

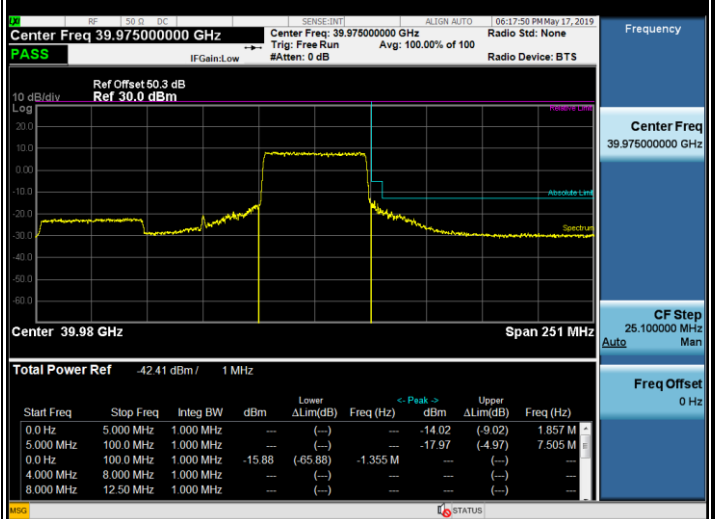
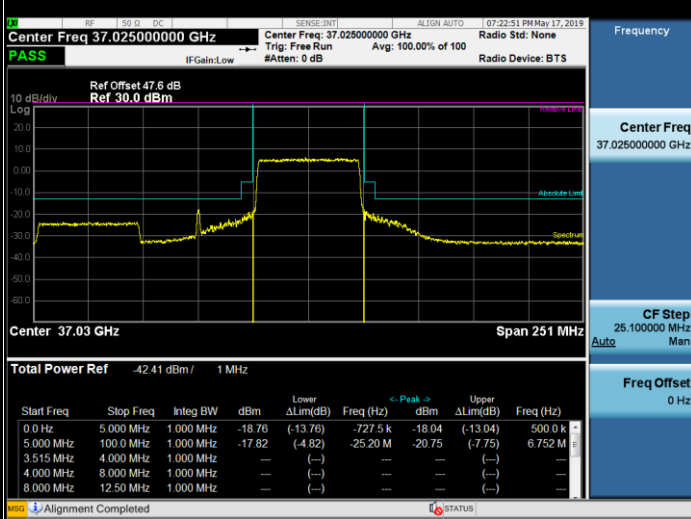


Module 3

NR Band n260 / 50MHz / QPSK

Lowest Band Edge / Full RB

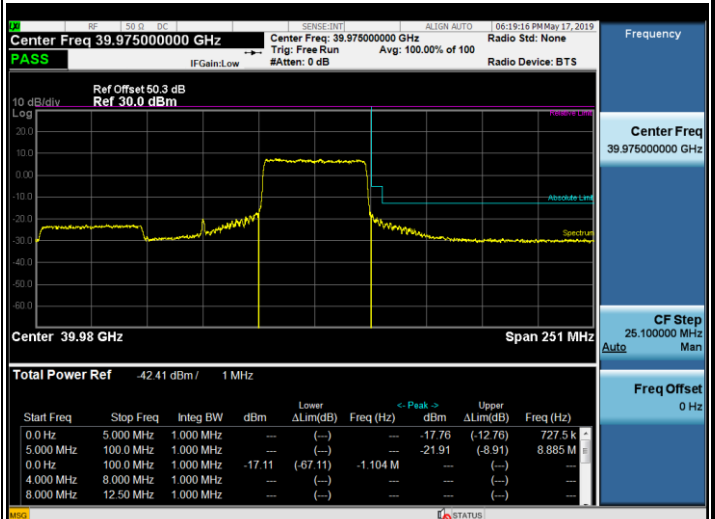
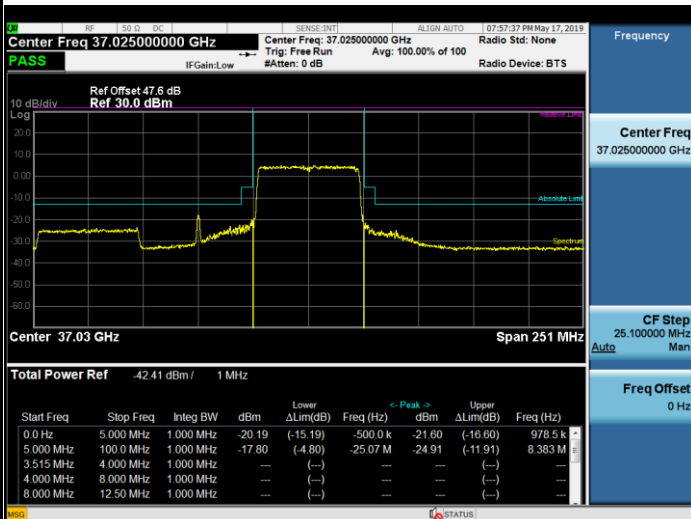
Highest Band Edge / Full RB



