line-LISN



Voltage Supply: 240VAC

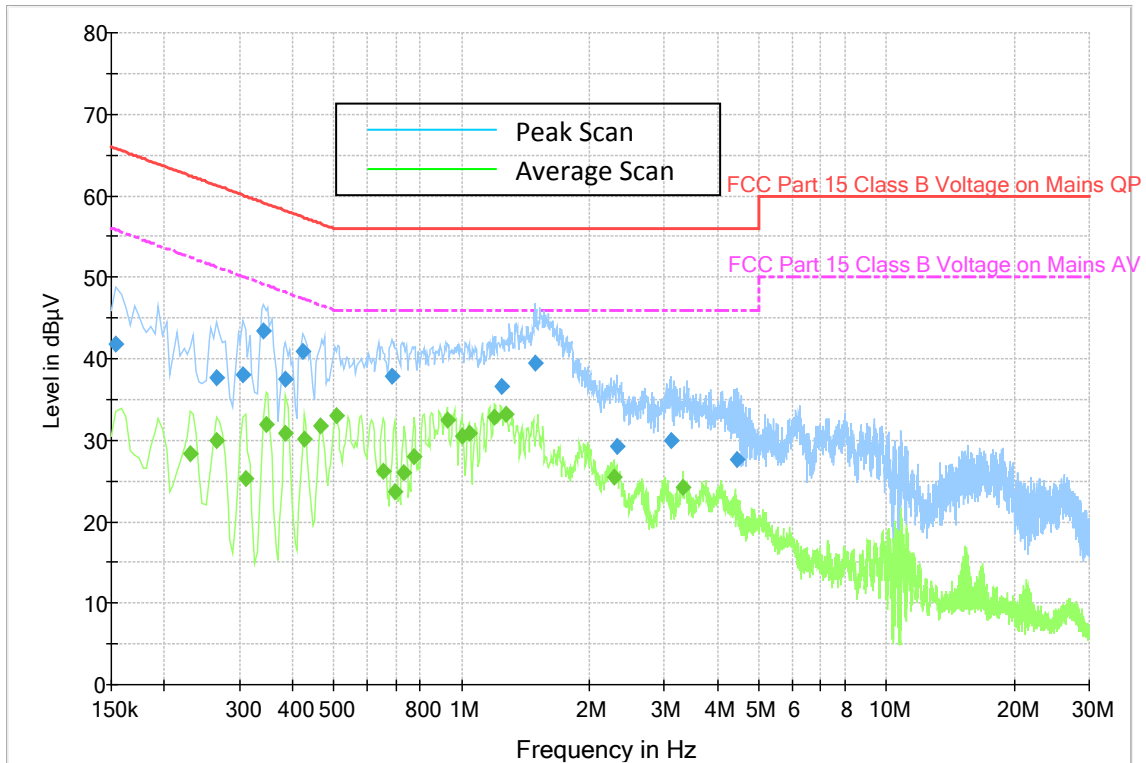
1) Charger Alone

Voltage with 2-Line-LISN



2) EUT Off

Voltage with 2-Line-LISN



QuasiPeak Measurement

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.154000	41.9	1000.0	9.000	On	N	10.0	23.9	65.8	
0.266000	37.6	1000.0	9.000	On	L1	10.0	23.7	61.2	
0.306000	38.1	1000.0	9.000	On	L1	10.0	22.0	60.1	
0.342000	43.3	1000.0	9.000	On	L1	10.1	15.8	59.2	
0.386000	37.5	1000.0	9.000	On	L1	10.1	20.6	58.1	
0.422000	40.9	1000.0	9.000	On	L1	10.1	16.5	57.4	
0.686000	37.9	1000.0	9.000	On	L1	10.0	18.1	56.0	
1.242000	36.6	1000.0	9.000	On	L1	9.8	19.4	56.0	
1.486000	39.4	1000.0	9.000	On	L1	9.8	16.6	56.0	
2.322000	29.2	1000.0	9.000	On	N	9.7	26.8	56.0	
3.126000	30.0	1000.0	9.000	On	L1	9.6	26.0	56.0	
4.466000	27.7	1000.0	9.000	On	L1	9.5	28.3	56.0	

