

試験報告書

TEST REPORT

Report number 報告書番号 : KR0140-RJ2301-001

Issue date 発行日 : 2023-01-12

申請者 Applicant	:	InterSolutionMarketing, Inc. 150-0013 東京都渋谷区恵比寿 1-24-14 EXOS 恵比寿ビル 5F
型式又は名称 Model name	:	SP135-C
製造番号 Serial number	:	N/A
測定規格 Test procedure	:	証明規則第2条第19号の規定する特定無線設備の2.4GHz帯高度化小電力データ通信システム
測定方法 Test method	:	総務省告示第88号別表第43
測定日 Date of test	:	2023-01-10 ~ 2023-01-10
試験設備名 Name of facility	:	EMC Labs Co., Ltd.
試験結果 Test Result	:	適合

この試験報告書における測定結果は試験された装置にのみ該当します。
また、完全な複製を除き、当試験所の文書による承認なしに、報告書の一部だけを複製することを禁止します。

測定者;
Tested by;

Yong Min, Won

承認者;
Approved by;

JongMyoung, Shin

1. Summary of Test

1. Purpose of test

Ordinance on Technical Standards Conformity Certification of Specified Radio Equipment
2.4GHz Band wide band low power data communication System

2. Standards

Certification Ordinance Article 2 Clause 1 Item19

1) Test Methods

Ministry of Internal Affairs and Communications Notification Article 88 Appendix 43

2) Deviation from standards

None

3. List of applied test to the EUT

Classification of EUT	Condition	Result
Frequency Tolerance	Conducted	PASS
Occupied Bandwidth	Conducted	PASS
Spread Bandwidth	Conducted	PASS
Spurious Emission Intensity	Conducted	PASS
RF Output Power Tolerance	Conducted	PASS
Secondary Emitted Radiated Wave Strength	Conducted	PASS
Dwell Time	Conducted	PASS
Interference Prevention Function	Conducted	PASS

1) Test set up

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2) Modification to the EUT by laboratory

None

2. Test Information

1. Applicant

InterSolutionMarketing, Inc.

150-0013 東京都渋谷区恵比寿 1-24-14 EXOS 恵比寿ビル 5F

2. Equipment under test

SFx

3. Model number

SP135-C

4. Serial number

-

5. RF Specification Frequency range

Bluetooth BDR, EDR : 2402-2480MHz 79 Channels

6. Number of RF Channels

Bluetooth BDR, EDR : 79 Channels

7. Modulation method

Bluetooth BDR, EDR : GFSK, $\pi/4$ DQPSK, 8DPSK

8. Data rate

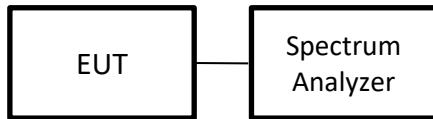
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9. Variation of the family model(s)

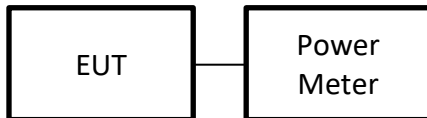
SP135-B, SP135-A

3. Configuration of equipment

1. Frequency Tolerance, Occupied Bandwidth, Spread Bandwidth, Time of occupancy hopping frequency, Unwanted(Spurious)Emission Strength, Dwell Time, Secondary Emitted Radio Wave Strength



2. RF Output Power



4. 試驗結果

Test results

BDR

Environment of test room	Date of test	2023-01-10
	Temperature	23.8 °C
	Humidity	49.5 %

Peak Antenna Gain	0.30	dBi
Declaration Output Power	1.5	mW/MHz
Declaration Output Power	1.7609	dBm/MHz
E.I.R.P.	2.0609	dBm/MHz
Input Power Voltage	3.7	VDC

Frequency equal to the Transmission rate		1	MHz
Transmission Time	ON TIME	2.885	ms
	OFF TIME	0.867	ms
	Ratio	0.7689	
Packet Type (Mode)		DH5	mode
Transmit Speed		1	MHz

Test category ;	2.4GHz Band Low-Power Data Communication System (Bluetooth [GFSK])
The reason why the tests are performed only at rated voltage;	When the input voltage to receiver RF circuit varies below $\pm 1\%$ as the input voltage from the external power supply to the receiver varies $\pm 10\%$ (excluding power supply).

Measurement Frequency	MHz	2402	2441	2480	Result	Limit	Note
Channel Number	Ch.	0	39	78	---	---	
Frequency Measurements	MHz	2401.980524	2440.979586	2479.978938	---	---	
Frequency Tolerance	ppm	-8.10831	-8.36294	-8.49254	PASS	$\pm 50 \times 10^{-6}$ (50ppm)	
Occupied Bandwidth	MHz	---	78.1062	---	PASS	83.5MHz or below	
Spread Bandwidth	MHz	---	71.2038	---	PASS	500kHz or more	
RF Output Power	mW/MHz	0.557952	0.580359	0.615881	PASS	3mW/MHz or below	
RF Output Power Tolerance	%	-62.803201	-61.309391	-58.941265	PASS	+20 to -80%	
Unwanted (Spurious) Emission Strength	30 to 2387MHz	uW/MHz	---	0.076736	---	PASS	2.5uW/MHz or below
		MHz	---	468.000	---	----	
	2387 to 2400MHz	uW/MHz	---	2.437811	---	PASS	25uW/MHz or below
		MHz	---	2399.820	---	----	
	2483.5 to 2496.5MHz	uW/MHz	---	0.567545	---	PASS	25uW/MHz or below
		MHz	---	2485.970	---	----	
	2496.5 to 12500MHz	uW/MHz	---	0.029309	---	PASS	2.5uW/MHz or below
		MHz	---	2510.000	---	----	
Secondary Emitted Radio Wave Strength	30 to 1000MHz	nW	---	0.008072	---	PASS	4nW or below
		MHz	---	568.400	---	----	
	1000 to 10000MHz	nW	---	0.185353	---	PASS	20nW or below
		MHz	---	7138.000	---	----	
	10000 to 12500MHz	nW	---	0.266686	---	PASS	20nW or below
		MHz	---	12008.000	---	----	
Time of occupancy hopping frequency	sec	---	0.002885	---	PASS	0.4sec or below	
	sec	---	0.276960	---	PASS	0.4sec or below	0.4sec×Spread rate
Spreading Factor	---		71.203800		PASS	5 or more	
Interference Prevention Function		Good			PASS		

4. 試驗結果

Test results

BDR AFH

Environment of test room	Date of test	2023-01-05
	Temperature	23.8 °C
	Humidity	49.5 %

Peak Antenna Gain	0.30	dBi
Declaration Output Power	3	mW/MHz
Declaration Output Power	4.7712	dBm/MHz
E.I.R.P.	5.0712	dBm/MHz
Input Power Voltage	3.7	VDC

Frequency equal to the Transmission rate		1	MHz
Transmission Time	ON TIME	2.878	ms
	OFF TIME	0.874	ms
	Ratio	0.7671	
Packet Type (Mode)		---	mode
Transmit Speed		1	MHz

Test category ;	2.4GHz Band Low-Power Data Communication System (Bluetooth [GFSK])
The reason why the tests are performed only at rated voltage;	When the input voltage to receiver RF circuit varies below $\pm 1\%$ as the input voltage from the external power supply to the receiver varies $\pm 10\%$ (excluding power supply).

Measurement Frequency			Low	Middle	High	Result	Limit	Note
Channel Number		Ch.	---	---	---	---	---	
Frequency Measurements		MHz	---	---	---	---	---	
Frequency Tolerance		ppm	---	---	---	---	---	
Occupied Bandwidth		MHz	19.5591	19.5559	19.563	PASS	83.5MHz or below	
Spread Bandwidth		MHz	18.1637	17.7476	17.79	PASS	500kHz or more	
RF Output Power		mW/MHz	2.141883	2.280659	2.380806	PASS	3mW/MHz or below	
RF Output Power Tolerance		%	-28.603911	-23.978031	-20.639792	PASS	+20 to -80%	
Unwanted (Spurious) Emission Strength	30 to 2387MHz	uW/MHz	0.072111	0.074302	0.064565	PASS	2.5uW/MHz or below	
		MHz	457.000	471.000	501.000	----		
	2387 to 2400MHz	uW/MHz	3.184198	0.025351	0.064565	PASS	25uW/MHz or below	
		MHz	2399.780	2399.940	2399.120	----		
	2483.5 to 2496.5MHz	uW/MHz	0.007745	0.024266	0.008810	PASS	25uW/MHz or below	
		MHz	2493.960	2483.600	2483.680	----		
	2496.5 to 12500MHz	uW/MHz	0.009078	0.032359	0.765597	PASS	2.5uW/MHz or below	
		MHz	7250.000	2570.000	2510.000	----		
Secondary Emitted Radio Wave Strength	30 to 1000MHz	nW	---	---	---	---	---	
		MHz	---	---	---	---	---	
	1000 to 10000MHz	nW	---	---	---	---	---	
		MHz	---	---	---	---	---	
	10000 to 12500MHz	nW	---	---	---	---	---	
		MHz	---	---	---	---	---	
Time of occupancy hopping frequency		sec	0.003	0.003	0.003	PASS	0.4sec or below	
		sec	0.279	0.279	0.273	PASS	0.4sec or below	0.4sec×Spread rate
Spreading Factor		---	18.164	17.748	17.790	PASS	5 or more	
Interference Prevention Function			Good			PASS		

*The low, middle, high in Measurement Frequency represents the range frequency.

(Low: 2402-2421 MHz, Middle: 2432-2451 MHz, High: 2461-2480 MHz)

4. 試驗結果

Test results

EDR

Environment of test room	Date of test	2023-01-05
	Temperature	23.8 °C
	Humidity	49.5 %

Peak Antenna Gain	0.30	dBi
Declaration Output Power	0.1	mW/MHz
Declaration Output Power	-10.0000	dBm/MHz
E.I.R.P.	-9.7000	dBm/MHz
Input Power Voltage	3.7	VDC

Frequency equal to the Transmission rate		1	MHz
Transmission Time	ON TIME	2.878	ms
	OFF TIME	0.866	ms
	Ratio	0.7687	
Packet Type (Mode)		3DH5	mode
Transmit Speed		1	MHz

Test category ;	2.4GHz Band Low-Power Data Communication System (Bluetooth [8DPSK])
The reason why the tests are performed only at rated voltage;	When the input voltage to receiver RF circuit varies below $\pm 1\%$ as the input voltage from the external power supply to the receiver varies $\pm 10\%$ (excluding power supply).

Measurement Frequency	MHz	2402	2441	2480	Result	Limit	Note
Channel Number	Ch.	0	39	78	---	---	
Frequency Measurements	MHz	2401.981321	2440.981279	2479.979564	---	---	
Frequency Tolerance	ppm	-7.77648	-7.66937	-8.24051	PASS	$\pm 50 \times 10^{-6}$ (50ppm)	
Occupied Bandwidth	MHz	---	78.3278	---	PASS	83.5MHz or below	
Spread Bandwidth	MHz	---	71.4354	---	PASS	500kHz or more	
RF Output Power	mW/MHz	0.052697	0.055717	0.063927	PASS	3mW/MHz or below	
RF Output Power Tolerance	%	-47.302924	-44.283155	-36.072677	PASS	+20 to -80%	
Unwanted (Spurious) Emission Strength	30 to 2387MHz	uW/MHz	---	0.052360	---	PASS	2.5uW/MHz or below
		MHz	---	2385.000	---	----	
	2387 to 2400MHz	uW/MHz	---	9.418896	---	PASS	25uW/MHz or below
		MHz	---	2399.970	---	----	
	2483.5 to 2496.5MHz	uW/MHz	---	1.339677	---	PASS	25uW/MHz or below
		MHz	---	2484.330	---	----	
	2496.5 to 12500MHz	uW/MHz	---	0.019409	---	PASS	2.5uW/MHz or below
		MHz	---	2510.000	---	----	
Secondary Emitted Radio Wave Strength	30 to 1000MHz	nW	---	0.007534	---	PASS	4nW or below
		MHz	---	640.100	---	----	
	1000 to 10000MHz	nW	---	0.190546	---	PASS	20nW or below
		MHz	---	7147.000	---	----	
	10000 to 12500MHz	nW	---	0.197697	---	PASS	20nW or below
		MHz	---	12418.000	---	----	
Time of occupancy hopping frequency	sec	---	0.002878	---	PASS	0.4sec or below	
	sec	---	0.276288	---	PASS	0.4sec or below	0.4sec×Spread rate
Spreading Factor	---		71.435400		PASS	5 or more	
Interference Prevention Function		Good			PASS		

4. 試驗結果

Test results

EDR AFH

Environment of test room	Date of test	2023-01-05
	Temperature	23.8 °C
	Humidity	49.5 %

Peak Antenna Gain	0.30	dBi
Declaration Output Power	0.5	mW/MHz
Declaration Output Power	-3.0103	dBm/MHz
E.I.R.P.	-2.7103	dBm/MHz
Input Power Voltage	3.7	VDC

Frequency equal to the Transmission rate		1	MHz
Transmission Time	ON TIME	2.893	ms
	OFF TIME	0.859	ms
	Ratio	0.7711	
Packet Type (Mode)		---	mode
Transmit Speed		1	MHz

Test category ;	2.4GHz Band Low-Power Data Communication System (Bluetooth [8DPSK])
The reason why the tests are performed only at rated voltage;	When the input voltage to receiver RF circuit varies below $\pm 1\%$ as the input voltage from the external power supply to the receiver varies $\pm 10\%$ (excluding power supply).

Measurement Frequency			Low	Middle	High	Result	Limit	Note
Channel Number		Ch.	---	---	---	---	---	
Frequency Measurements		MHz	---	---	---	---	---	
Frequency Tolerance		ppm	---	---	---	---	---	
Occupied Bandwidth		MHz	19.9675	19.9735	19.969	PASS	83.5MHz or below	
Spread Bandwidth		MHz	18.1717	18.2492	18.1802	PASS	500kHz or more	
RF Output Power		mW/MHz	0.198657	0.202841	0.217922	PASS	3mW/MHz or below	
RF Output Power Tolerance		%	-60.268548	-59.431760	-56.415573	PASS	+20 to -80%	
Unwanted (Spurious) Emission Strength	30 to 2387MHz	uW/MHz	0.033497	0.006622	0.003811	PASS	2.5uW/MHz or below	
		MHz	2385.000	2319.000	2239.000	----		
	2387 to 2400MHz	uW/MHz	9.162205	0.011614	0.003811	PASS	25uW/MHz or below	
		MHz	2399.870	2394.530	2397.260	----		
	2483.5 to 2496.5MHz	uW/MHz	0.003273	0.014256	0.002427	PASS	25uW/MHz or below	
		MHz	2485.520	2483.770	2483.630	----		
	2496.5 to 12500MHz	uW/MHz	0.003243	0.005224	1.419058	PASS	2.5uW/MHz or below	
		MHz	2530.000	2570.000	2510.000	----		
Secondary Emitted Radio Wave Strength	30 to 1000MHz	nW	---	---	---	---	---	
		MHz	---	---	---	---	---	
	1000 to 10000MHz	nW	---	---	---	---	---	
		MHz	---	---	---	---	---	
	10000 to 12500MHz	nW	---	---	---	---	---	
		MHz	---	---	---	---	---	
Time of occupancy hopping frequency		sec	0.003	0.003	0.003	PASS	0.4sec or below	
		sec	0.281	0.281	0.281	PASS	0.4sec or below	0.4sec×Spread rate
Spreading Factor		---	18.172	18.249	18.180	PASS	5 or more	
Interference Prevention Function			Good			PASS		

*The low, middle, high in Measurement Frequency represents the range frequency.