NR Band n260 / 50MHz / 16QAM

Lowest Band Edge / Full RB

Highest Band Edge / Full RB

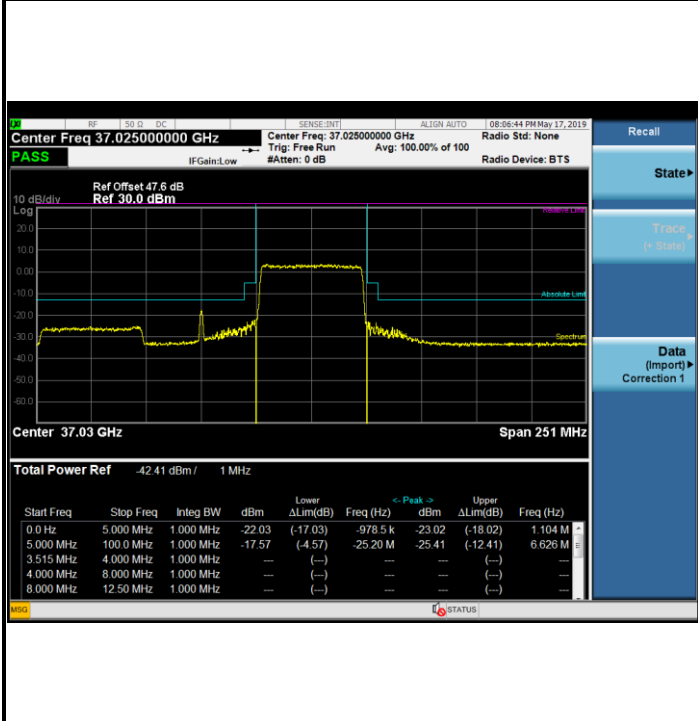




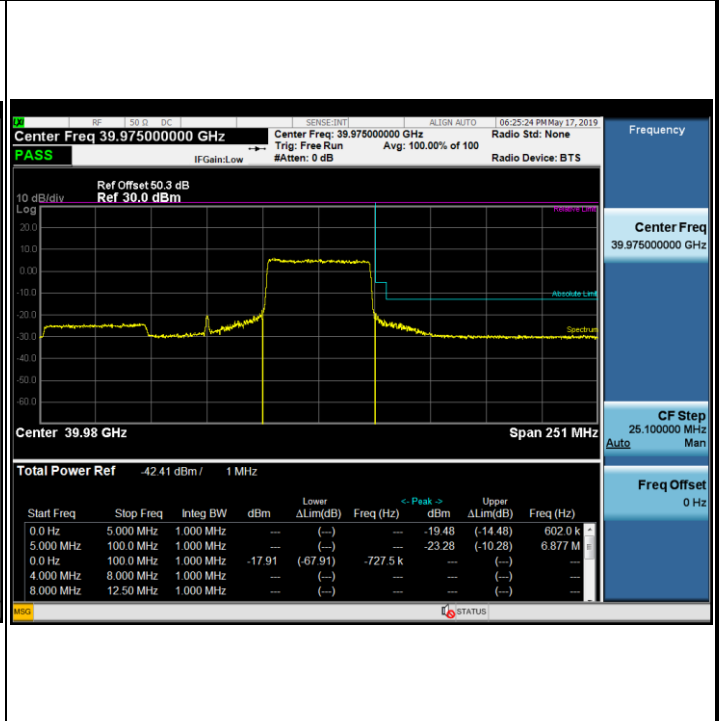
Module 3

NR Band n260 / 50MHz / 64QAM

Lowest Band Edge / Full RB

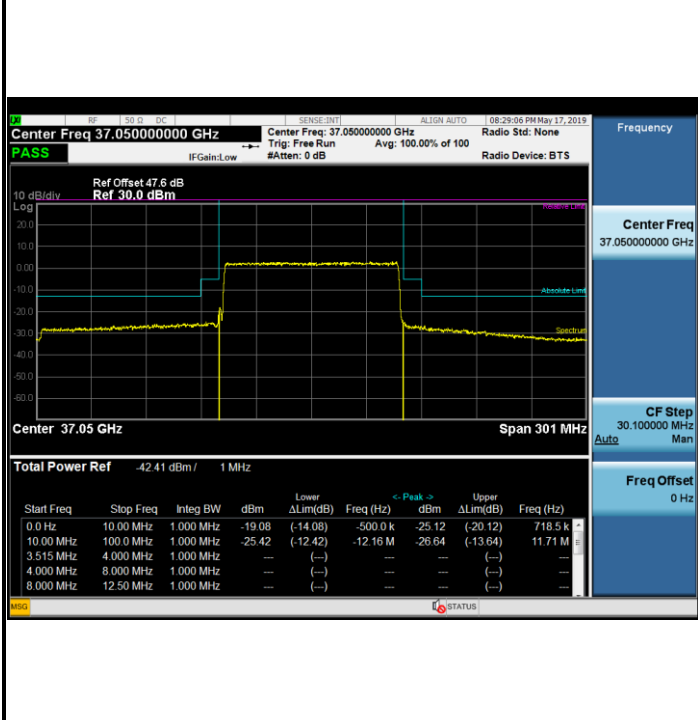


Highest Band Edge / Full RB

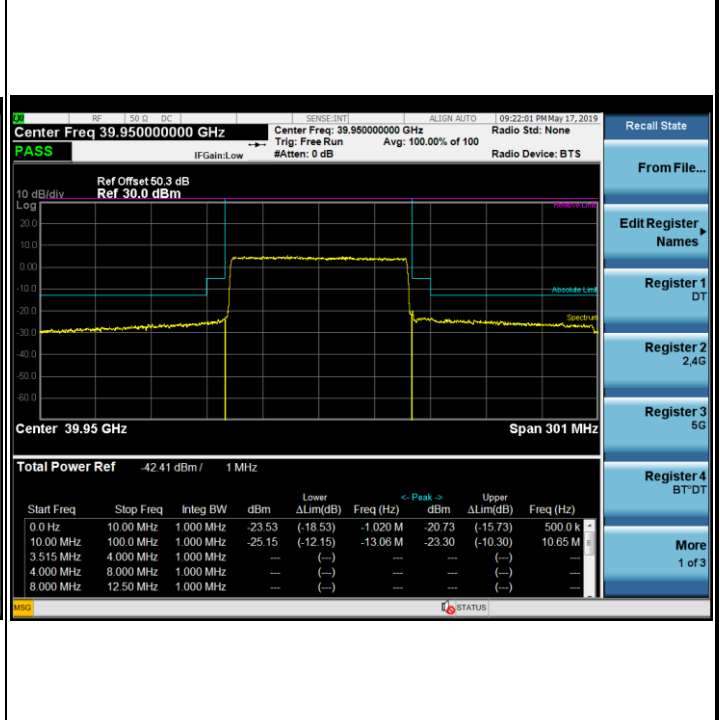


NR Band n260 / 100MHz / QPSK

Lowest Band Edge / Full RB



Highest Band Edge / Full RB



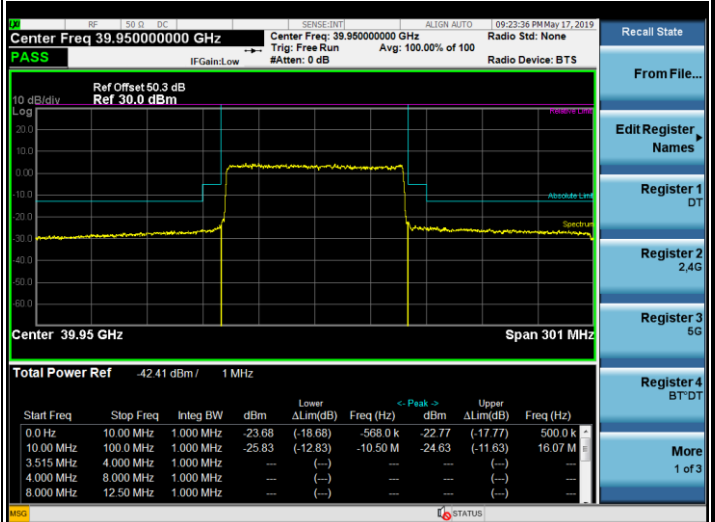
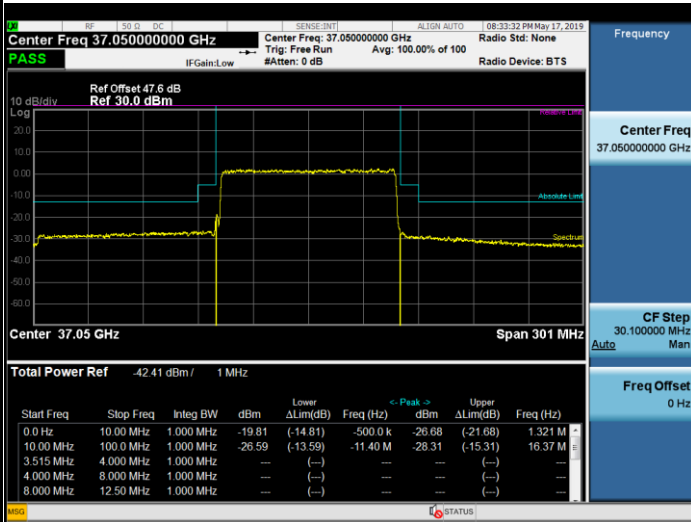