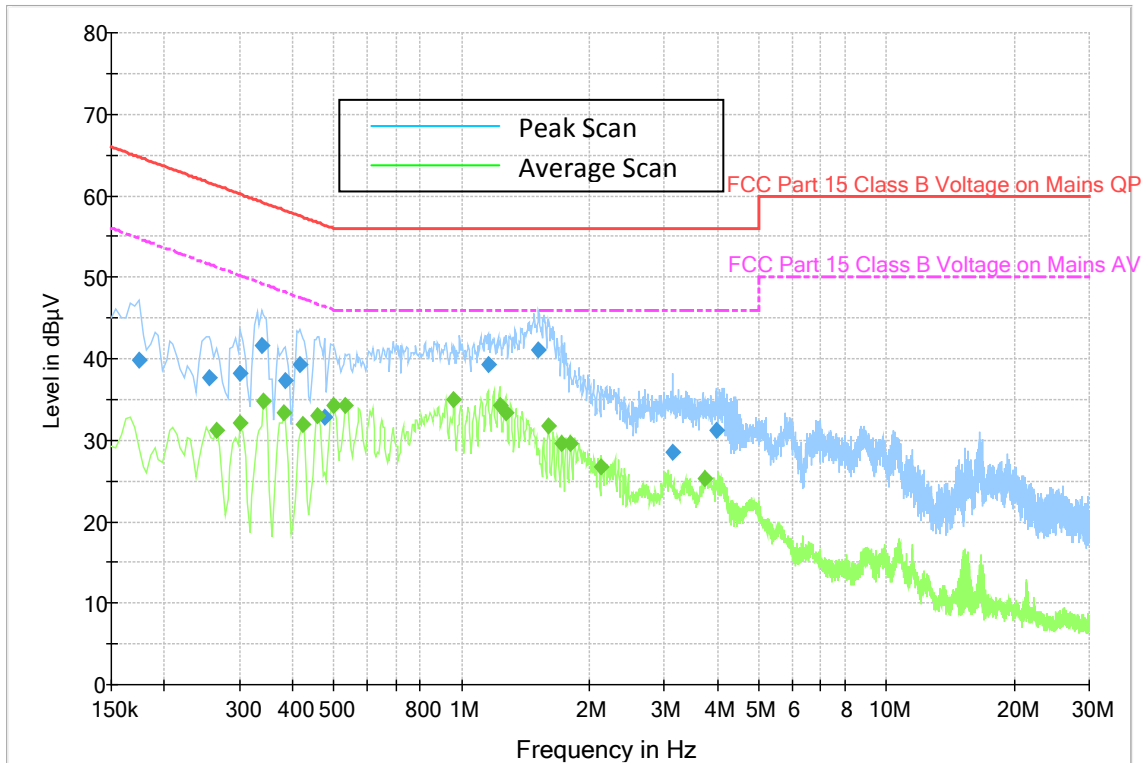
Average Measurement

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.230000	28.4	1000.0	9.000	On	L1	10.0	24.1	52.4	
0.266000	29.9	1000.0	9.000	On	L1	10.0	21.4	51.2	
0.310000	25.2	1000.0	9.000	On	N	10.0	24.7	50.0	
0.346000	32.0	1000.0	9.000	On	L1	10.1	17.0	49.1	
0.386000	30.8	1000.0	9.000	On	L1	10.1	17.4	48.1	
0.426000	30.2	1000.0	9.000	On	L1	10.1	17.2	47.3	
0.466000	31.8	1000.0	9.000	On	L1	10.2	14.8	46.6	
0.506000	33.0	1000.0	9.000	On	L1	10.2	13.0	46.0	
0.654000	26.1	1000.0	9.000	On	N	10.1	19.9	46.0	
0.698000	23.8	1000.0	9.000	On	N	10.0	22.2	46.0	
0.734000	26.0	1000.0	9.000	On	L1	10.0	20.0	46.0	
0.774000	28.0	1000.0	9.000	On	L1	10.0	18.0	46.0	
0.926000	32.5	1000.0	9.000	On	L1	9.9	13.5	46.0	
1.002000	30.5	1000.0	9.000	On	L1	9.9	15.5	46.0	
1.042000	30.8	1000.0	9.000	On	L1	9.9	15.2	46.0	
1.198000	32.9	1000.0	9.000	On	L1	9.8	13.1	46.0	
1.274000	33.2	1000.0	9.000	On	L1	9.8	12.8	46.0	
2.286000	25.5	1000.0	9.000	On	L1	9.7	20.5	46.0	
3.326000	24.3	1000.0	9.000	On	L1	9.6	21.7	46.0	