(Low: 2402-2421 MHz, Middle: 2432-2451 MHz, High: 2461-2480 MHz)

5. 試験機器リスト

Measurement equipment list

USE	Equipment	Company	Model No.	Serial No.	Calibrated by	Cal. Method	Cal. Due	Cal. Date
	TEMP & HUMID CHAMBER	㈜ 제이에프엠엔지니어링	JFMA-001	20200929-01	HCT	ㄱㄴ(c)	Dec. 2023	Dec. 15, 2022
	CONTROLLER	주식회사 삼원테크놀로지	TEMI2500	S7800VK191 0707	HCT	ㄱㄴ(c)	Dec. 2023	Dec. 15, 2022
X	PSA SERIES SPECTRUM ANALYZER	AGILENT	E4440A	MY45304057	HCT	ㄱㄴ(c)	Dec. 2023	Dec. 15, 2022
X	MXG ANALOG SIGNAL GENERATOR	AGILENT	N5183A	MY50141890	HCT	ㄱㄴ(c)	Dec. 2023	Dec. 14, 2022
	SYSTEM DC POWER SUPPLY	AGILENT	6674A	MY53000118	HCT	ㄱㄴ(c)	Dec. 2023	Dec. 14, 2022
	VECTOR SIGNAL GENERATOR	ROHDE & SCHWARZ	SMBV100A	257524	HCT	ㄱㄴ(c)	Dec. 2023	Dec. 14, 2022
	BLUETOOTH TESTER	TESCOM	TC-3000A	3000A480088	HCT	ㄱㄴ(c)	Dec. 2023	Dec. 14, 2022
	DIRECTIONAL COUPLER	AGILENT	773D	2839A01855	HCT	ㄱㄴ(c)	Dec. 2023	Dec. 14, 2022
	ATTENUATOR	AGILENT	8493C	73193	HCT	ㄱㄴ(c)	Dec. 2023	Dec. 14, 2022
	TERMINATION	HEWLETT PACKARD	909D	7492	HCT	ㄱㄴ(c)	Dec. 2023	Dec. 14, 2022
	POWER DIVIDER	HEWLETT PACKARD	11636A	6916	HCT	ㄱㄴ(c)	Dec. 2023	Dec. 14, 2022
	SLIDE-AC	대광전자	SV-1023	NONE	HCT	ㄱㄴ(c)	Nov. 2023	Nov. 15, 2022
	DIGITAL MULTIMETER	휴먼테크스토어	15B+	50561541WS	HCT	ㄱㄴ(c)	Dec. 2023	Dec. 14, 2022
	Temperature and Humidity Datalogger	CEM	DT-172	201000251	HCT	ㄱㄴ(c)	Apr. 2023	Apr. 13, 2022
	ATTENUATOR	에이스 알에프 컴	ATT SMA 20W 20dB 8G	A-0820.SM20.2	HCT	ㄱㄴ(c)	Apr. 2023	Apr. 11, 2022
	TERMINATION	에이스 알에프 컴	TERM SMA F 20W 8G	A-0008.SM20.2	HCT	ㄱㄴ(c)	Apr. 2023	Apr. 11, 2022
	ATTENUATOR	에이스 알에프 컴	ATT 2.92 2W 20dB 40G	A-4020.2902.1	HCT	ㄱㄴ(c)	Apr. 2023	Apr. 11, 2022
	ATTENUATOR	에이스 알에프 컴	ATT 2.92 2W 20dB 40G	A-4020.2902.1	HCT	ㄱㄴ(c)	Apr. 2023	Apr. 11, 2022
	ATTENUATOR	에이스 알에프 컴	ATT 2.92 2W 20dB 40G	A-4020.2902.1	HCT	ㄱㄴ(c)	Apr. 2023	Apr. 11, 2022
	TERMINATION	에이스 알에프 컴	TERM 2.92 F 2W 40G	A-0040.2920.2	HCT	ㄱㄴ(c)	Apr. 2023	Apr. 11, 2022
	TERMINATION	에이스 알에프 컴	TERM 2.92 F 2W 40G	A-0040.2920.2	HCT	ㄱㄴ(c)	Apr. 2023	Apr. 11, 2022
	TERMINATION	에이스 알에프 컴	TERM 2.92 F 2W 40G	A-0040.2920.2	HCT	ㄱㄴ(c)	Apr. 2023	Apr. 11, 2022
	PSA SERIES SPECTRUM ANALYZER	AGILENT	E4440A	MY42510449	HCT	ㄱㄴ(c)	Feb. 2023	Feb. 3, 2022
X	DC POWER SUPPLY	AGILENT	E3634A	MY40012120	HCT	ㄱㄴ(c)	Feb. 2023	Feb. 3, 2022
	HIGHPASS FILTER	RAPA	3.5 GHz Highpass Filter	1	HCT	ㄱㄴ(c)	Jul. 2023	Jul. 21, 2022
X	USB Peak Power Sensor	Anritsu	MA24408A	12321	HCT	ㄱㄴ(c)	Nov. 2023	Nov. 15, 2022
	High Pass Filter	WT Microwave INC.	WT-A3314-HS	WT22111804-1	HCT	ㄱㄴ(c)	Dec. 2023	Dec. 14, 2022
	High Pass Filter	WT Microwave INC.	WT-A1935-HS	WT22111804-2	HCT	ㄱㄴ(c)	Dec. 2023	Dec. 14, 2022

Note1: 測定機器の較正は、1年間有効です。

The calibration of measurement equipment is valid for one year period.

Note2: "X" は使用した測定機器です。

"X" used equipment.

Note3: 較正方法 ...

Cal.Method ...

ㄱ): 独立行政法人情報通信研究機構(以下「機構」という。)又は第百二条の十八第一項の指定較正機関が行う較正

a): Calibration conducted by the National Institute of Information and Communications Technology(NICT)(hereinafter referred to as "NICT") or a designated calibration agency under Article 102-18 paragraph (1)

ㄱ): 計量法(平成四年法律第五十一号)第百三十五条又は第百四十四条の規定に基づく校正

b): Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992)

ㄱ): 外国において行う較正であつて、機構又は第百二条の十八第一項の指定較正機関が行う較正に相当するもの

c): Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1)

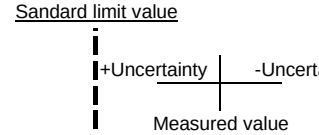
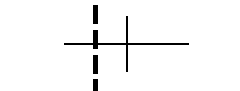
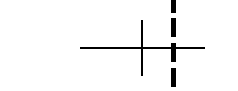
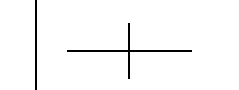
ㄱ): 別表第三の下欄に掲げる測定器その他の設備であつて、イからハまでのいずれかに掲げる較正等を受けたものを用いて行う較正等

d): Calibration conducted by using measuring instruments and other equipment listed in the right column of Table No. 3 attached hereto, which shall have been given any of calibration, etc. listed above from a) to c)

6. 測定の不確かさ

About uncertainty of measured value

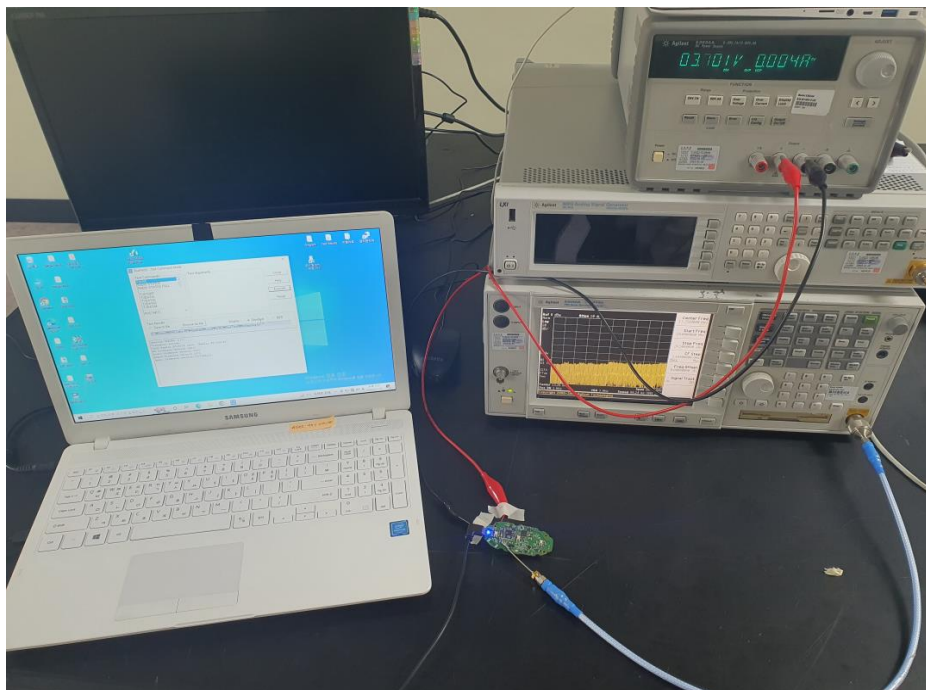
Parameter	Uncertainty
Total RF power conducted	± 0.292 dB
Spurious emissions conducted	± 0.40 dB
Temperature	$\pm 0.8^{\circ}\text{C}$
Humidity	$\pm 4.4\%$

判定	Measured value and standard limit value	
PASS	Case1  Even if it takes uncertainty into consideration, a standard limit value is fulfilled.	
	Case2  Although measured value is in a standard limit value, a limit value won't be fulfilled if uncertainty is taken into consideration.	
FAIL	Case3  Although measured value exceeds a standard limit value, a limit value will be fulfilled if uncertainty is taken into consideration.	
	Case4  Even if it takes uncertainty into consideration, a standard limit value isn't fulfilled.	