Module 3

NR Band n260 / 100MHz / 16QAM

Lowest Band Edge / Full RB

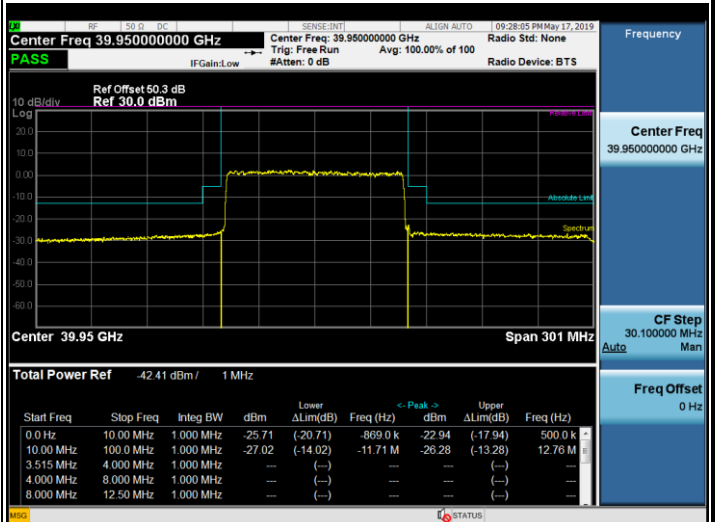
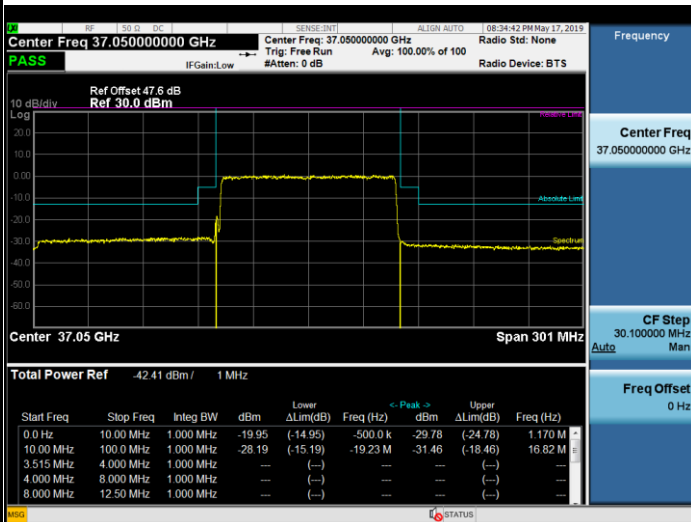
Highest Band Edge / Full RB



NR Band n260 / 100MHz / 64QAM

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



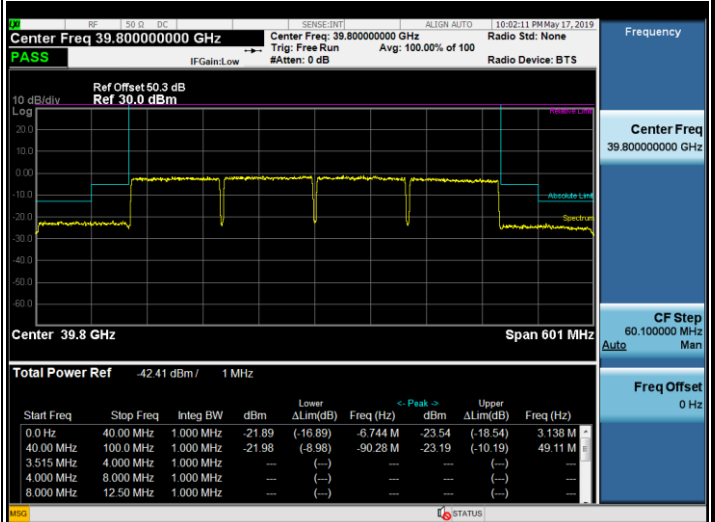
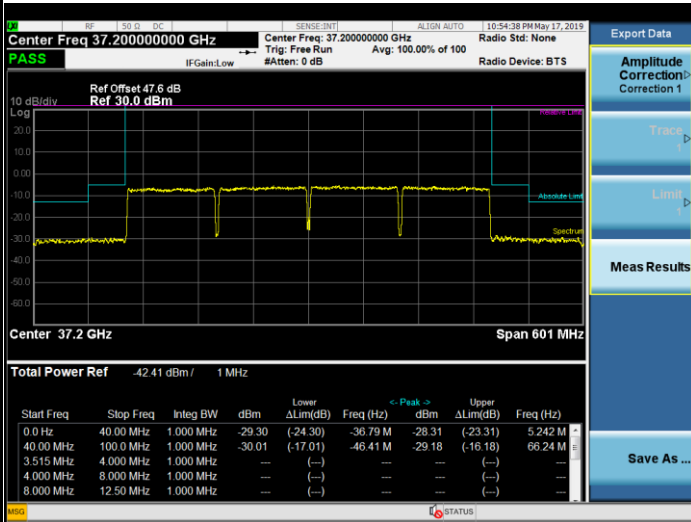


Module 3

NR Band n260 / 400MHz / QPSK

Lowest Band Edge / Full RB

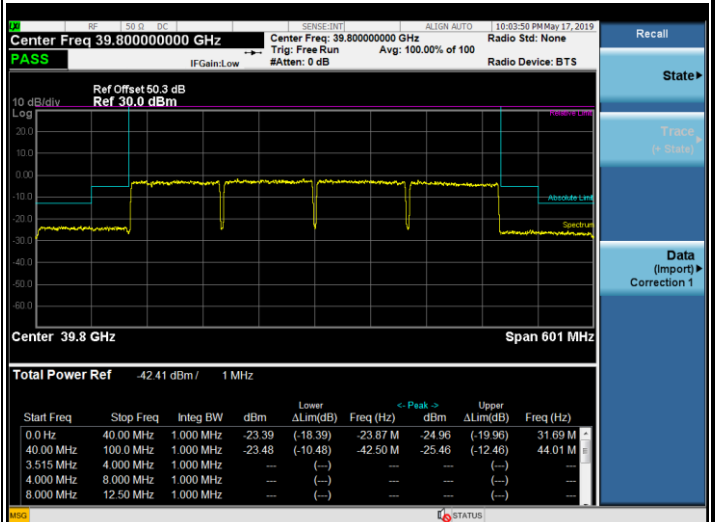
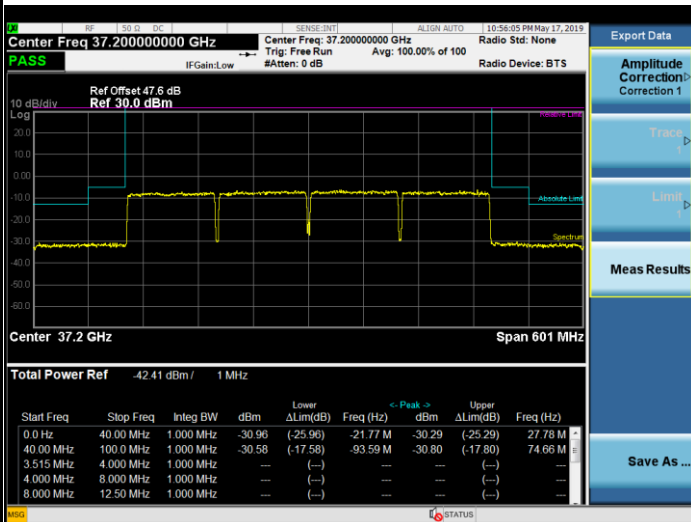
Highest Band Edge / Full RB