* Expanded Uncertainty (U) = +/- 3.43 dB

3) EUT Standby

Voltage with 2-Line-LISN



QuasiPeak Measurement

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.174000	39.8	1000.0	9.000	On	L1	10.1	25.0	64.8	
0.254000	37.6	1000.0	9.000	On	L1	10.0	24.0	61.6	
0.302000	38.3	1000.0	9.000	On	N	10.0	21.9	60.2	
0.338000	41.5	1000.0	9.000	On	N	10.1	17.7	59.3	
0.386000	37.3	1000.0	9.000	On	L1	10.1	20.8	58.1	
0.418000	39.3	1000.0	9.000	On	L1	10.1	18.1	57.5	
0.478000	32.8	1000.0	9.000	On	N	10.2	23.5	56.4	
1.154000	39.3	1000.0	9.000	On	L1	9.8	16.7	56.0	
1.518000	41.0	1000.0	9.000	On	L1	9.8	15.0	56.0	
3.138000	28.5	1000.0	9.000	On	N	9.6	27.5	56.0	
3.966000	31.1	1000.0	9.000	On	L1	9.6	24.9	56.0	

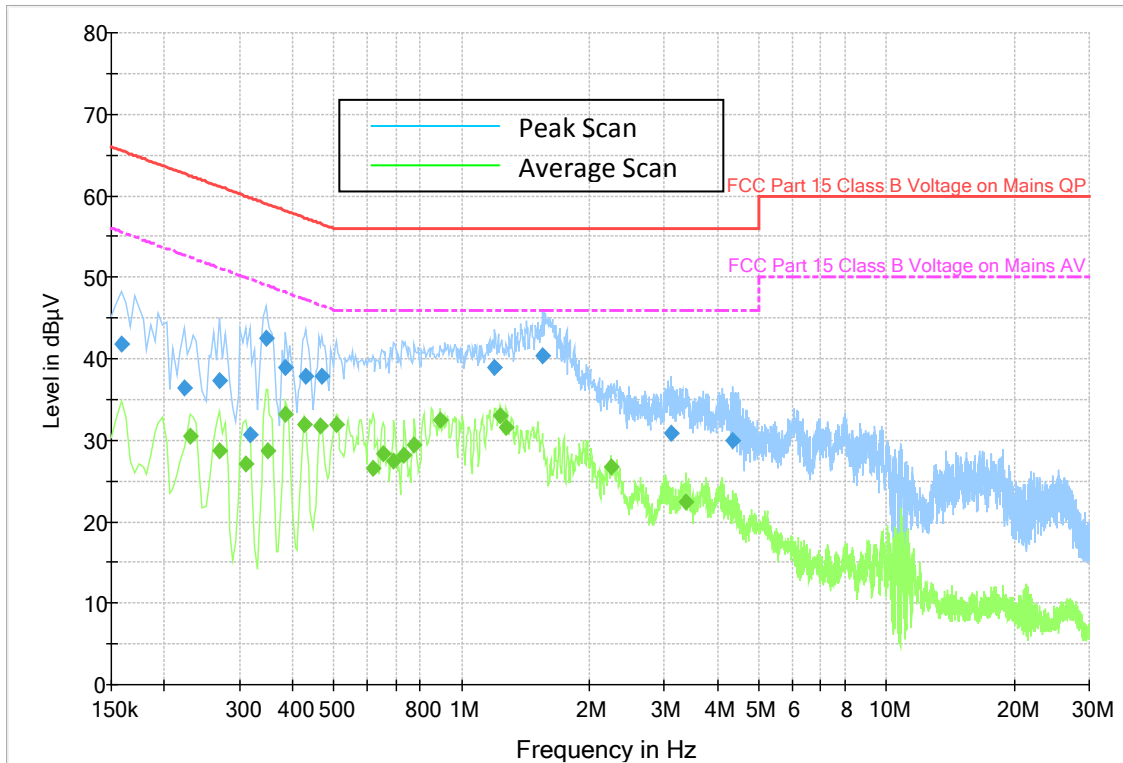
Average Measurement

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.266000	31.2	1000.0	9.000	On	L1	10.0	20.0	51.2	
0.302000	32.2	1000.0	9.000	On	L1	10.0	18.0	50.2	
0.342000	34.9	1000.0	9.000	On	L1	10.1	14.3	49.2	
0.382000	33.4	1000.0	9.000	On	L1	10.1	14.9	48.2	
0.422000	31.9	1000.0	9.000	On	L1	10.1	15.5	47.4	
0.458000	33.0	1000.0	9.000	On	L1	10.2	13.8	46.7	
0.498000	34.3	1000.0	9.000	On	L1	10.2	11.8	46.0	