7. 測定写真

Photographs

Conducted Measurement Photo



8. 測定チャート

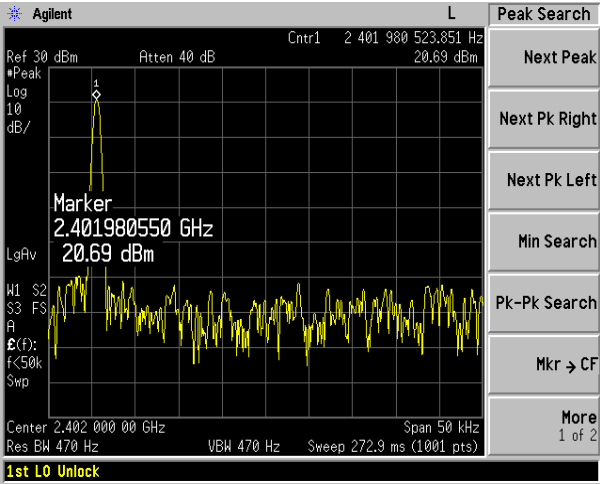
Test chart

8.1 周波数の偏差

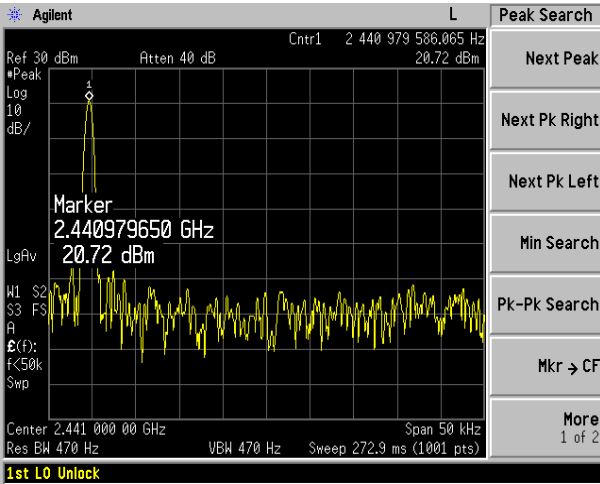
Frequency tolerance

BDR

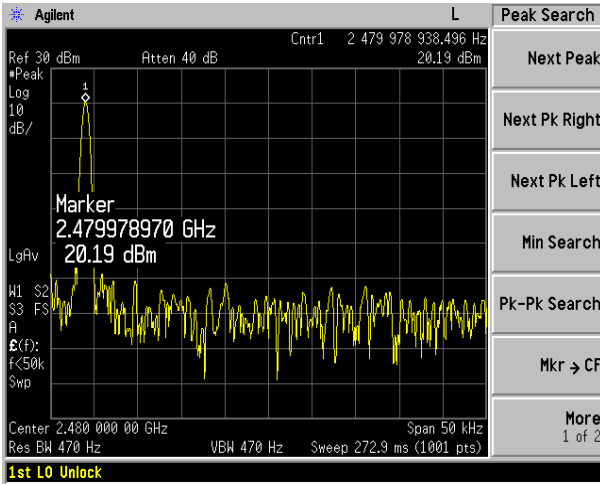
Ch.1: 2402MHz



Ch.40: 2441MHz



Ch.79: 2480MHz



8. 測定チャート

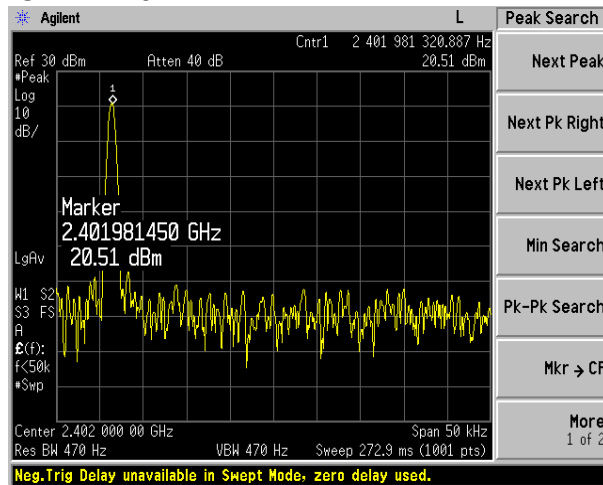
Test chart

8.1 周波数の偏差

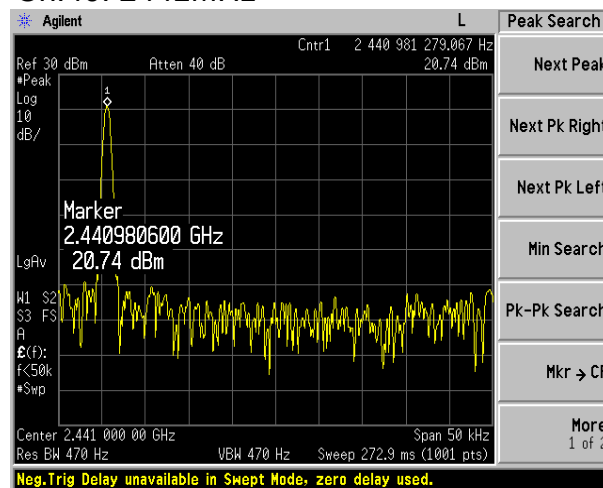
Frequency tolerance

EDR

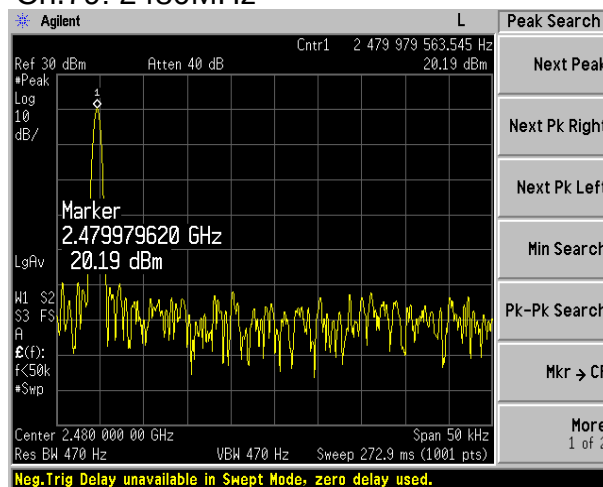
Ch.1: 2402MHz



Ch.40: 2441MHz



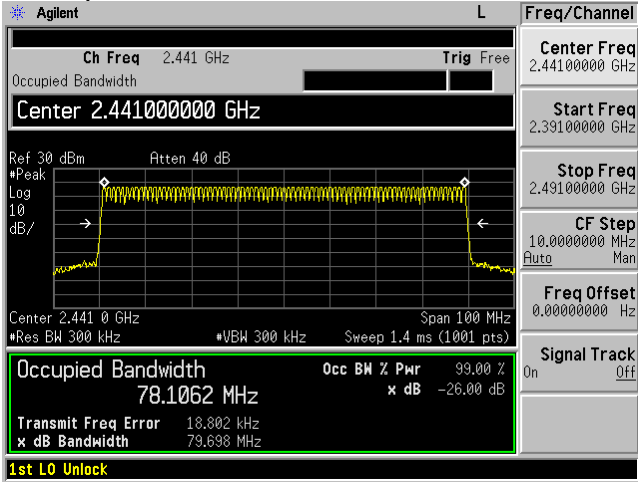
Ch.79: 2480MHz



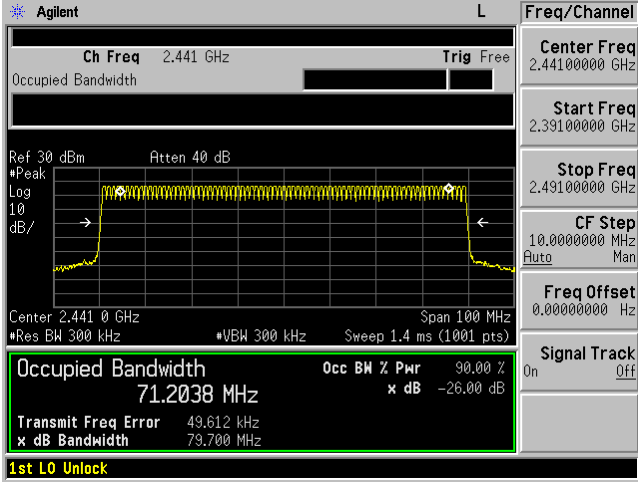
8.2 占有周波数帯幅及び拡散帯域幅
Occupied bandwidth / Spread bandwidth

BDR

Occupied bandwidth



Spread bandwidth

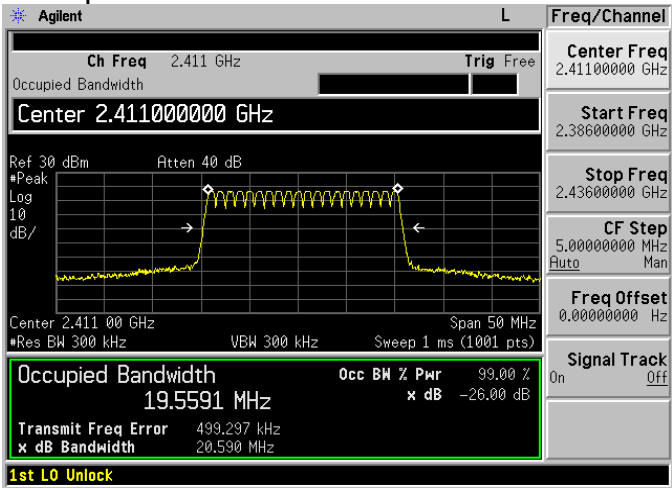


8.2 占有周波数帯幅及び拡散帯域幅
Occupied bandwidth / Spread bandwidth

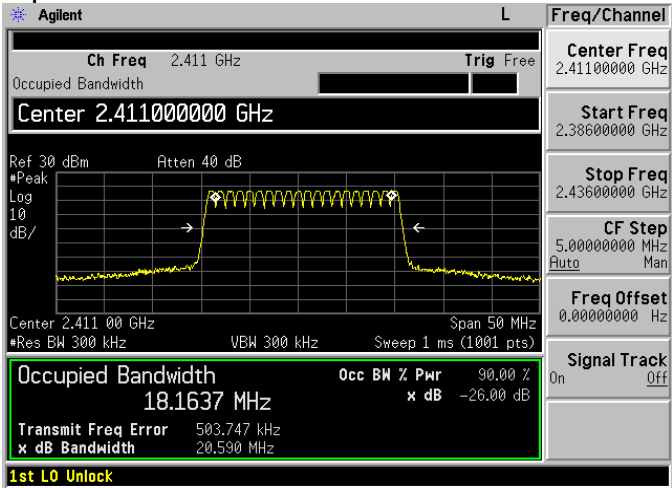
BDR AFH

Ch:Low

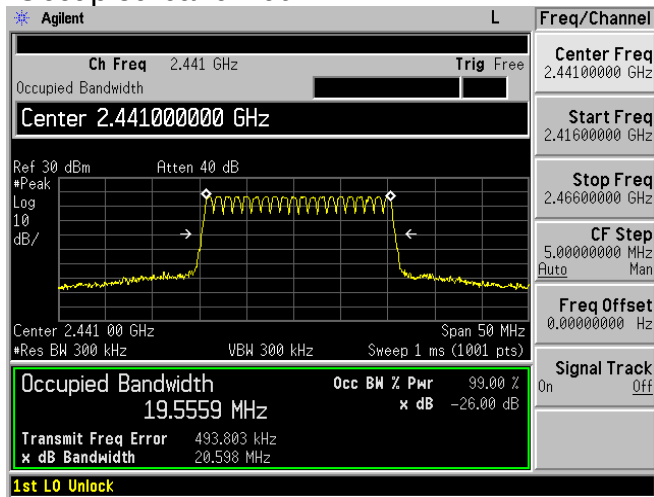
Occupied bandwidth



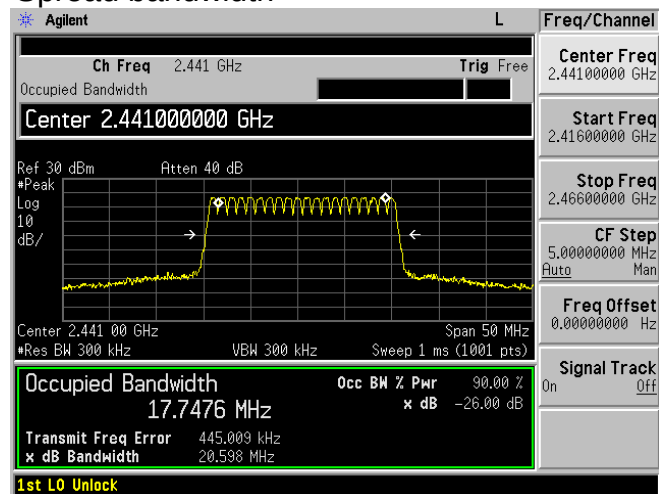
Spread bandwidth



Occupied bandwidth

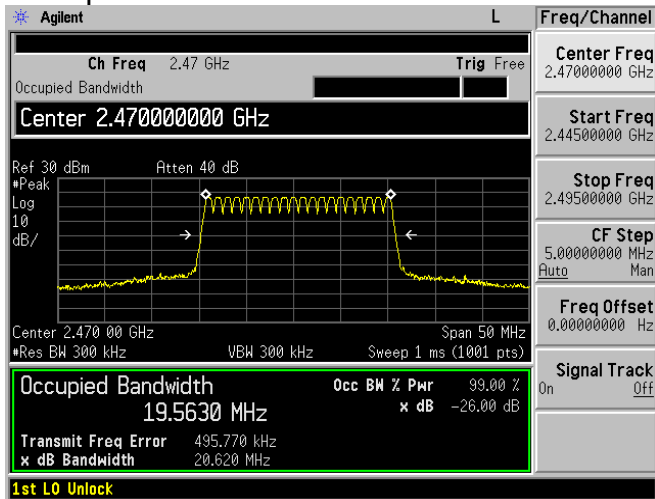


Spread bandwidth

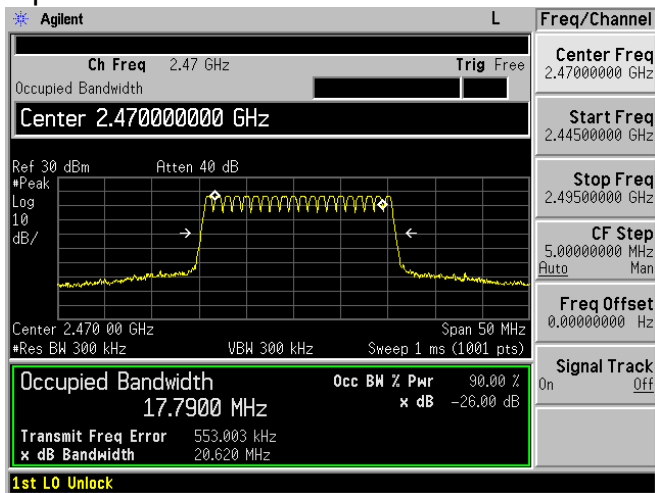


Ch:High

Occupied bandwidth



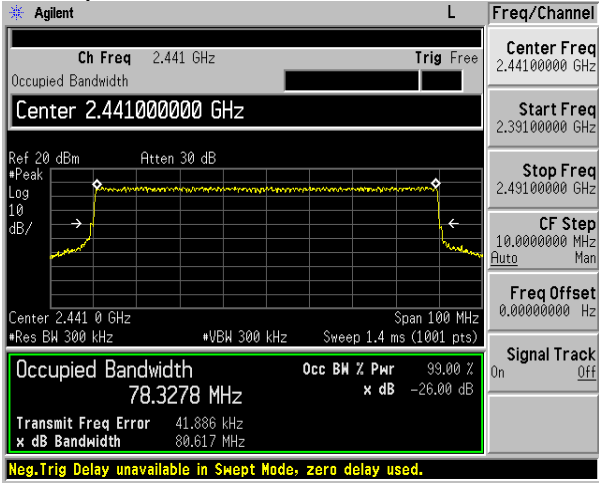
Spread bandwidth



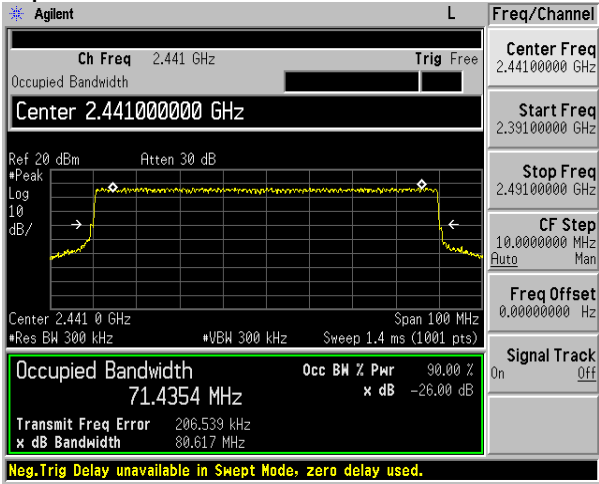
8.2 占有周波数帯幅及び拡散帯域幅
Occupied bandwidth / Spread bandwidth

EDR

Occupied bandwidth



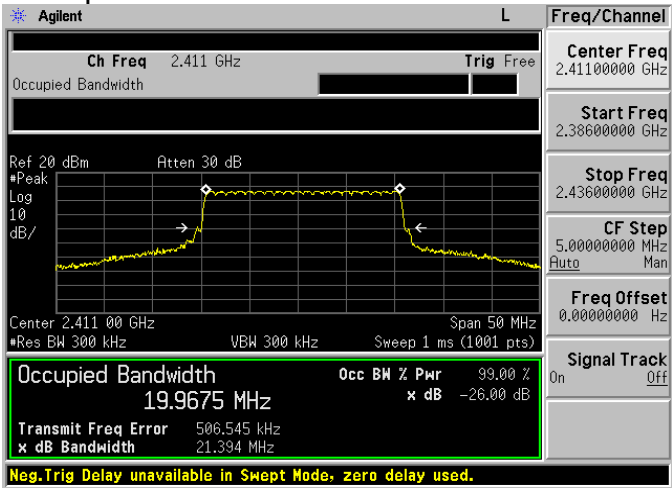
Spread bandwidth



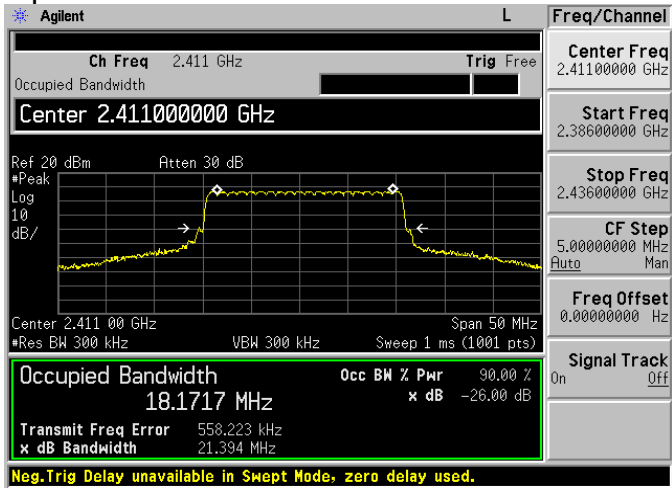
8.2 占有周波数帯幅及び拡散帯域幅
Occupied bandwidth / Spread bandwidth