NR Band n260 / 400MHz / 16QAM

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



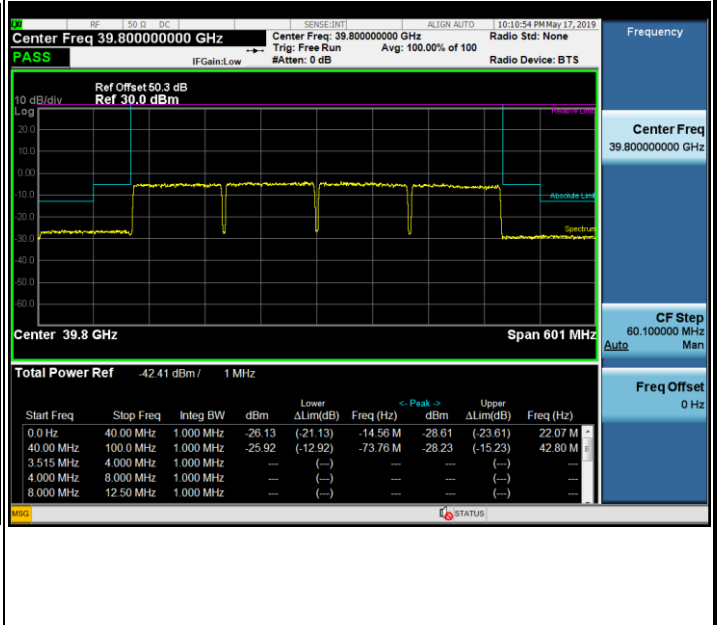
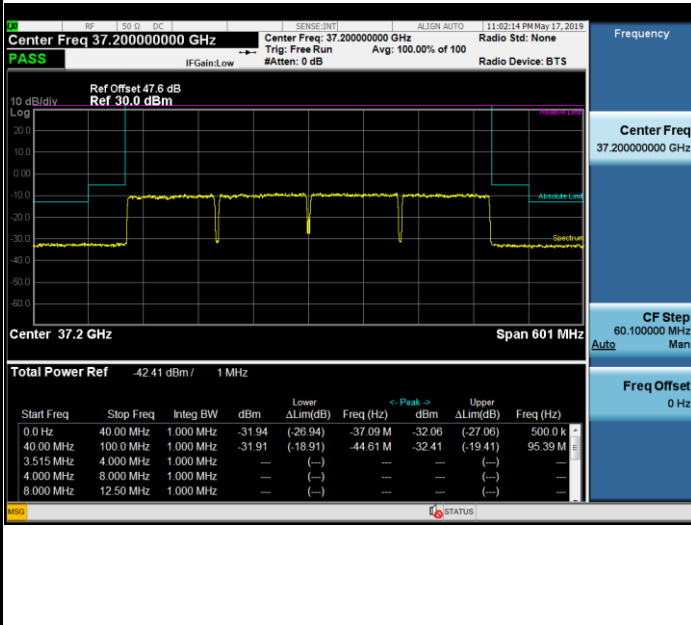


Module 3

NR Band n260 / 400MHz / 64QAM

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



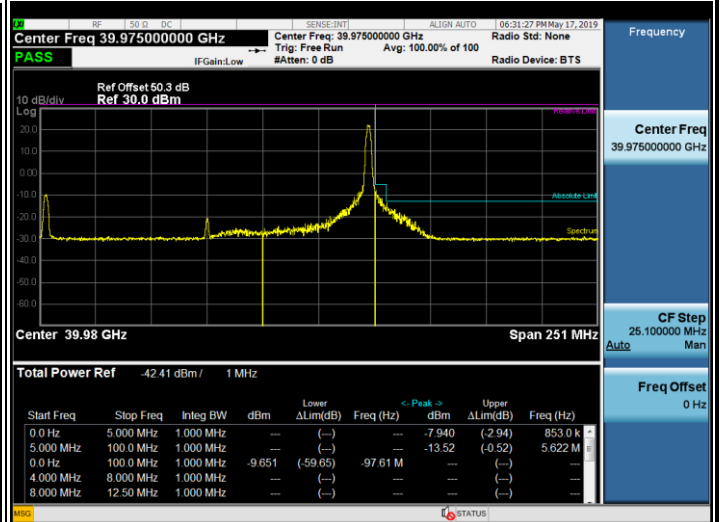
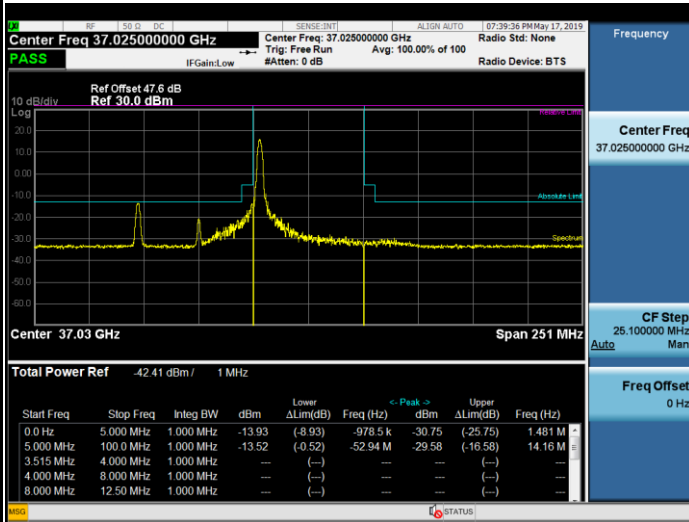


Module 3

NR Band n260 / 50MHz / QPSK

Lowest Band Edge / 1RB

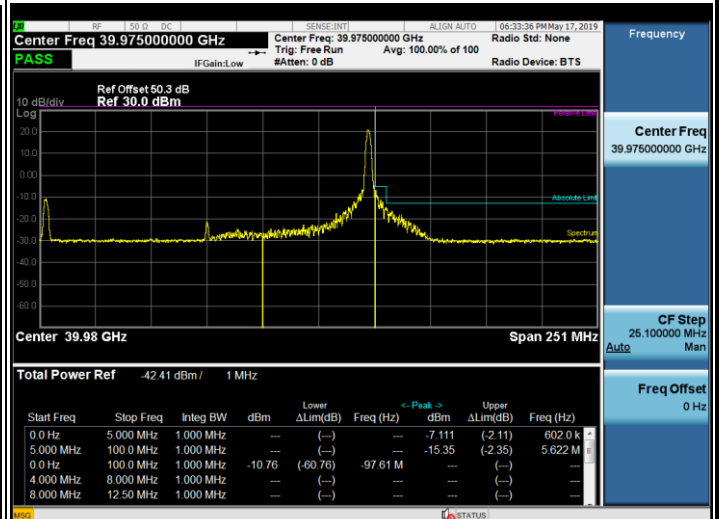
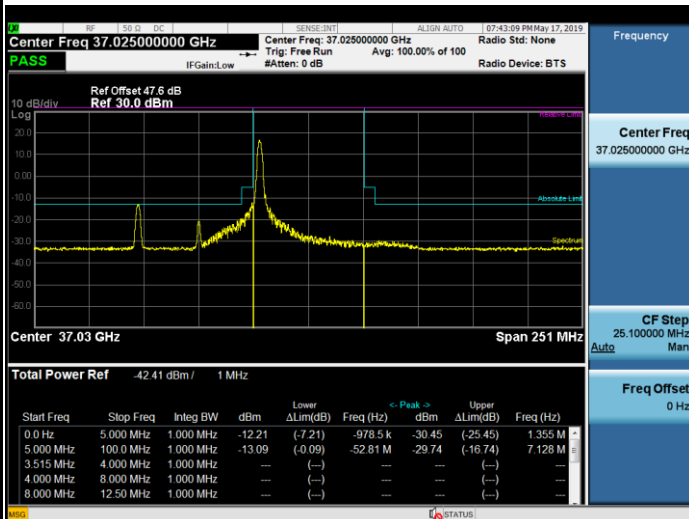
Highest Band Edge / 1RB