0.534000	34.2	1000.0	9.000	On	L1	10.2	11.8	46.0	
0.958000	34.9	1000.0	9.000	On	L1	9.9	11.1	46.0	
1.230000	34.3	1000.0	9.000	On	L1	9.8	11.7	46.0	
1.270000	33.3	1000.0	9.000	On	L1	9.8	12.7	46.0	
1.598000	31.8	1000.0	9.000	On	N	9.8	14.2	46.0	
1.726000	29.6	1000.0	9.000	On	L1	9.8	16.4	46.0	
1.806000	29.6	1000.0	9.000	On	L1	9.7	16.4	46.0	
2.138000	26.8	1000.0	9.000	On	L1	9.7	19.2	46.0	
3.726000	25.3	1000.0	9.000	On	L1	9.6	20.7	46.0	

* Expanded Uncertainty (U) = +/- 3.43 dB

4) Link Idle

Voltage with 2-Line-LISN



QuasiPeak Measurement

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.158000	41.8	1000.0	9.000	On	L1	10.0	23.8	65.6	
0.222000	36.4	1000.0	9.000	On	L1	10.0	26.3	62.7	
0.270000	37.3	1000.0	9.000	On	L1	10.0	23.8	61.1	
0.318000	30.6	1000.0	9.000	On	L1	10.1	29.2	59.8	
0.346000	42.5	1000.0	9.000	On	N	10.1	16.5	59.1	
0.386000	38.9	1000.0	9.000	On	L1	10.1	19.2	58.1	
0.430000	37.9	1000.0	9.000	On	L1	10.1	19.4	57.3	
0.470000	37.9	1000.0	9.000	On	L1	10.2	18.6	56.5	
1.198000	38.9	1000.0	9.000	On	L1	9.8	17.1	56.0	
1.550000	40.4	1000.0	9.000	On	N	9.8	15.6	56.0	
3.114000	30.9	1000.0	9.000	On	L1	9.6	25.1	56.0	
4.358000	29.9	1000.0	9.000	On	L1	9.5	26.1	56.0	