EDR AFH

Ch:Low
Occupied bandwidth

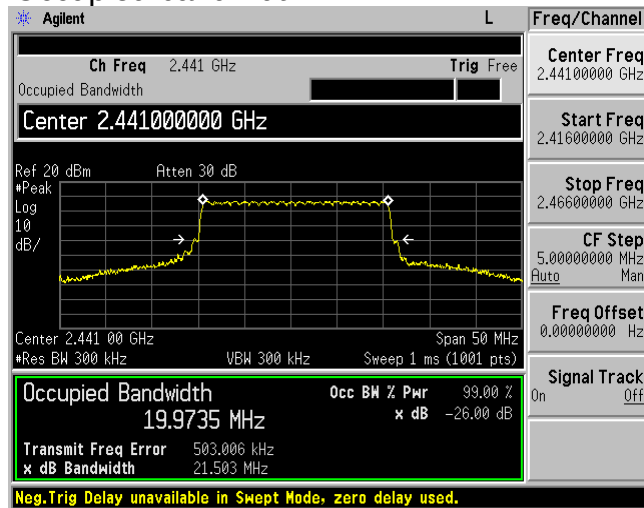


Spread bandwidth

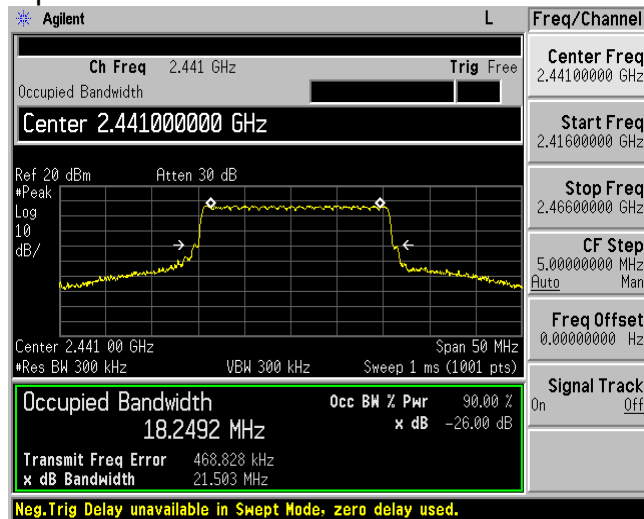


Ch:Middle

Occupied bandwidth

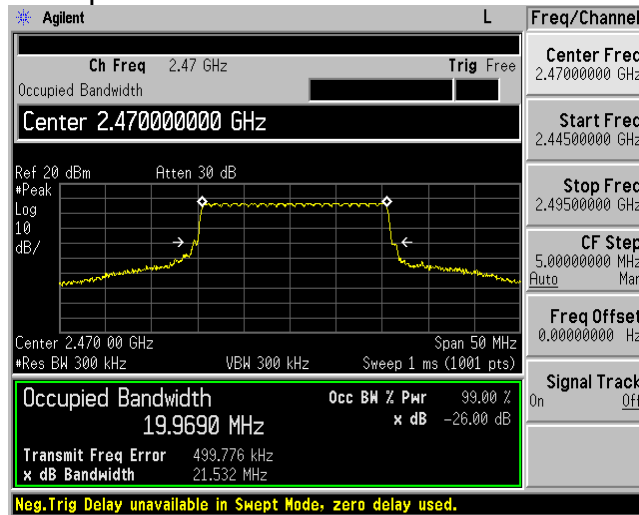


Spread bandwidth

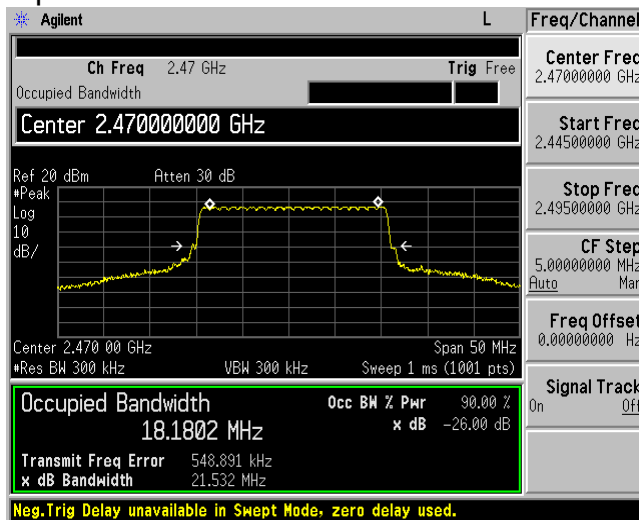


Ch:High

Occupied bandwidth



Spread bandwidth

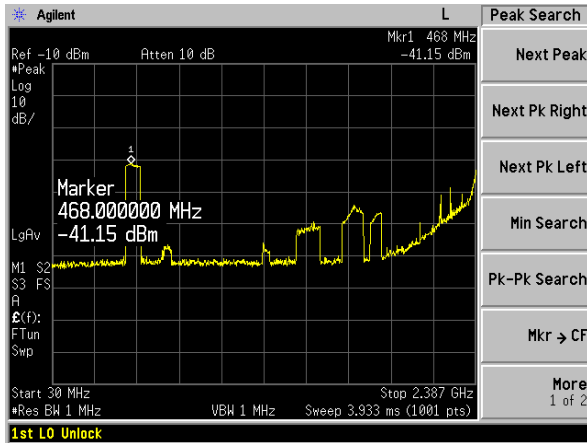


8.3スプリアスの発射又は不要発射の強度

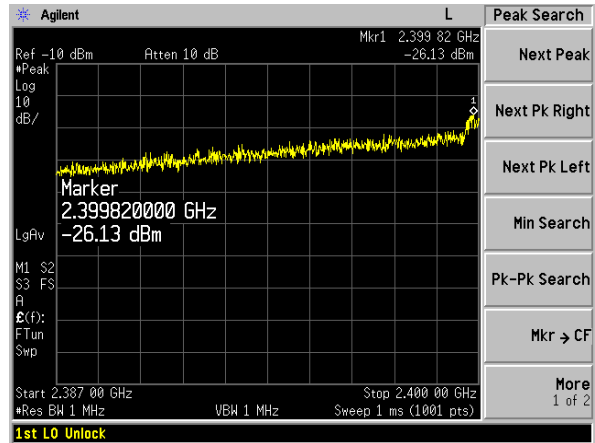
Unwanted(Spurious) emission strength

BDR

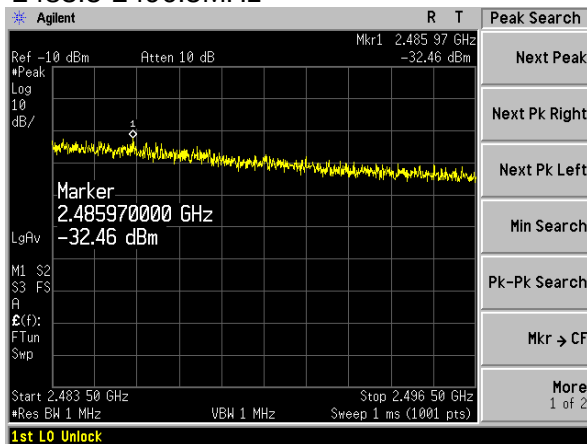
30-2387MHz



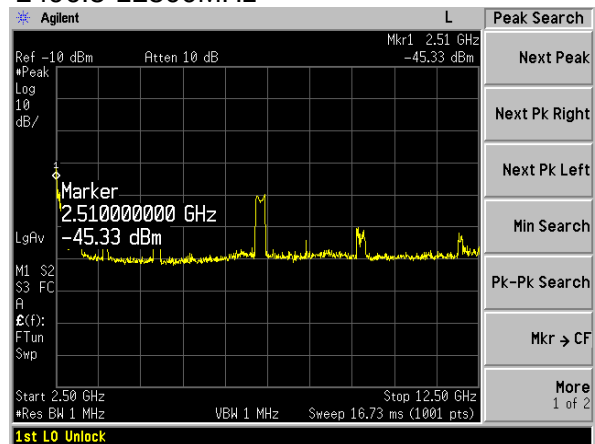
2387-2400MHz



2483.5-2496.5MHz



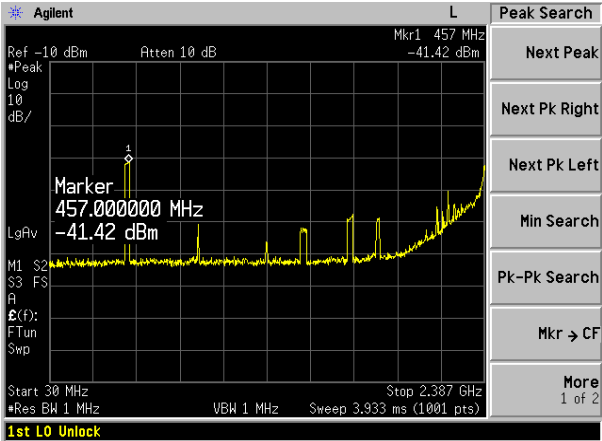
2496.5-12500MHz



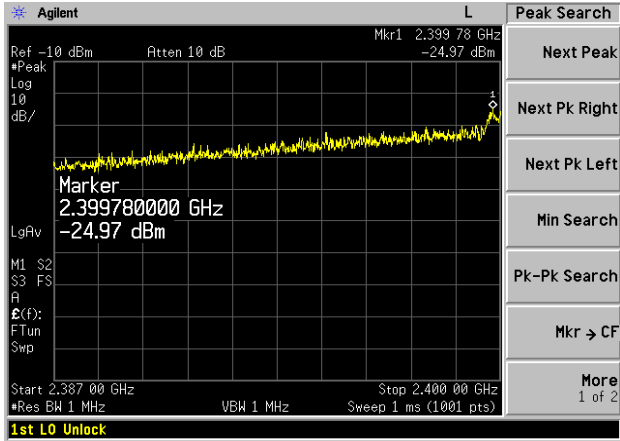
8.3スプリアスの発射又は不要発射の強度
Unwanted(Spurious) emission strength