NR Band n260 / 50MHz / 16QAM

Lowest Band Edge / 1RB

Highest Band Edge / 1RB



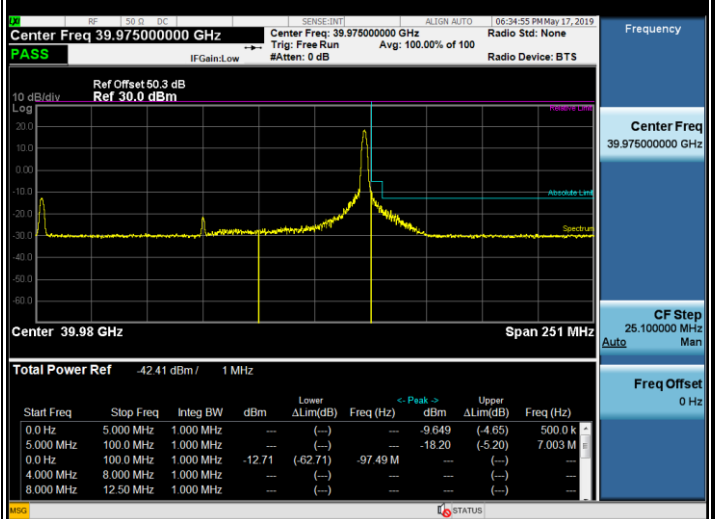
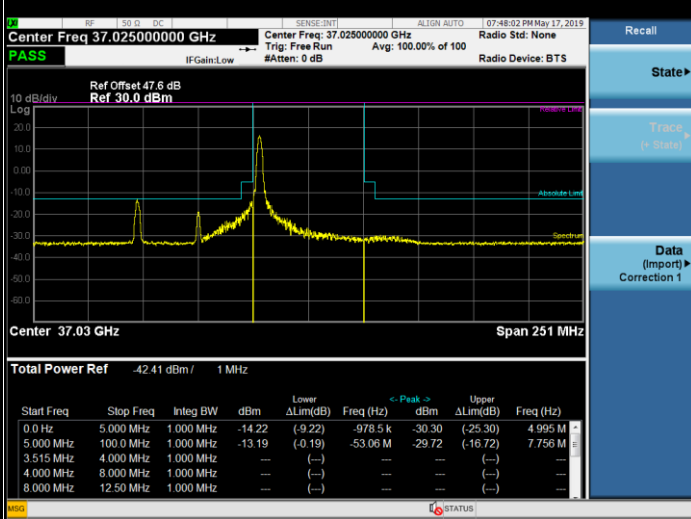


Module 3

NR Band n260 / 50MHz / 64QAM

Lowest Band Edge / 1RB

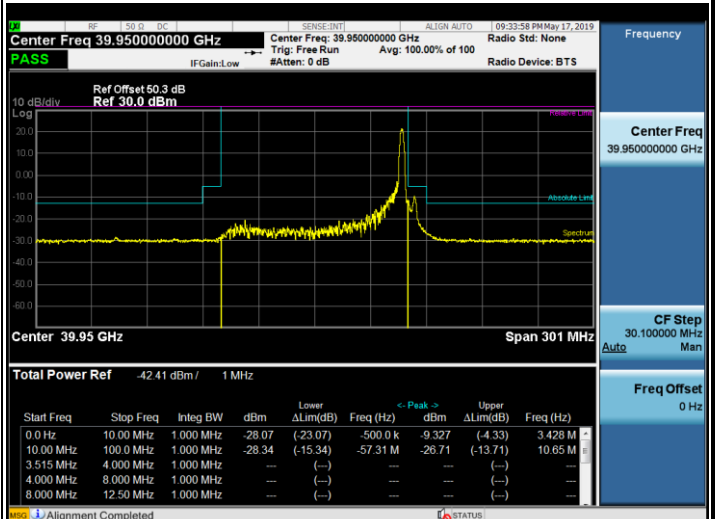
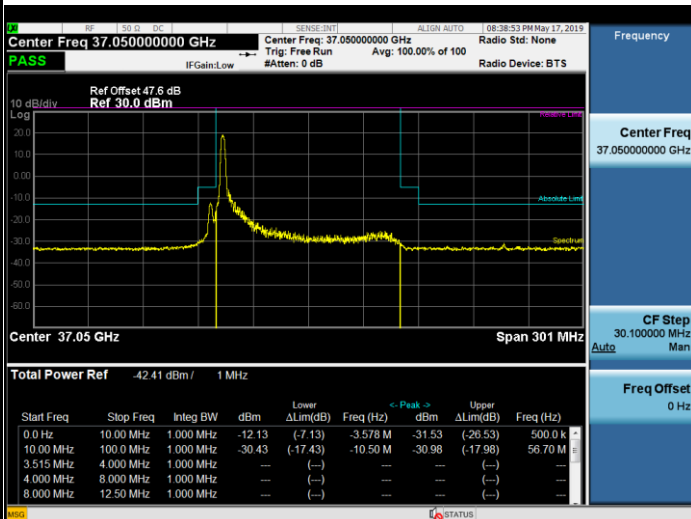
Highest Band Edge / 1RB