Average Measurement

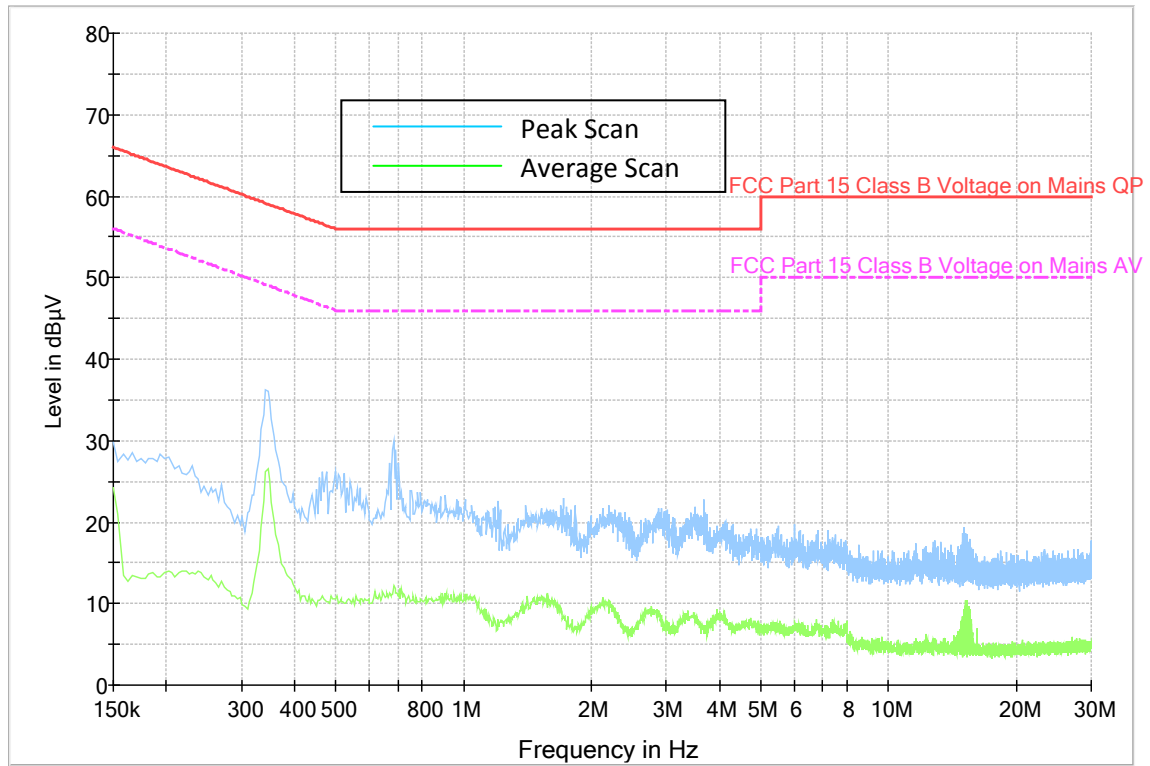
Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.230000	30.6	1000.0	9.000	On	L1	10.0	21.9	52.4	
0.270000	28.6	1000.0	9.000	On	L1	10.0	22.5	51.1	
0.310000	27.1	1000.0	9.000	On	L1	10.0	22.9	50.0	
0.350000	28.7	1000.0	9.000	On	L1	10.1	20.2	49.0	
0.386000	33.2	1000.0	9.000	On	L1	10.1	15.0	48.1	
0.426000	31.9	1000.0	9.000	On	L1	10.1	15.4	47.3	
0.466000	31.7	1000.0	9.000	On	L1	10.2	14.9	46.6	
0.506000	32.0	1000.0	9.000	On	L1	10.2	14.0	46.0	
0.618000	26.6	1000.0	9.000	On	L1	10.1	19.4	46.0	
0.654000	28.3	1000.0	9.000	On	L1	10.1	17.7	46.0	
0.694000	27.5	1000.0	9.000	On	L1	10.0	18.5	46.0	
0.734000	28.1	1000.0	9.000	On	L1	10.0	17.9	46.0	
0.774000	29.4	1000.0	9.000	On	L1	10.0	16.6	46.0	
0.894000	32.4	1000.0	9.000	On	L1	9.9	13.6	46.0	
1.234000	33.0	1000.0	9.000	On	L1	9.8	13.0	46.0	
1.274000	31.6	1000.0	9.000	On	L1	9.8	14.4	46.0	
2.250000	26.8	1000.0	9.000	On	L1	9.7	19.2	46.0	
3.374000	22.4	1000.0	9.000	On	L1	9.6	23.6	46.0	