BDR AFH

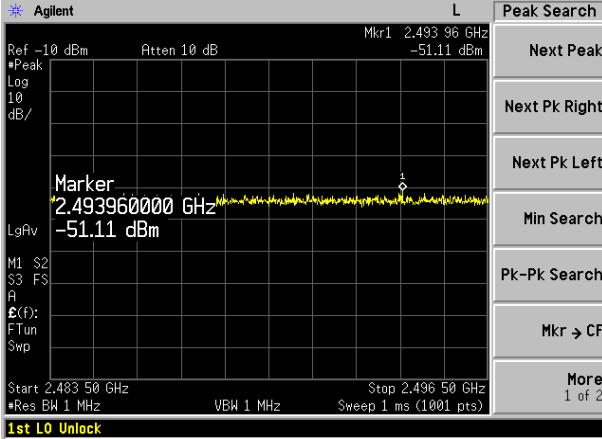
Ch:Low
30-2387MHz



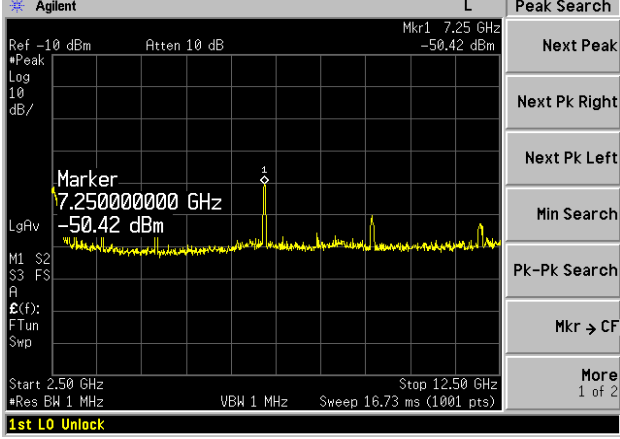
2387-2400MHz



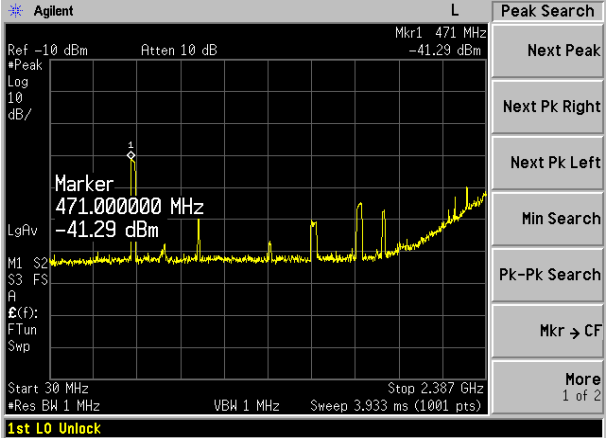
2483.5-2496.5MHz



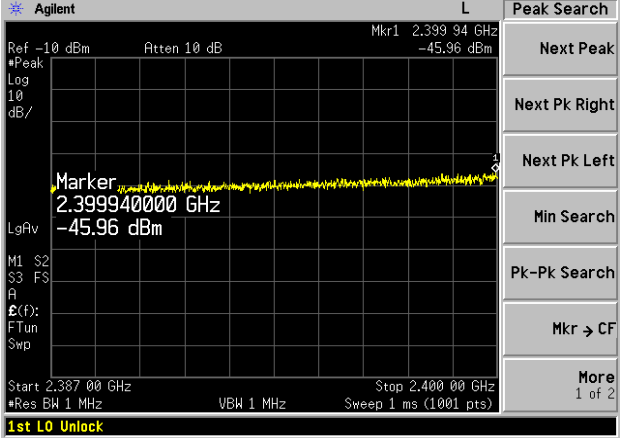
2496.5-12500MHz



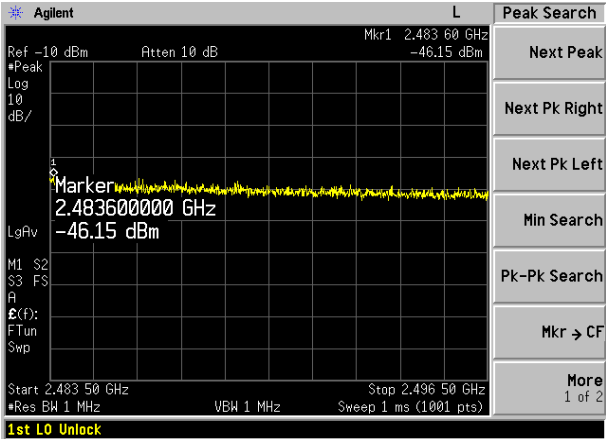
Ch:Middle
30-2387MHz



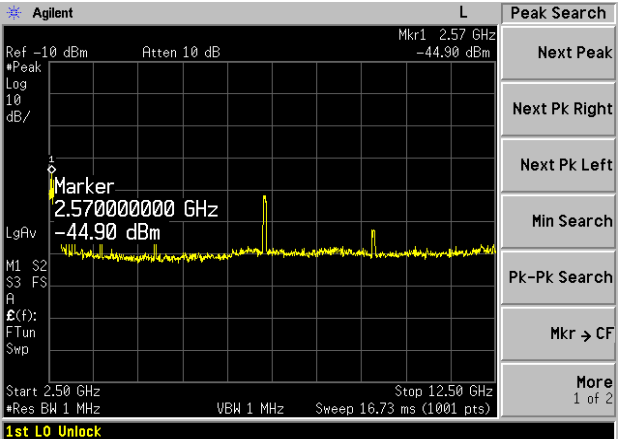
2387-2400MHz



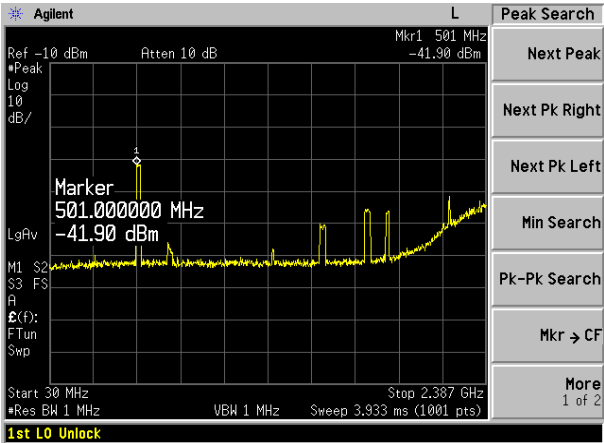
2483.5-2496.5MHz



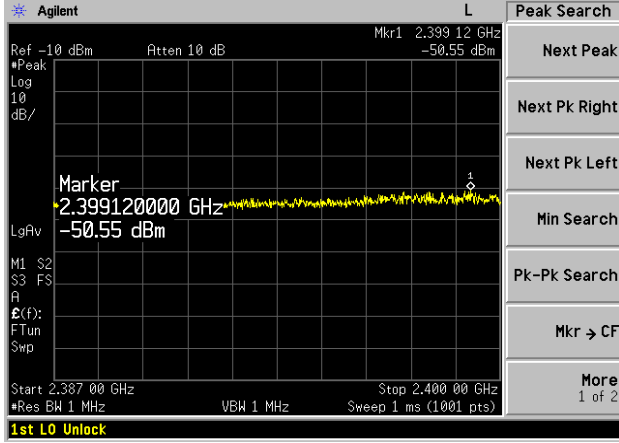
2496.5-12500MHz



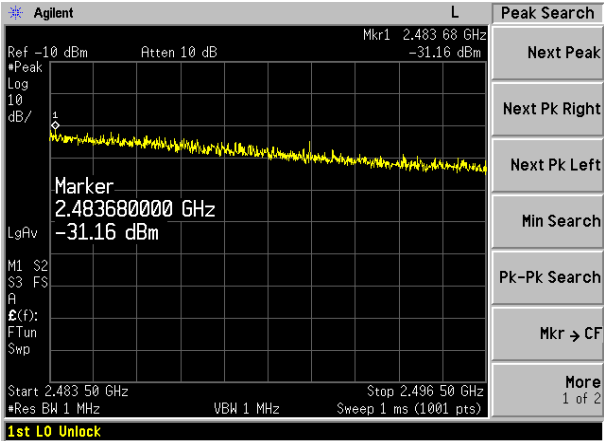
Ch:High
30-2387MHz



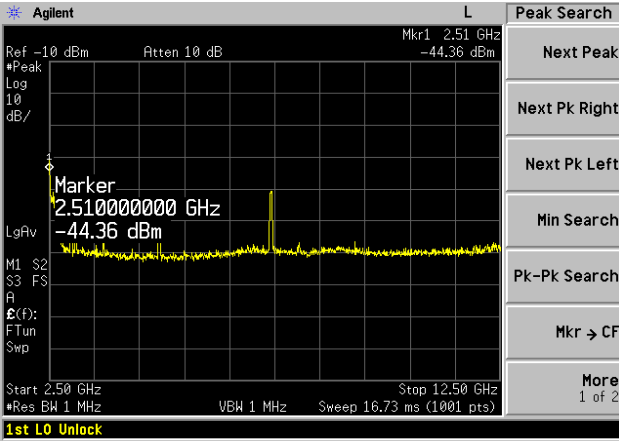
2387-2400MHz



2483.5-2496.5MHz



2496.5-12500MHz

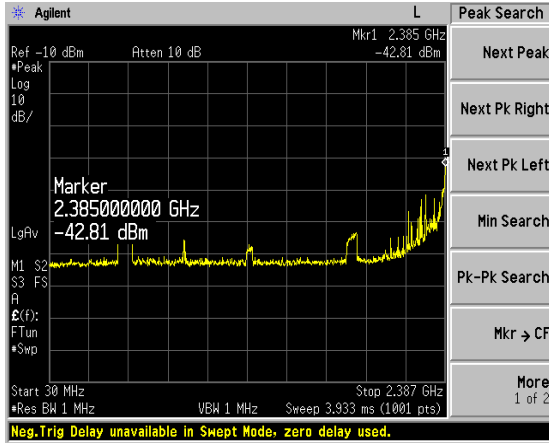


8.3スプリアスの発射又は不要発射の強度

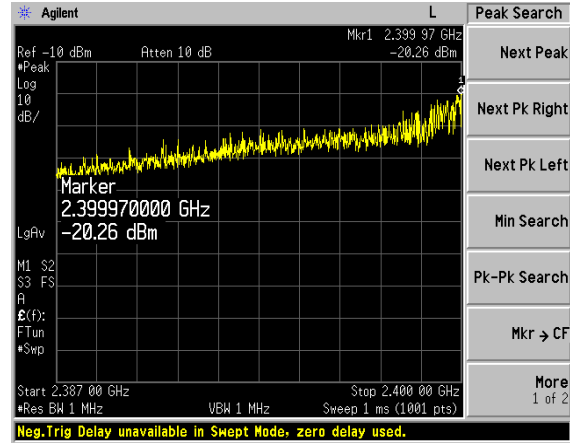
Unwanted(Spurious) emission strength

EDR

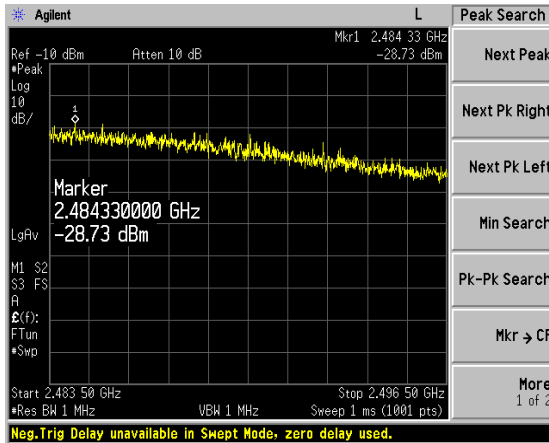
30-2387MHz



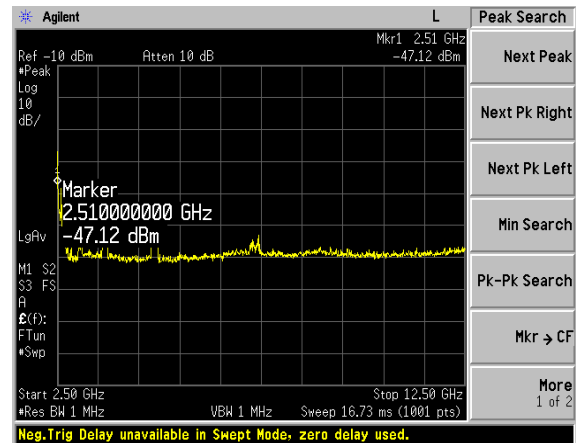
2387-2400MHz



2483.5-2496.5MHz



2496.5-12500MHz

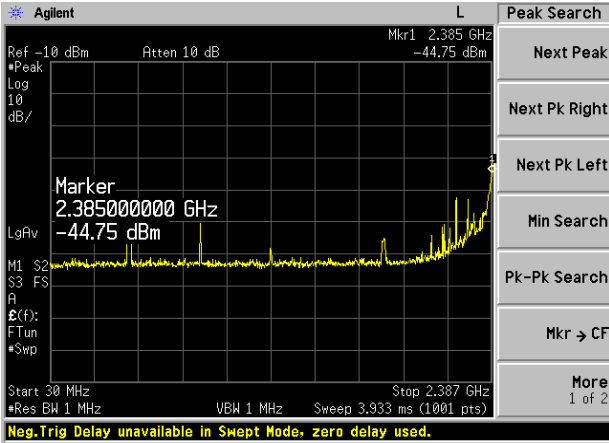


8.3スプリアスの発射又は不要発射の強度 Unwanted(Spurious) emission strength

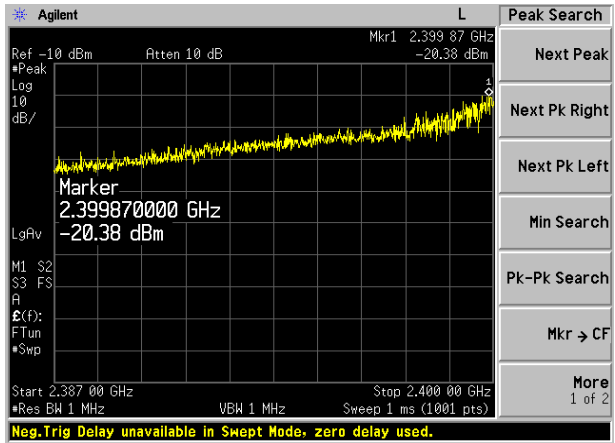