NR Band n260 / 100MHz / QPSK

Lowest Band Edge / 1RB

Highest Band Edge / 1RB

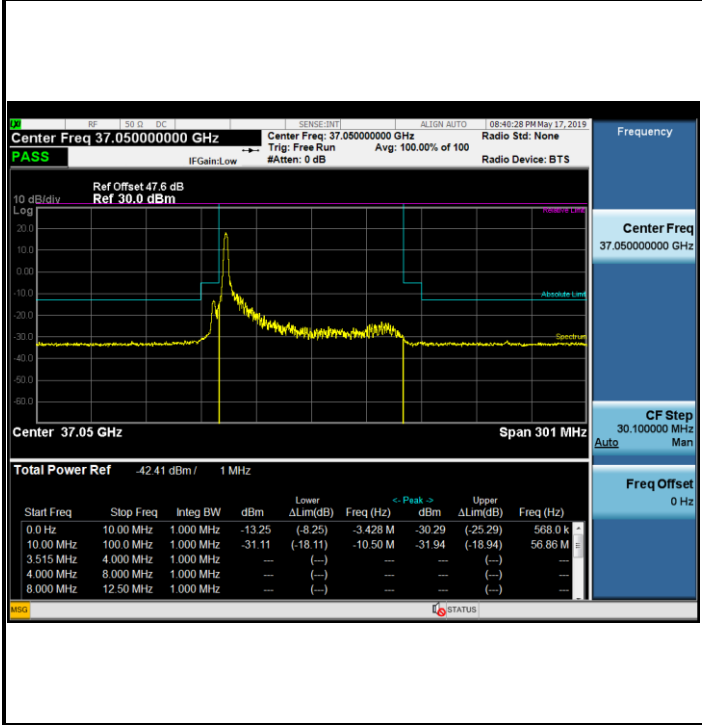




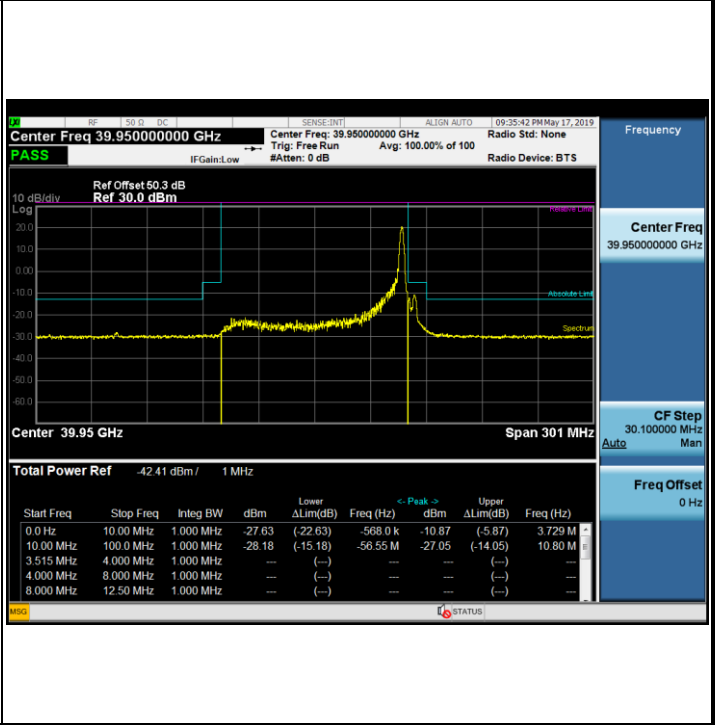
Module 3

NR Band n260 / 100MHz / 16QAM

Lowest Band Edge / 1RB

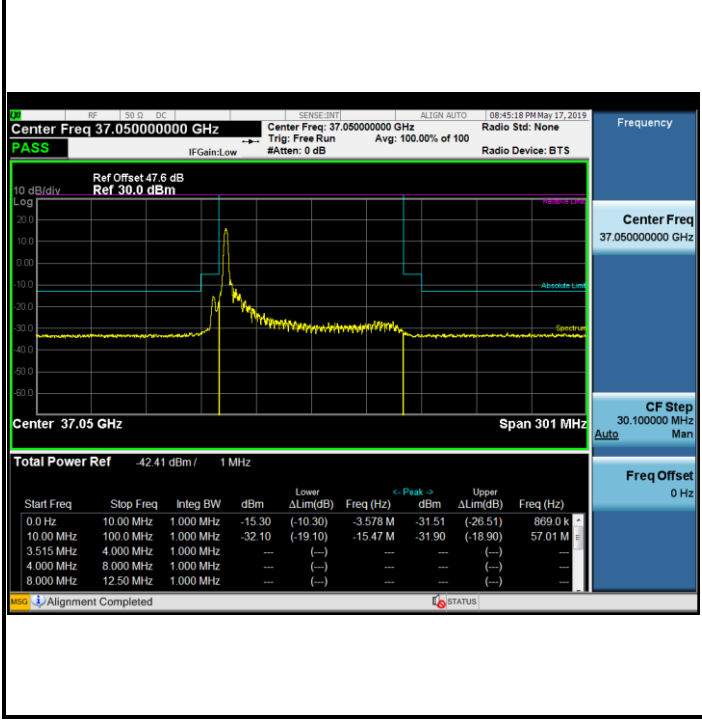


Highest Band Edge / 1RB

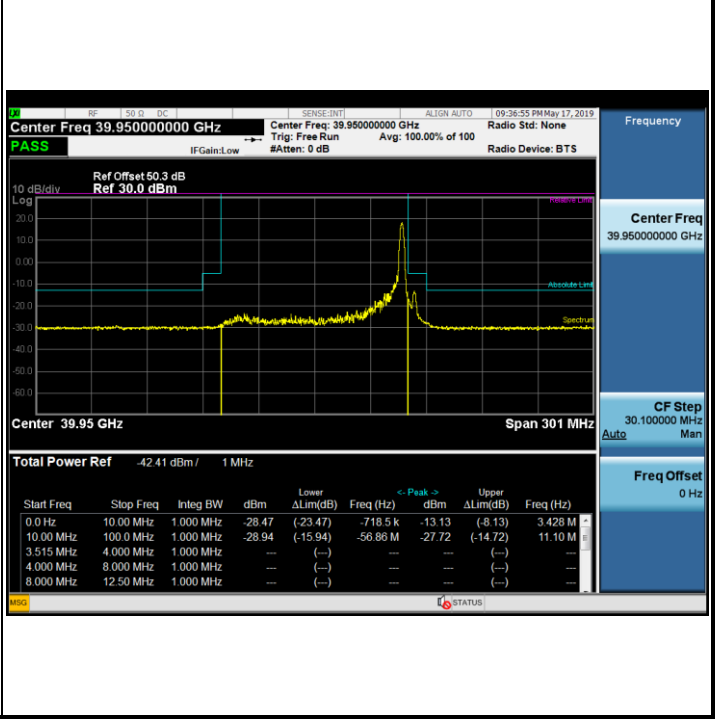


NR Band n260 / 100MHz / 64QAM

Lowest Band Edge / 1RB



Highest Band Edge / 1RB





TRP measurement – NR Band n260 / 100MHz / 1RB							
θ (degree)	EIRP Horizontal (dBm)	EIRP Vertical (dBm)	EIRP H+V (dBm)	ϕ (degree)	EIRP Horizontal (dBm)	EIRP Vertical (dBm)	EIRP H+V (dBm)
0	-12.32	-30.00	-12.25	0	-27.68	-27.84	-24.75
15	-13.55	-27.19	-13.37	15	-25.85	-27.84	-23.72
30	-15.27	-23.13	-14.61	30	-25.26	-27.84	-23.35
45	-16.99	-17.95	-14.43	45	-24.7	-27.84	-22.98
60	-20.36	-15.26	-14.09	60	-20.78	-27.84	-20.00
75	-24.29	-13.99	-13.60	75	-15.59	-27.84	-15.34
90	-27.81	-13.03	-12.89	90	-12.32	-27.84	-12.20
105	-23.6	-11.70	-11.43	105	-15.59	-27.84	-15.34
120	-19.83	-12.03	-11.36	120	-19.96	-27.84	-19.30
135	-17.17	-13.51	-11.96	135	-26.11	-27.84	-23.88
150	-15.40	-16.30	-12.82	150	-25.43	-27.84	-23.46
165	-13.96	-20.25	-13.04	165	-22.91	-27.84	-21.70
180	-13.23	-25.07	-12.95	180	-27.84	-27.84	-24.83
195	-14.24	-27.82	-14.05	195	-27.84	-27.84	-24.83
210	-16.38	-21.76	-15.27	210	-27.84	-27.84	-24.83
225	-18.45	-18.23	-15.33	225	-27.84	-27.84	-24.83
240	-22.12	-15.23	-14.42	240	-27.84	-27.84	-24.83
255	-25.01	-13.98	-13.65	255	-27.84	-27.84	-24.83
270	-28.06	-13.41	-13.26	270	-27.84	-27.84	-24.83
285	-24.35	-12.49	-12.22	285	-27.84	-27.84	-24.83
300	-21.84	-13.31	-12.74	300	-27.84	-27.84	-24.83
315	-18.88	-13.58	-12.46	315	-27.84	-27.84	-24.83
330	-16.44	-16.42	-13.42	330	-27.84	-27.84	-24.83
345	-15.48	-18.97	-13.87	345	-27.84	-27.84	-24.83
Average EIRP (θ)	-13.18 dBm			Average EIRP (ϕ)	-20.53 dBm		
Measured TRP = -14.46dBm/MHz				TRP Limit = -13dBm/MHz			
Verdict				Pass			

Note 1: $EIRP_{H+V} = 10 \times \log [10^{(EIRP_{Horizontal} / 10)} + 10^{(EIRP_{Vertical} / 10)}]$

Note 2: $Measured\ TRP = 10 \times \log [10^{(Average\ EIRP(\theta) / 10)} + 10^{(Average\ EIRP(\phi) / 10)}] + \Delta TRP$