* Expanded Uncertainty (U) = +/- 3.43 dB

Voltage Supply: 120VAC

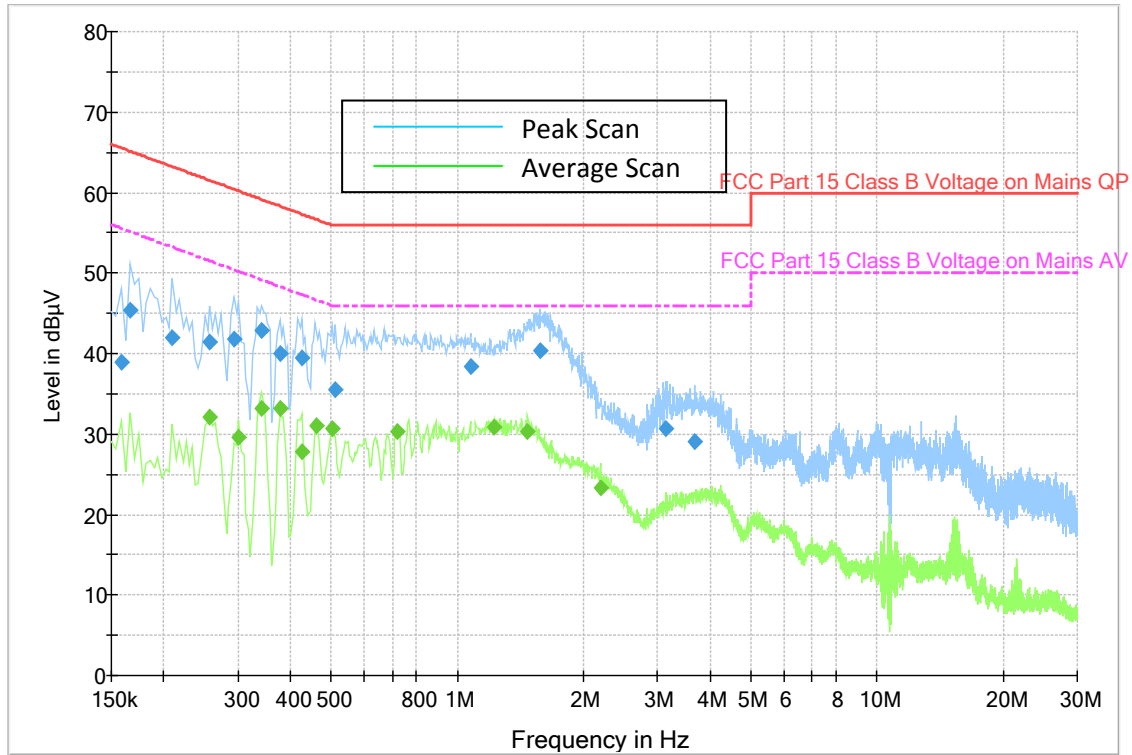
1) Charger Alone

Voltage with 2-Line-LISN



2) EUT Off

Voltage with 2-Line-LISN



QuasiPeak Measurement

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.158000	38.9	1000.0	9.000	On	L1	10.0	26.7	65.6	
0.166000	45.4	1000.0	9.000	On	L1	10.0	19.7	65.2	
0.210000	41.9	1000.0	9.000	On	N	9.9	21.3	63.2	
0.258000	41.5	1000.0	9.000	On	L1	10.0	20.0	61.5	
0.294000	41.8	1000.0	9.000	On	L1	10.0	18.6	60.4	
0.342000	42.8	1000.0	9.000	On	N	10.1	16.3	59.2	
0.378000	39.9	1000.0	9.000	On	L1	10.1	18.4	58.3	
0.426000	39.4	1000.0	9.000	On	L1	10.1	17.9	57.3	
0.510000	35.5	1000.0	9.000	On	N	10.2	20.5	56.0	
1.074000	38.4	1000.0	9.000	On	L1	9.9	17.6	56.0	
1.574000	40.4	1000.0	9.000	On	L1	9.8	15.6	56.0	
3.138000	30.7	1000.0	9.000	On	L1	9.6	25.3	56.0	
3.678000	29.1	1000.0	9.000	On	L1	9.6	26.9	56.0	