EDR AFH

Ch:Low

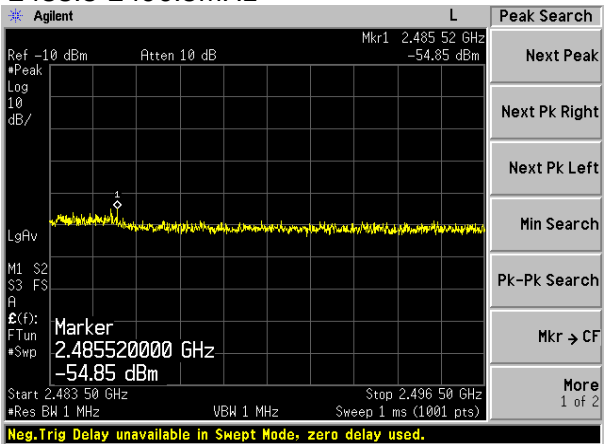
30-2387MHz



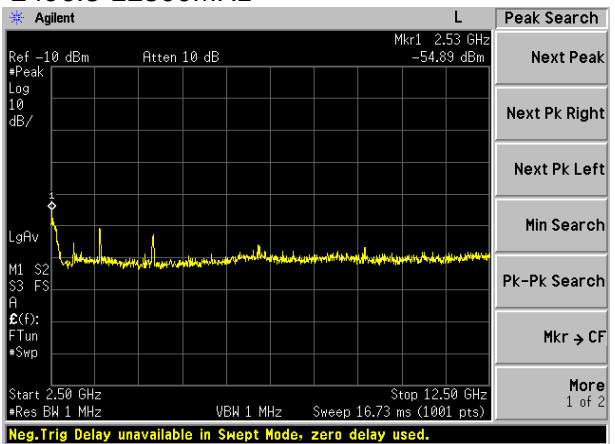
2387-2400MHz



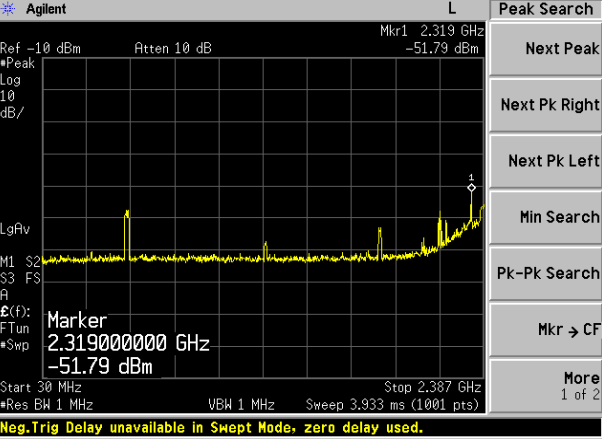
2483.5-2496.5MHz



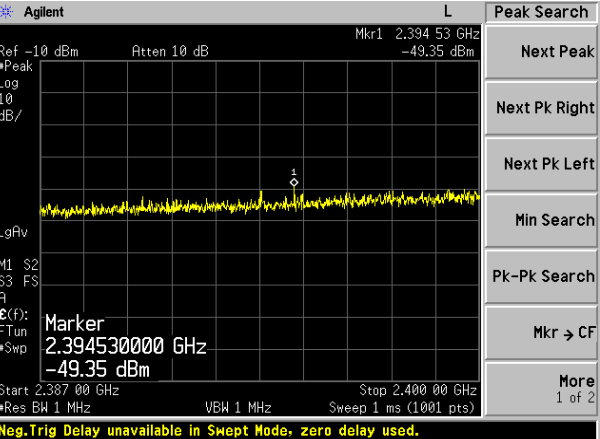
2496.5-12500MHz



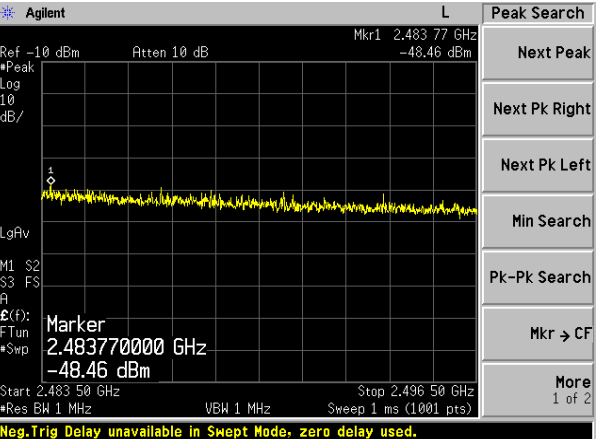
Ch:Middle
30-2387MHz



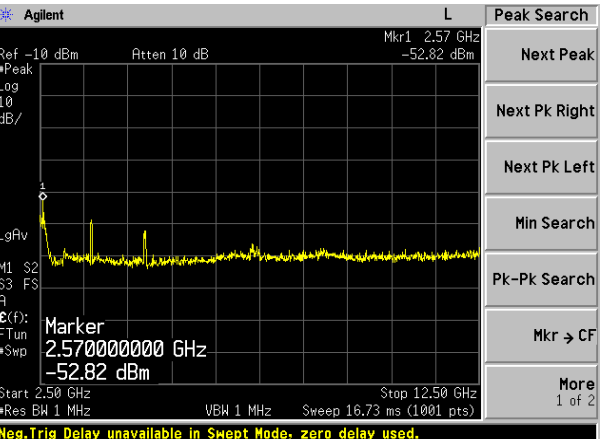
2387-2400MHz



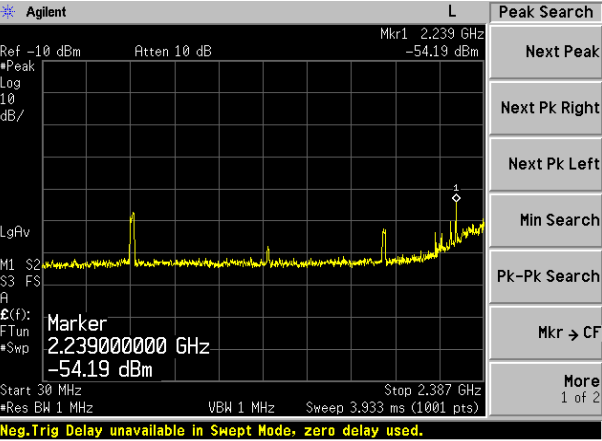
2483.5-2496.5MHz



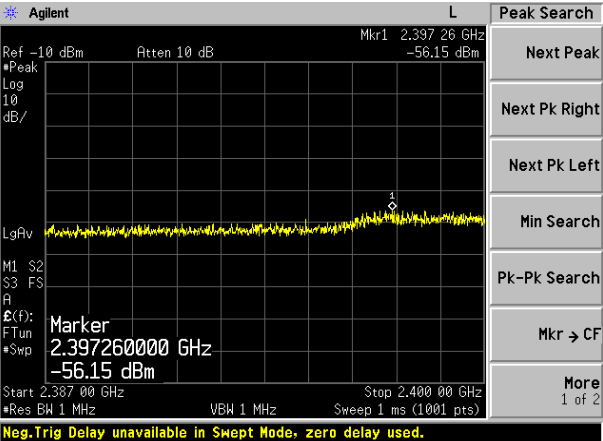
2496.5-12500MHz



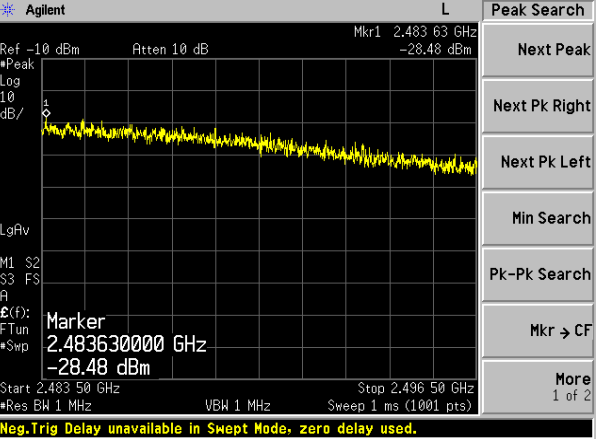
Ch:High
30-2387MHz



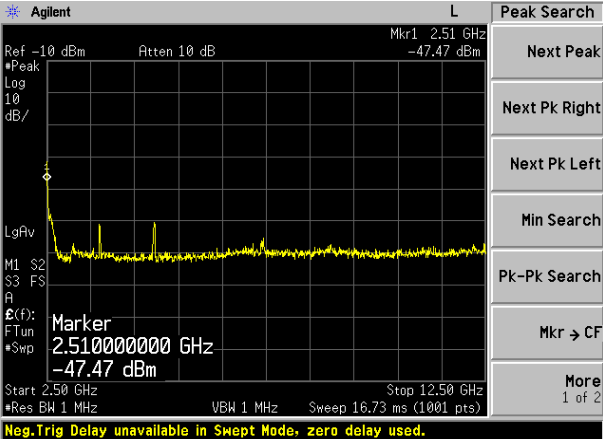
2387-2400MHz



2483.5-2496.5MHz



2496.5-12500MHz

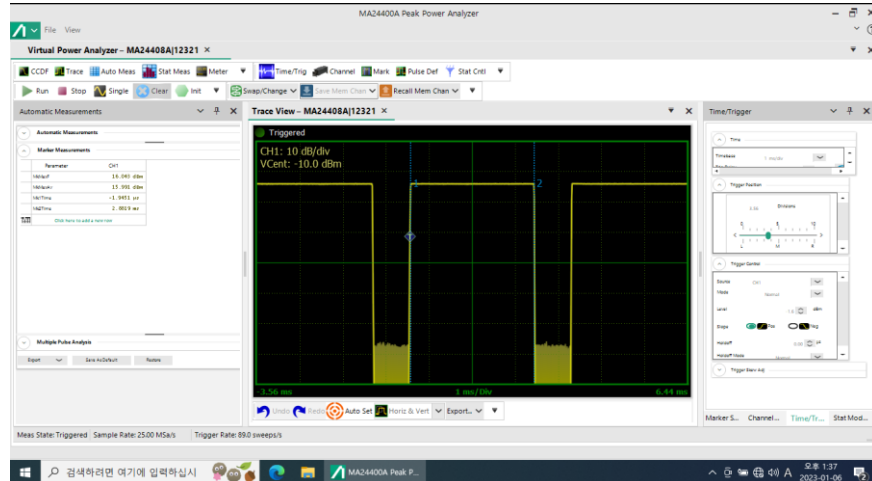


BDR

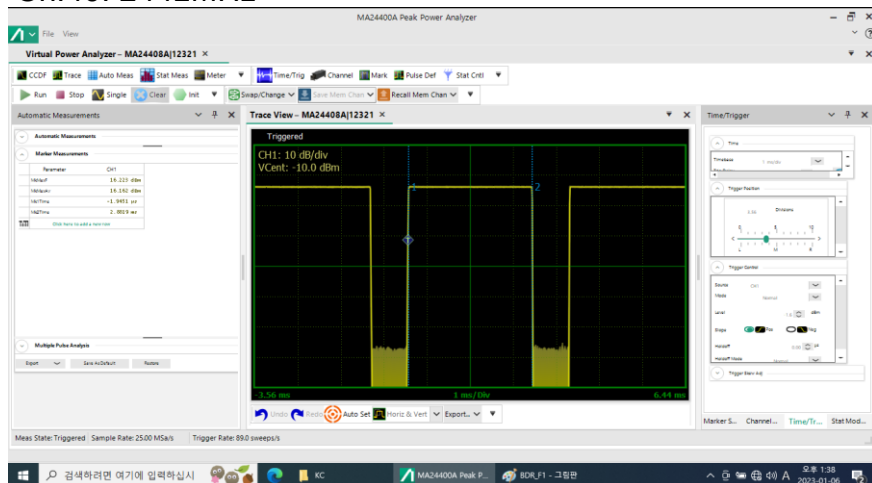
8.4 空中線電力の偏差

RF output power tolerance

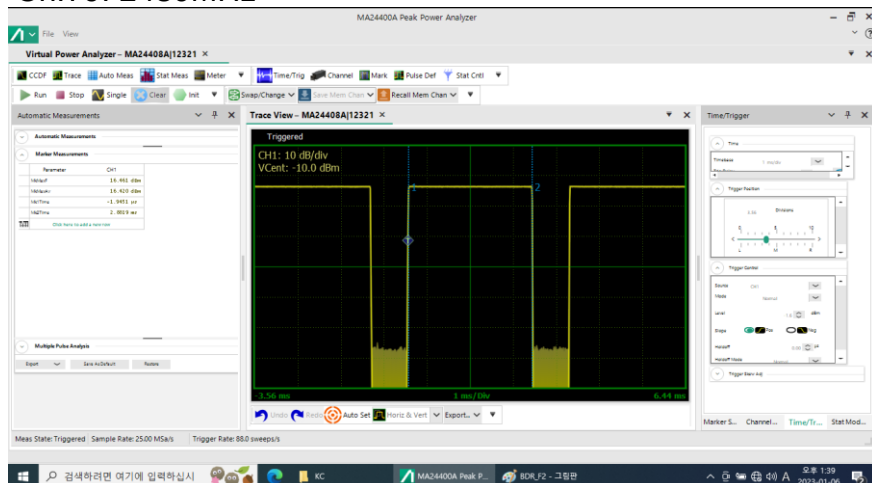
Ch.1: 2402MHz



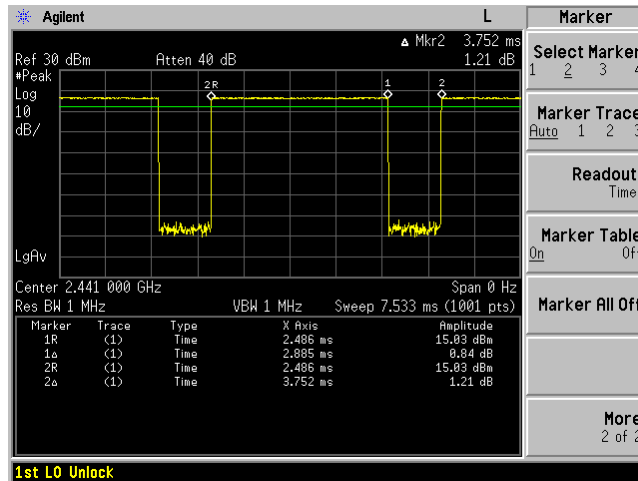
Ch.40: 2441MHz



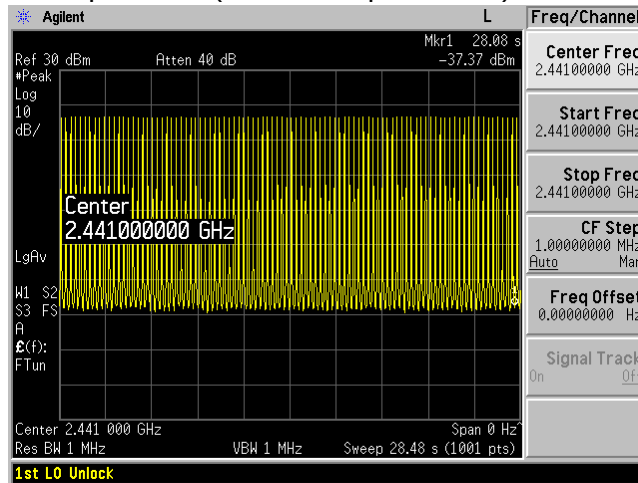
Ch.79: 2480MHz



On Time / On + Off Time



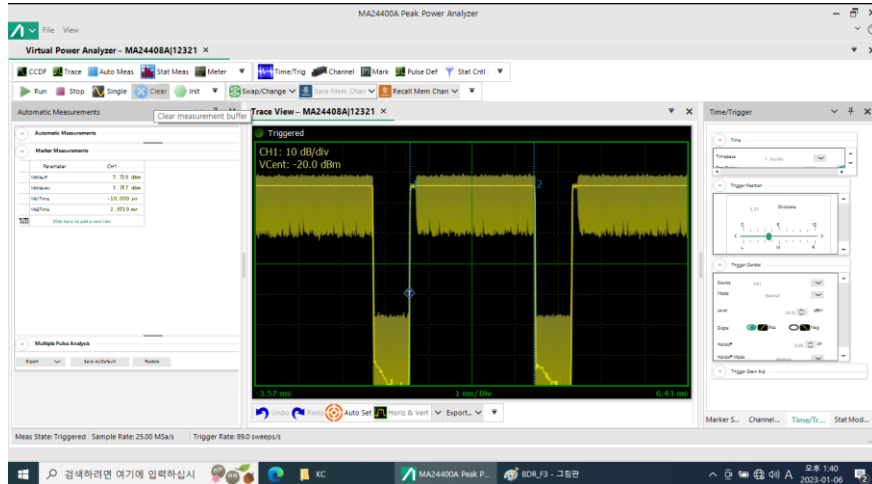
Sweep Time = (0.4 sec x Spread rate)