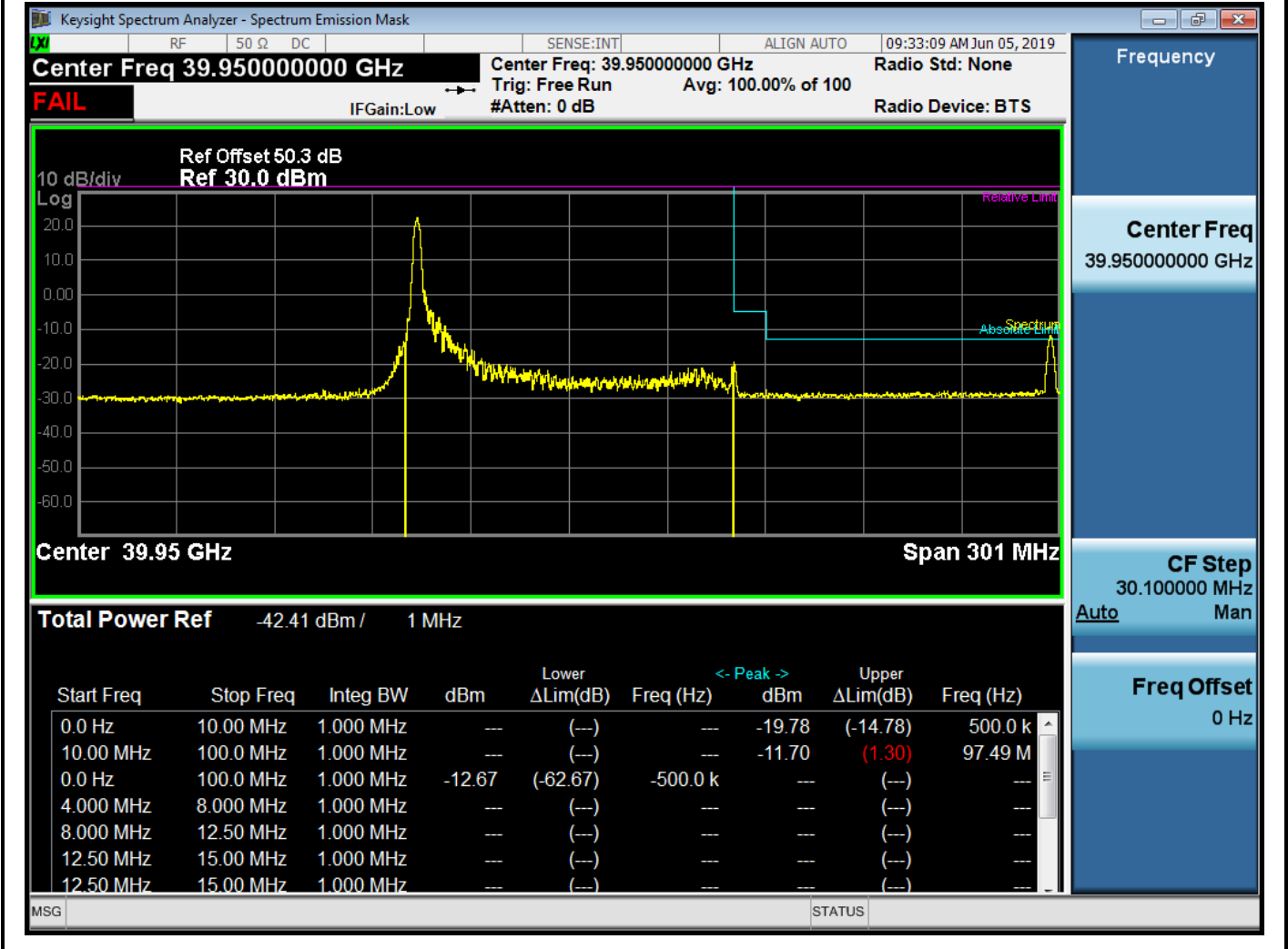


TRP measurement Worst Case Plot

NR Band n260 / 100MHz / 1RB0

$\theta = 105$ degree, Vertical EIRP = -11.70dBm @ 40097MHz

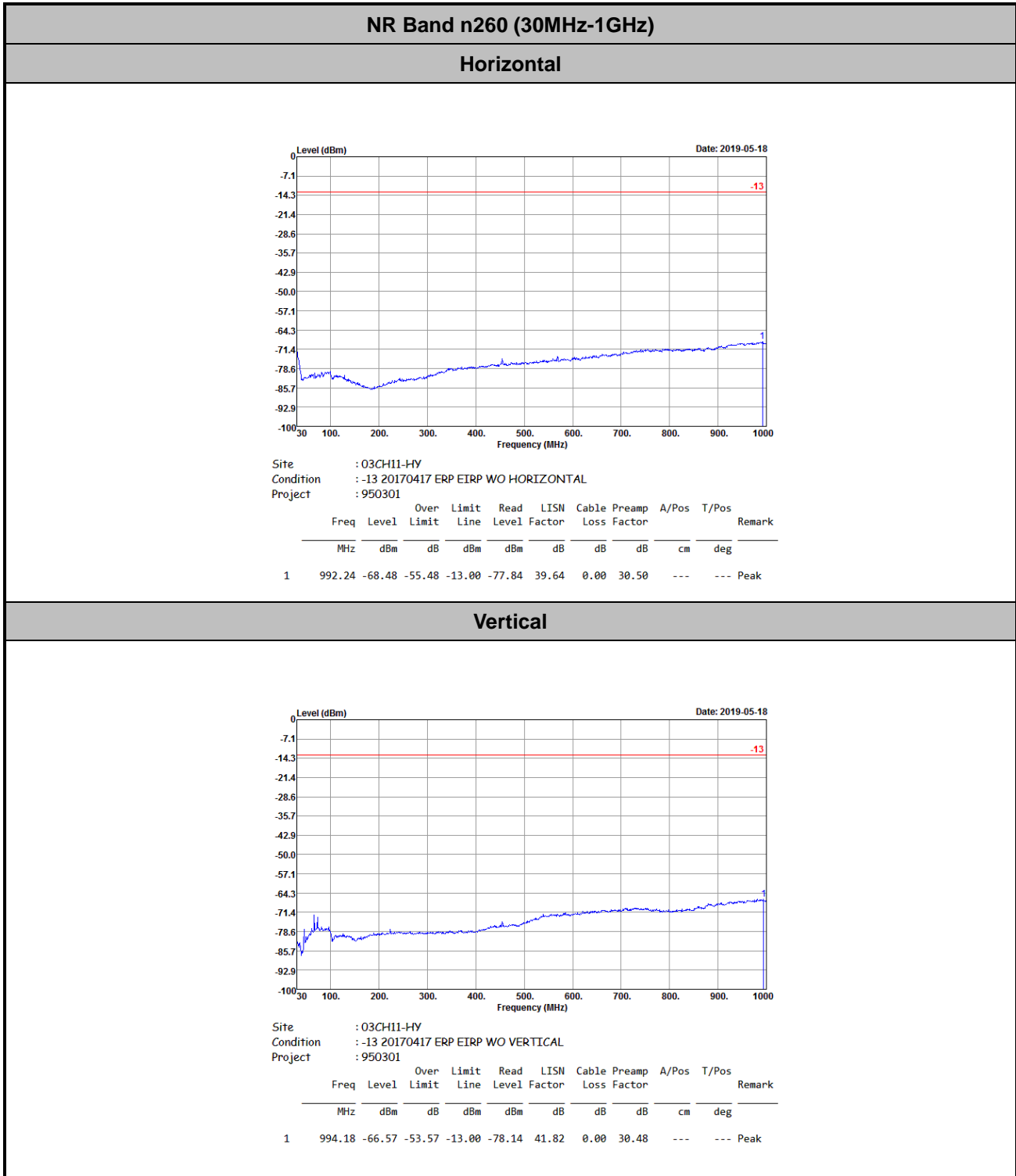
Measured TRP = -14.46dBm/MHz





Spurious Emission

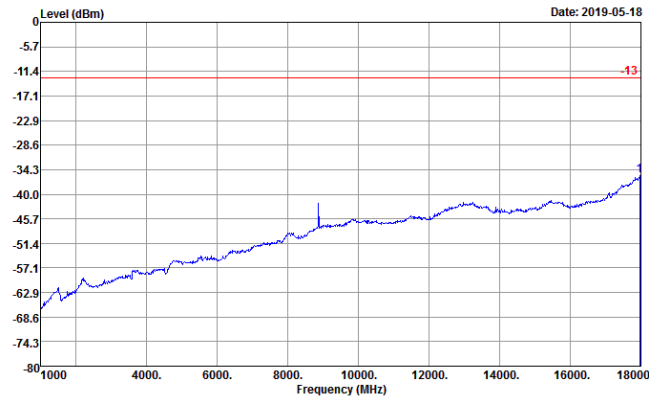
There is no significant spurious emission signal found for frequency started from 9kHz up to 18GHz. Only the noise floor is reported.