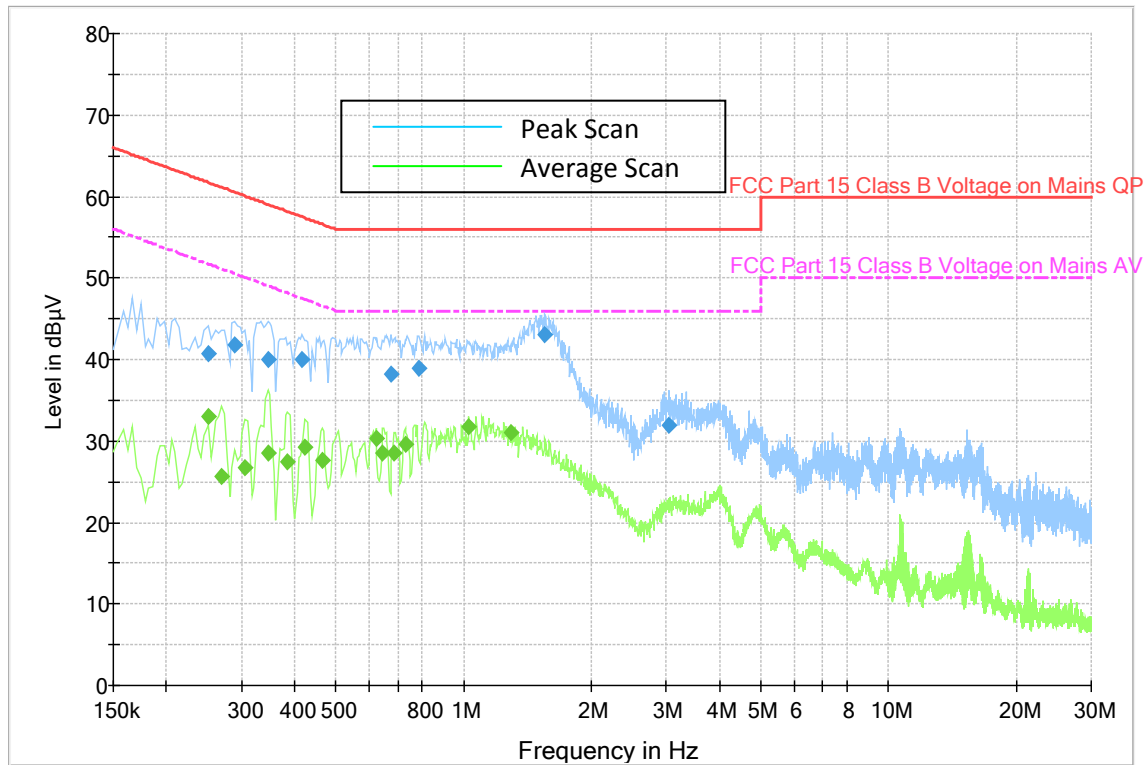
Average Measurement

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.258000	32.0	1000.0	9.000	On	L1	10.0	19.5	51.5	
0.302000	29.6	1000.0	9.000	On	L1	10.0	20.6	50.2	
0.342000	33.3	1000.0	9.000	On	L1	10.1	15.9	49.2	
0.378000	33.2	1000.0	9.000	On	L1	10.1	15.2	48.3	
0.426000	27.9	1000.0	9.000	On	L1	10.1	19.4	47.3	
0.462000	30.9	1000.0	9.000	On	L1	10.2	15.7	46.7	
0.502000	30.7	1000.0	9.000	On	L1	10.2	15.3	46.0	
0.722000	30.2	1000.0	9.000	On	L1	10.0	15.8	46.0	
1.222000	30.9	1000.0	9.000	On	L1	9.8	15.1	46.0	
1.470000	30.3	1000.0	9.000	On	L1	9.8	15.7	46.0	
2.190000	23.4	1000.0	9.000	On	L1	9.7	22.6	46.0	

* Expanded Uncertainty (U) = +/- 3.43 dB

3) EUT Standby

Voltage with 2-Line-LISN



QuasiPeak Measurement

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.250000	40.6	1000.0	9.000	On	L1	10.0	21.1	61.8	
0.290000	41.8	1000.0	9.000	On	L1	10.0	18.8	60.5	
0.346000	40.0	1000.0	9.000	On	L1	10.1	19.0	59.1	
0.418000	40.0	1000.0	9.000	On	L1	10.1	17.5	57.5	
0.674000	38.2	1000.0	9.000	On	L1	10.0	17.8	56.0	
0.786000	39.0	1000.0	9.000	On	L1	10.0	17.0	56.0	
1.554000	43.0	1000.0	9.000	On	L1	9.8	13.0	56.0	
3.034000	31.9	1000.0	9.000	On	L1	9.6	24.1	56.0	