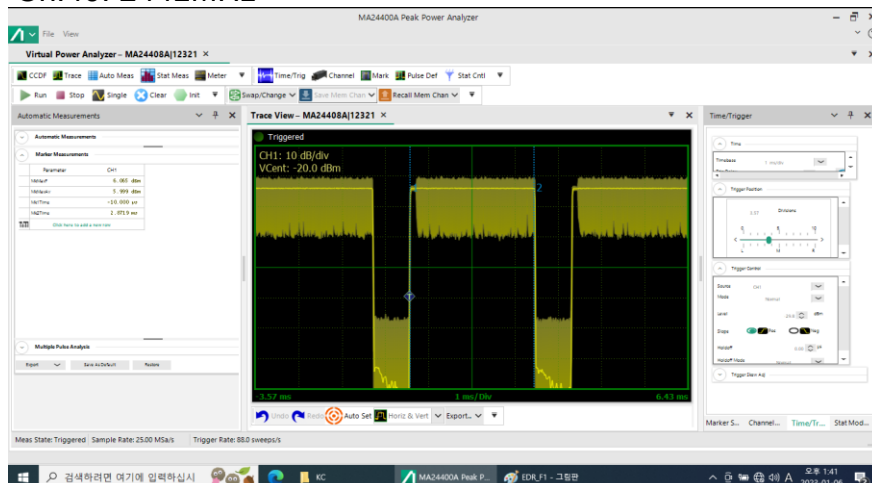
EDR

8.4 空中線電力の偏差 RF output power tolerance

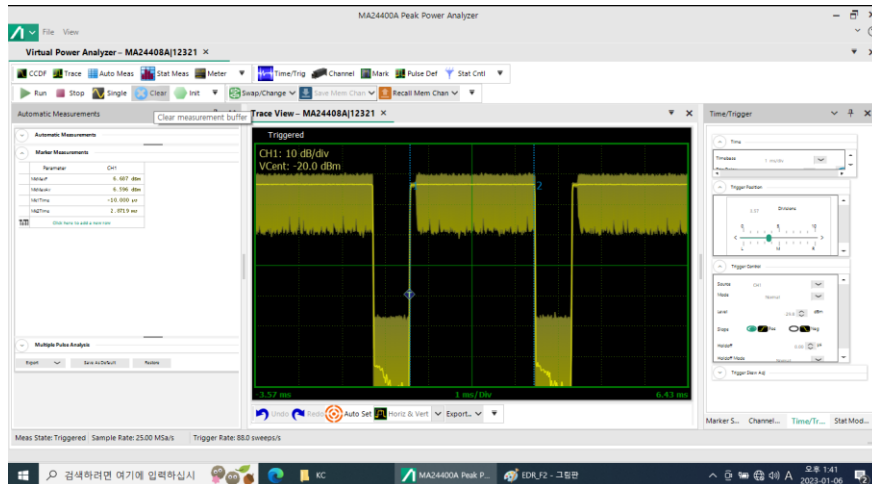
Ch.1: 2402MHz



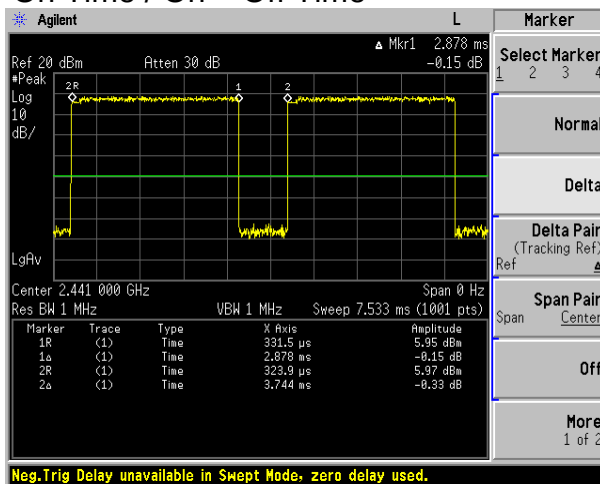
Ch.40: 2441MHz



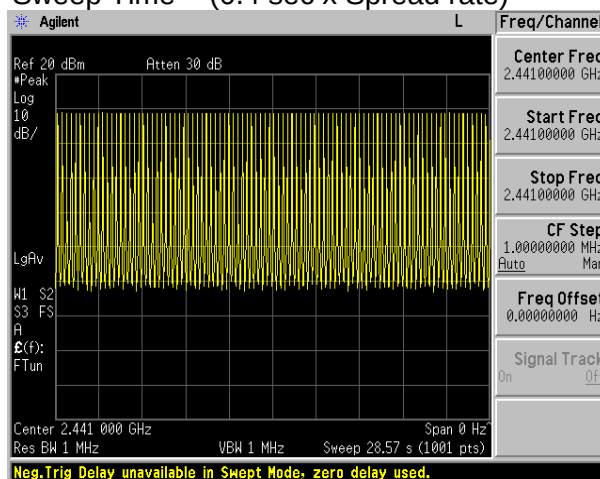
Ch.79: 2480MHz



On Time / On + Off Time



Sweep Time = (0.4 sec x Spread rate)



BDR AFH

The screenshot shows the MA24400A Peak Power Analyzer software interface. The main window displays a triggered waveform on a grid. The waveform is a square pulse with a high level and a low level. The grid has a vertical scale of 10 dB/div and a horizontal scale of 10.0 dBm. The waveform is labeled "Triggered" and "CH1: 10 dB/div VCent: -10.0 dBm". The interface includes various measurement tools and settings on the left and right sides.

Virtual Power Analyzer - MA2440A|12321 X

Automatic Measurements

Marker Measurements

Parameter	Unit
Volt/Div	10.000 dBm
Volt/Sec	10.000 dBm
Vol/Time	2.0000 ps
Vol/Time	2.0000 ps

Multiple Pulse Analysis

Report: [X] Save to Disk: [X] Notes: [X]

Trace View - MA2440A|12321 X

Triggered

CH1: 10 dB/div
VCent: -10.0 dBm

Meas 5.00 ps
Stop 5.00 ps

Meas per Div
Stop per Div

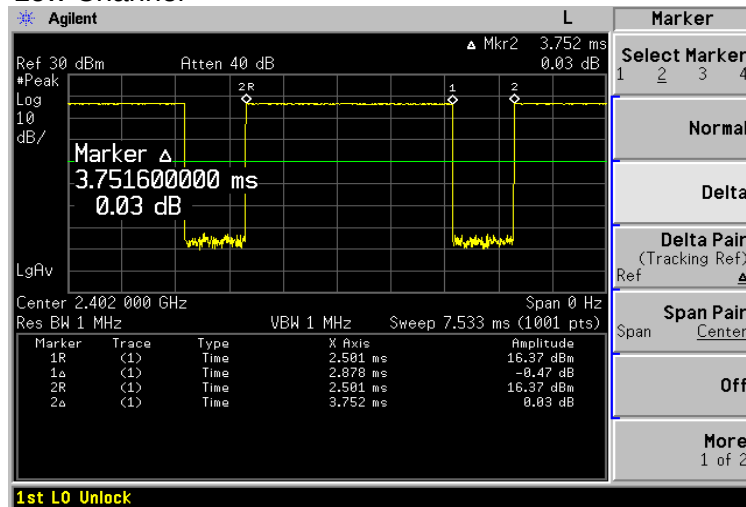
Meas State: Triggered Sample Rate: 10000 MS/s Trigger Rate: 1340 sweeps/s

Marker S... Channel... Time/Trig... Stat Mo...

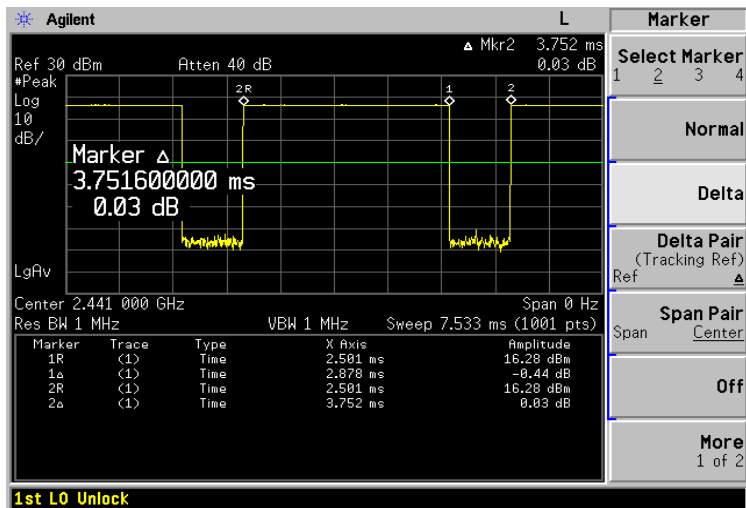
The screenshot shows the Keysight M24400A Peak Power Analyzer software interface. The main window displays a triggered waveform on a grid. The waveform is a narrow pulse with a peak level of approximately 10 dBm. The display shows "CH1: 10 dB/div" and "VCent: -10.0 dBm". The status bar at the bottom indicates "Meas State: Triggered", "Sample Rate: 100.00 MS/s", and "Trigger Rate: 134.0 sweeps/s". The interface includes various control panels for measurements, settings, and data export.

$$\text{Sweep Time} = (0.4 \text{ sec} \times \text{Spread rate})$$

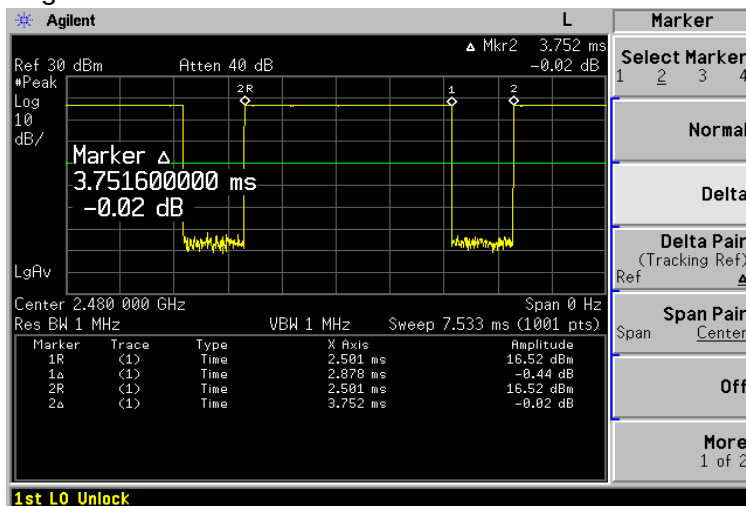
Low Channel



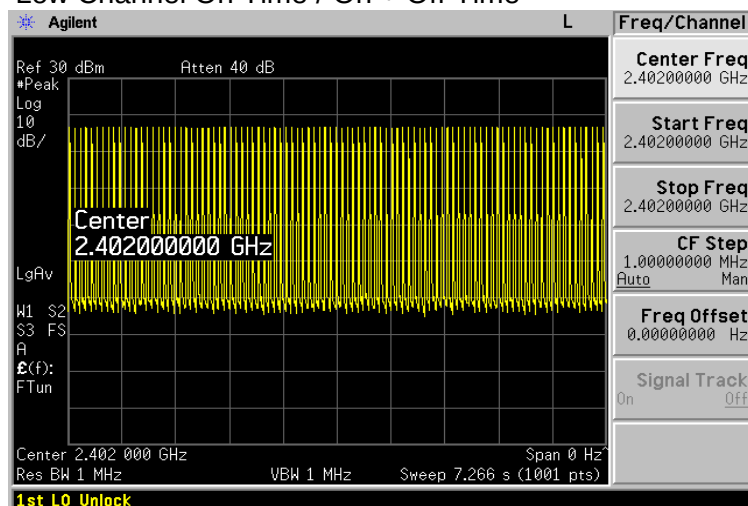
Middle Channel



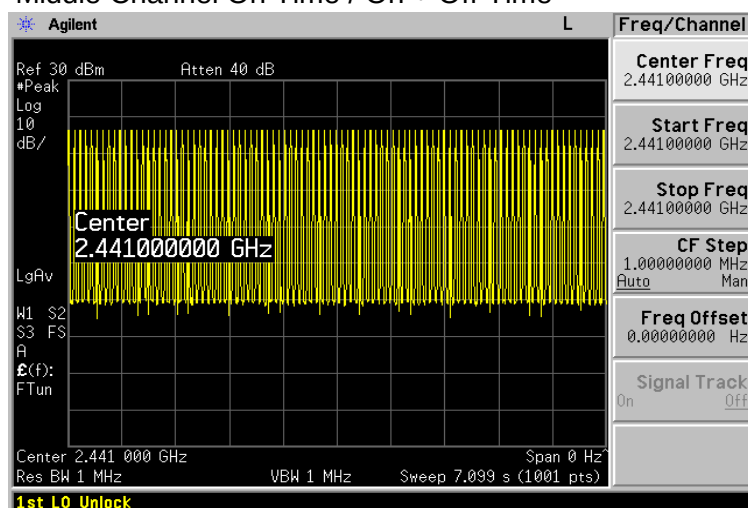
High Channel



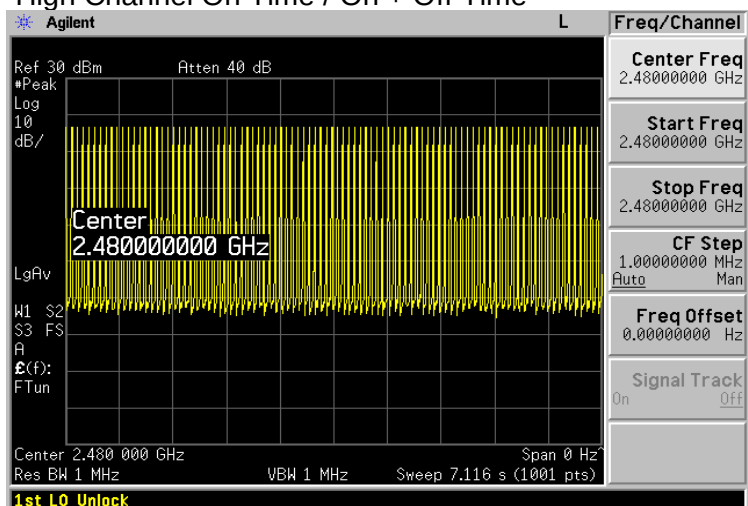
Low Channel On Time / On + Off Time



Middle Channel On Time / On + Off Time



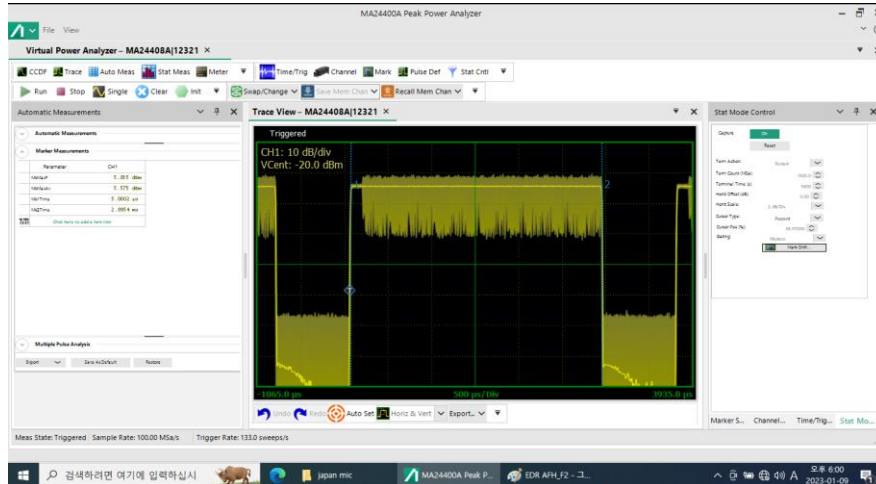
High Channel On Time / On + Off Time



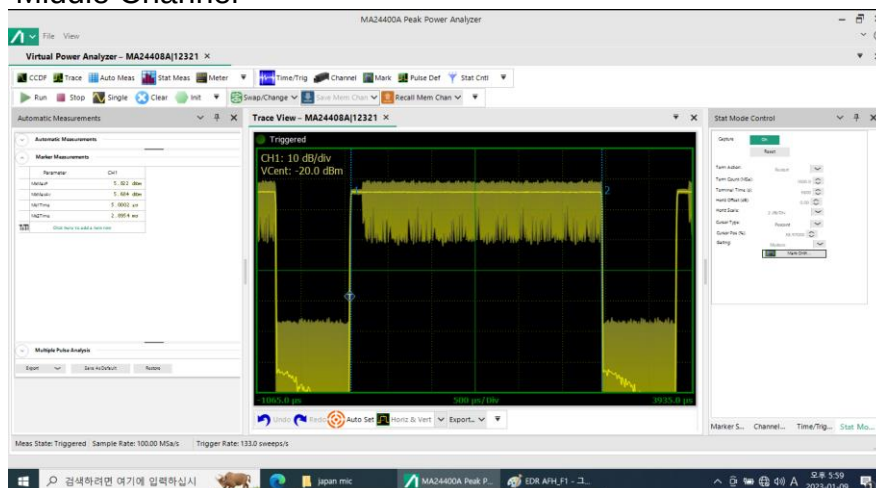
EDR AFH

8.4 空中線電力の偏差 RF output power tolerance

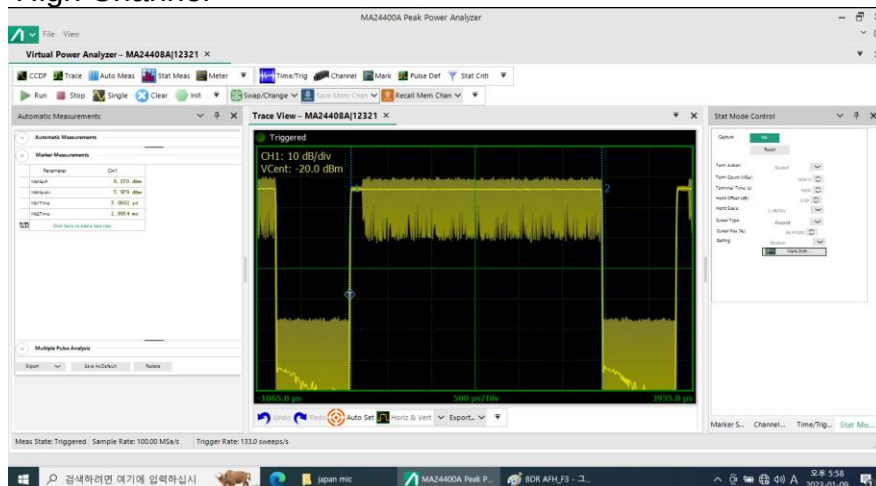
Low Channel



Middle Channel

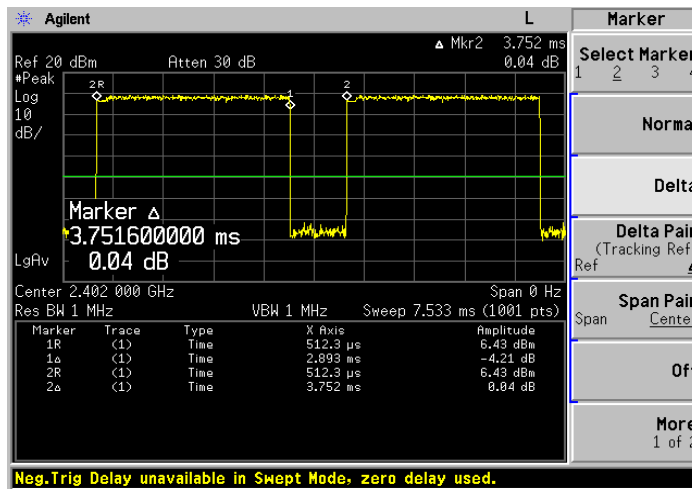


High Channel

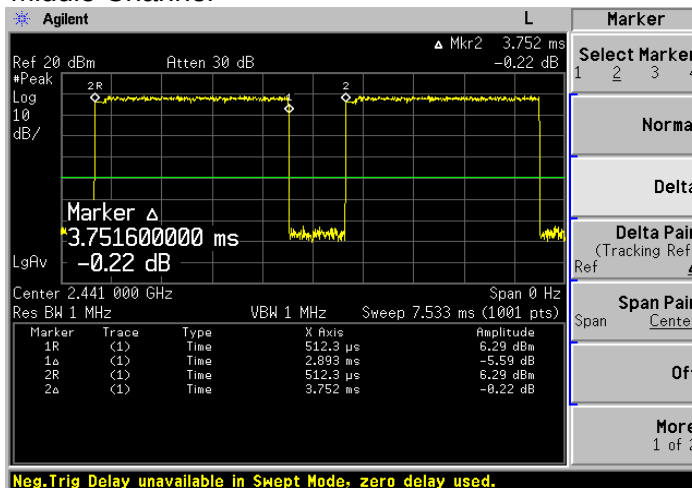


Sweep Time = (0.4 sec x Spread rate)

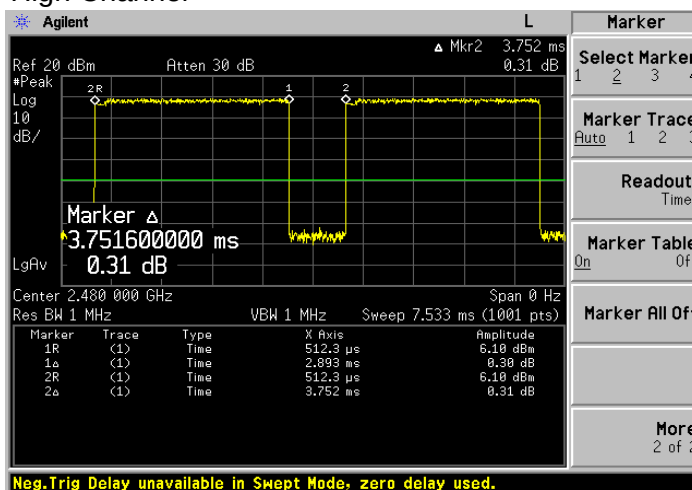
Low Channel



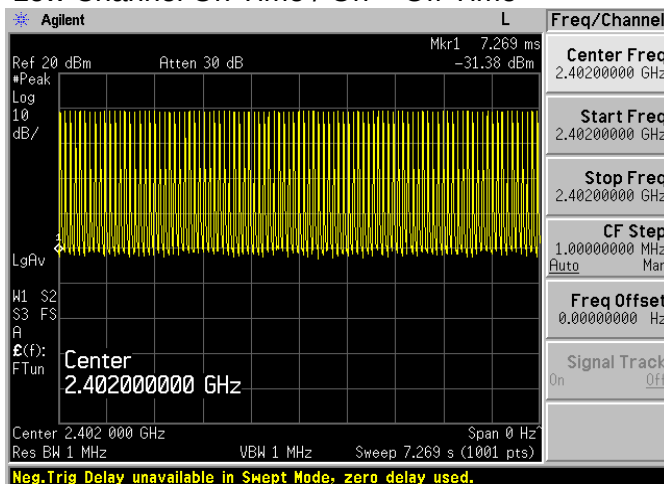
Middle Channel



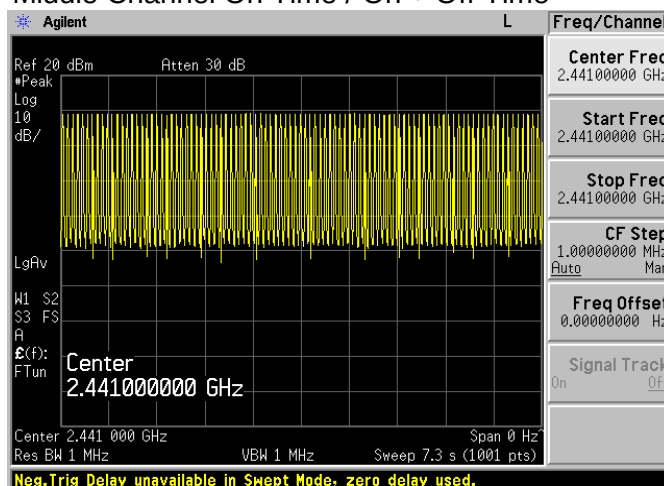
High Channel



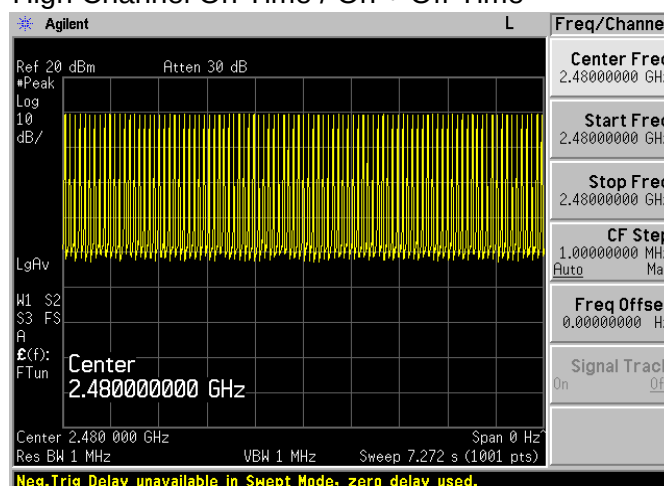
Low Channel On Time / On + Off Time



Middle Channel On Time / On + Off Time



High Channel On Time / On + Off Time

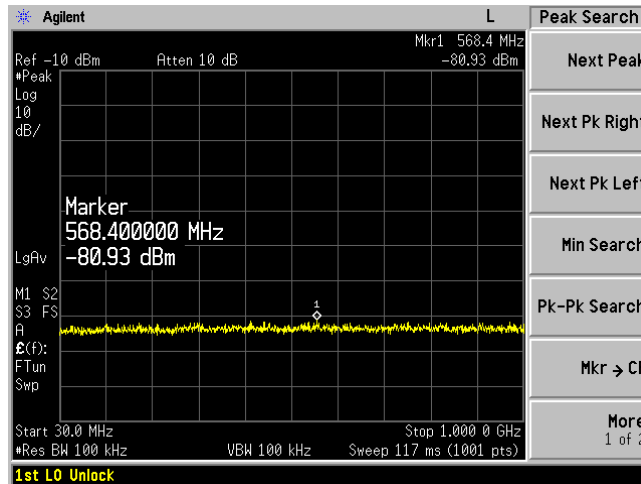


8.5 副次的に発する電波等の限度

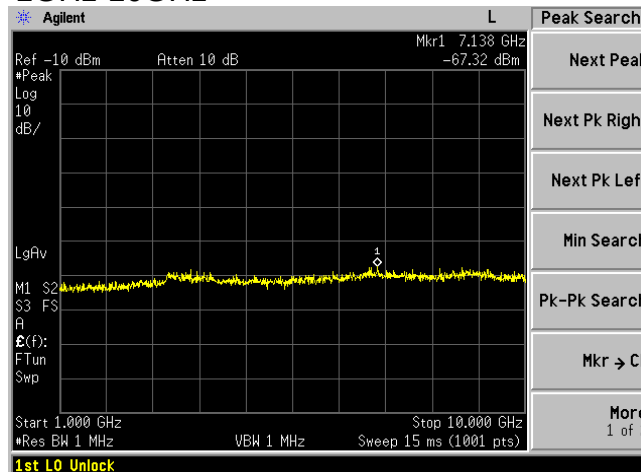
Secondary emitted radio wave strength

BDR

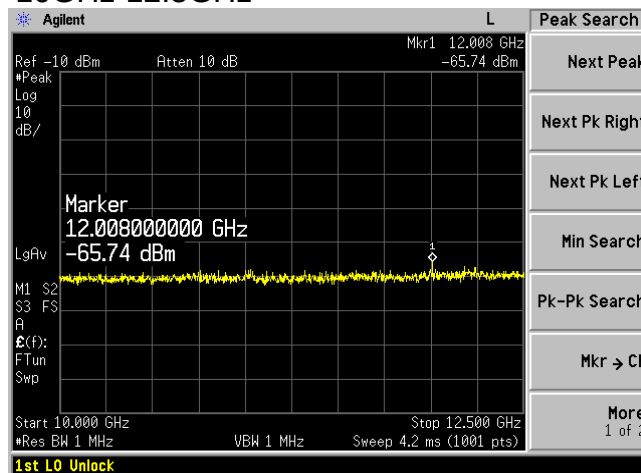
30MHz-1GHz



1GHz-10GHz



10GHz-12.5GHz

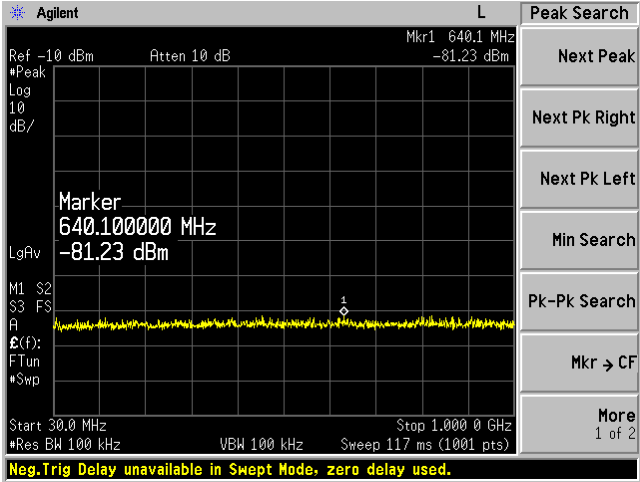


8.5 副次的に発する電波等の限度

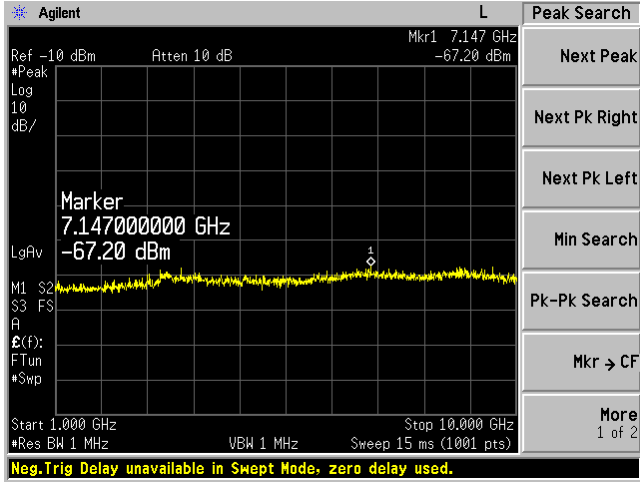
Secondary emitted radio wave strength

EDR

30MHz-1GHz



1GHz-10GHz



10GHz-12.5GHz