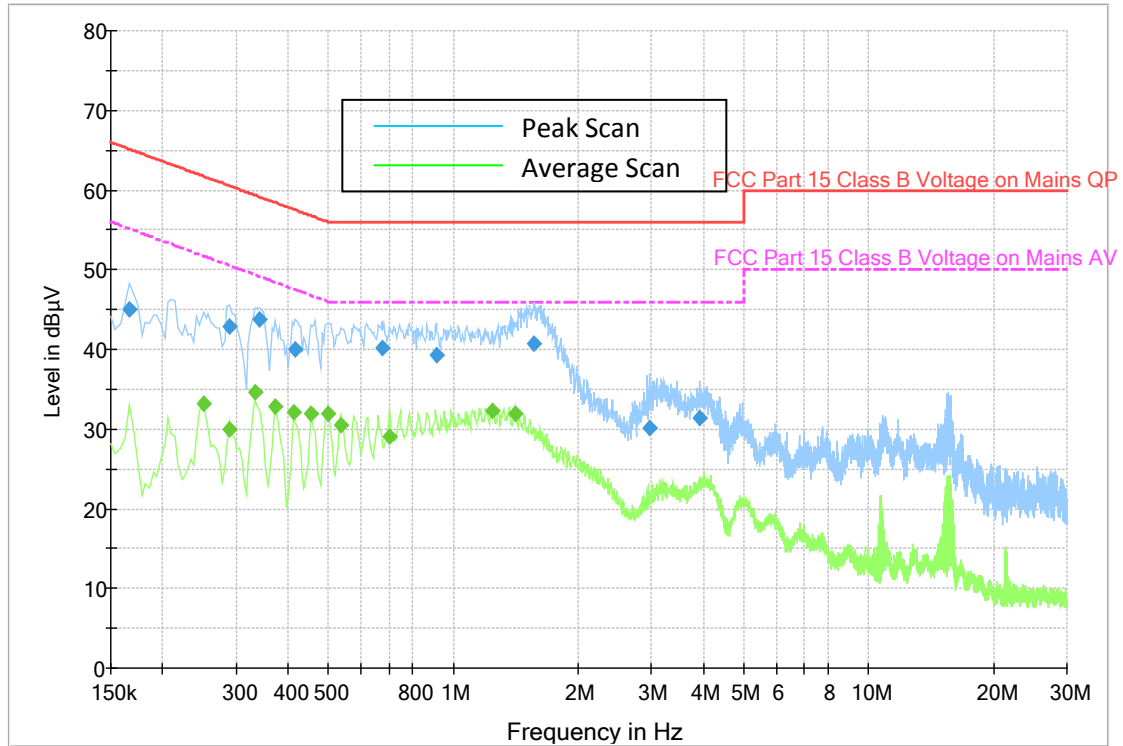
Average Measurement

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.250000	33.1	1000.0	9.000	On	L1	10.0	18.7	51.8	
0.270000	25.7	1000.0	9.000	On	L1	10.0	25.4	51.1	
0.306000	26.7	1000.0	9.000	On	L1	10.0	23.4	50.1	
0.346000	28.5	1000.0	9.000	On	L1	10.1	20.5	49.1	
0.386000	27.4	1000.0	9.000	On	L1	10.1	20.8	48.1	
0.422000	29.2	1000.0	9.000	On	L1	10.1	18.2	47.4	
0.466000	27.6	1000.0	9.000	On	L1	10.2	19.0	46.6	
0.622000	30.3	1000.0	9.000	On	L1	10.1	15.7	46.0	
0.646000	28.5	1000.0	9.000	On	L1	10.1	17.5	46.0	
0.686000	28.5	1000.0	9.000	On	L1	10.0	17.5	46.0	
0.730000	29.7	1000.0	9.000	On	L1	10.0	16.3	46.0	
1.030000	31.7	1000.0	9.000	On	L1	9.9	14.3	46.0	
1.298000	31.1	1000.0	9.000	On	L1	9.8	14.9	46.0	

* Expanded Uncertainty (U) = +/- 3.43 dB

4) Link Idle

Voltage with 2-Line-LISN



QuasiPeak Measurement

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.166000	45.0	1000.0	9.000	On	L1	10.0	20.1	65.2	
0.290000	42.9	1000.0	9.000	On	L1	10.0	17.7	60.5	
0.342000	43.7	1000.0	9.000	On	N	10.1	15.4	59.2	
0.418000	39.9	1000.0	9.000	On	L1	10.1	17.6	57.5	
0.674000	40.2	1000.0	9.000	On	L1	10.0	15.8	56.0	
0.910000	39.3	1000.0	9.000	On	L1	9.9	16.7	56.0	
1.566000	40.6	1000.0	9.000	On	L1	9.8	15.4	56.0	
2.970000	30.1	1000.0	9.000	On	N	9.6	25.9	56.0	
3.918000	31.4	1000.0	9.000	On	L1	9.6	24.6	56.0	

Average Measurement

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.250000	33.2	1000.0	9.000	On	L1	10.0	18.5	51.8	
0.290000	30.0	1000.0	9.000	On	L1	10.0	20.5	50.5	
0.334000	34.5	1000.0	9.000	On	L1	10.1	14.8	49.4	
0.374000	32.8	1000.0	9.000	On	L1	10.1	15.6	48.4	
0.414000	32.0	1000.0	9.000	On	L1	10.1	15.5	47.6	
0.454000	31.9	1000.0	9.000	On	L1	10.2	14.9	46.8	
0.498000	31.9	1000.0	9.000	On	L1	10.2	14.2	46.0	
0.538000	30.5	1000.0	9.000	On	L1	10.1	15.5	46.0	
0.702000	29.1	1000.0	9.000	On	L1	10.0	16.9	46.0	
1.238000	32.3	1000.0	9.000	On	L1	9.8	13.7	46.0	
1.406000	32.0	1000.0	9.000	On	L1	9.8	14.0	46.0	

* Expanded Uncertainty (U) = +/- 3.43 dB