NR Band n260 (1GHz-18GHz)

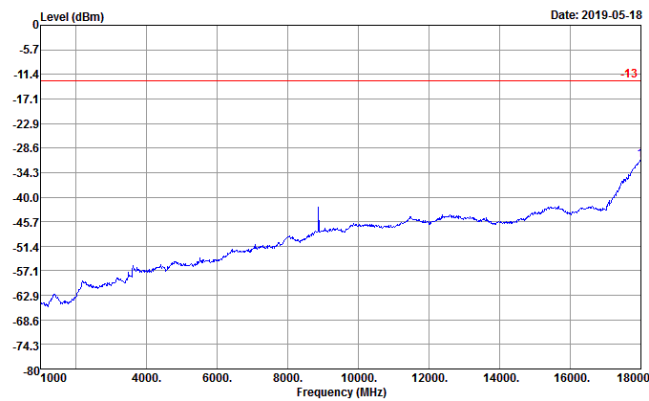
Horizontal



Site : 03CH11-HY
 Condition : -13 20170417 ERP EIRP WO HORIZONTAL
 Project : 950301

Freq	Level	Over	Limit	Read	LISN	Cable	Preamp	A/Pos	T/Pos	Remark
MHz	dBm	dB	dBm	dBm	dB	dB	dB	cm	deg	
1 17966.00	-35.74	-22.74	-13.00	-74.60	74.55	0.00	35.69	---	---	Peak

Vertical



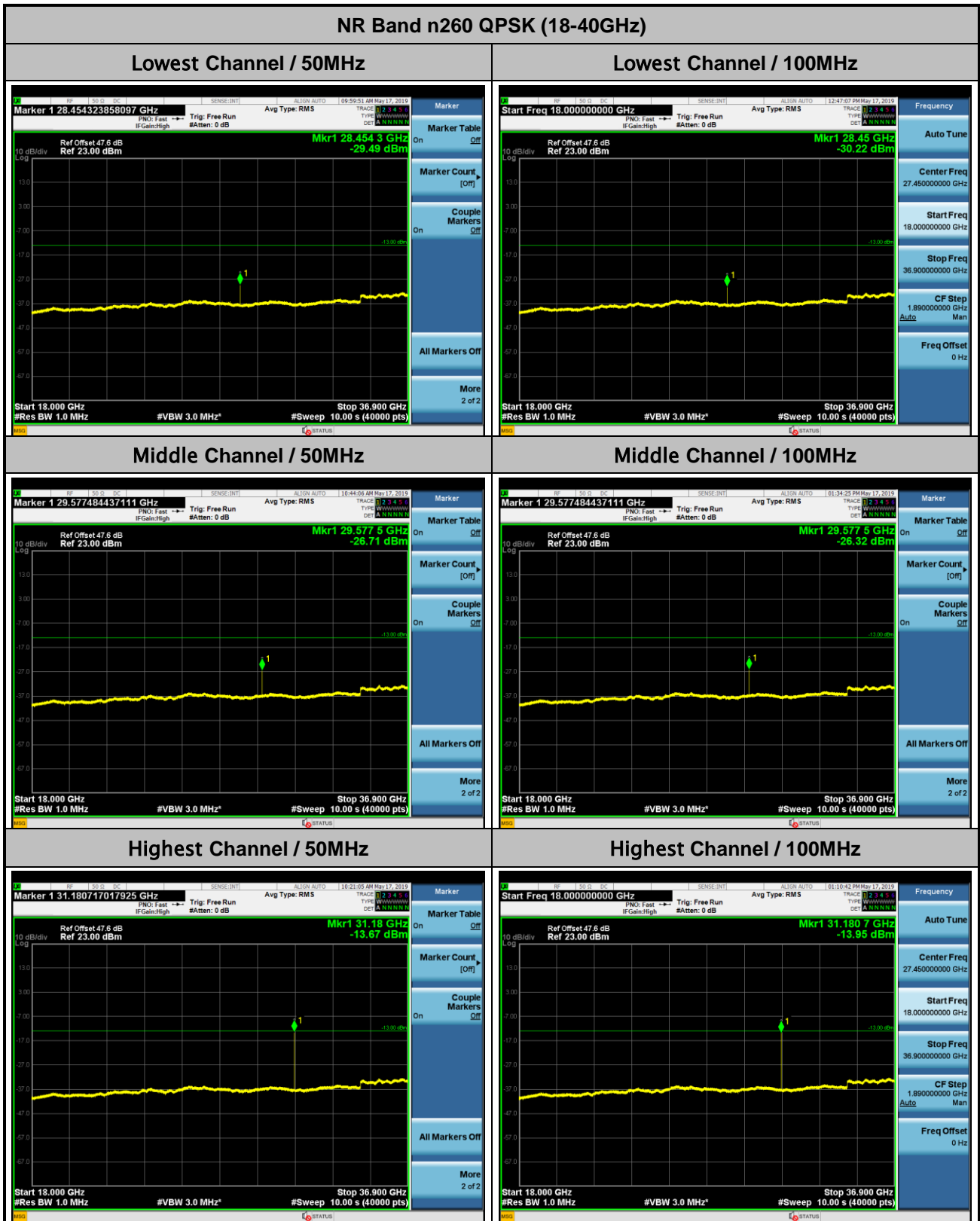
Site : 03CH11-HY
 Condition : -13 20170417 ERP EIRP WO VERTICAL
 Project : 950301

Freq	Level	Over	Limit	Read	LISN	Cable	Preamp	A/Pos	T/Pos	Remark
MHz	dBm	dB	dBm	dBm	dB	dB	dB	cm	deg	
1 18000.00	-31.44	-18.44	-13.00	-75.20	79.45	0.00	35.69	---	---	Peak



Spurious emission between 18GHz to 40GHz worst case plot is reported as following.

Module 0



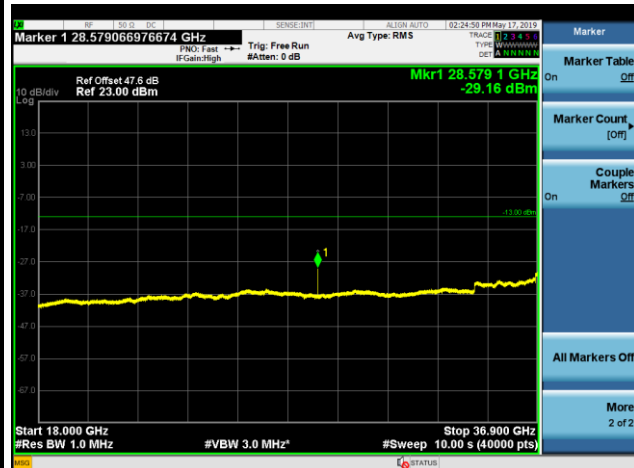
Remark: In band and out of band frequencies are omitted.



Module 0

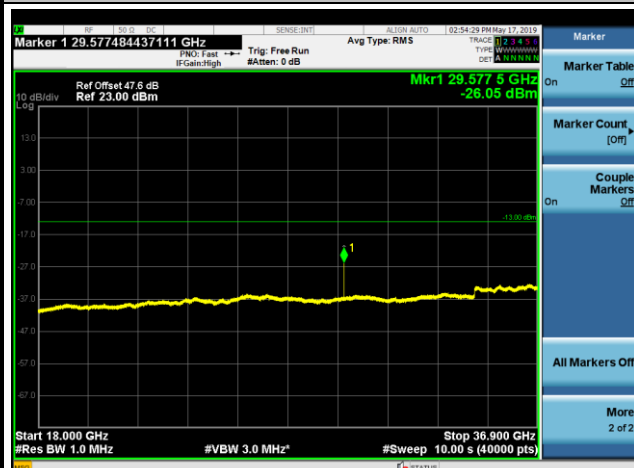
NR Band n260 QPSK (18-40GHz)

Lowest Channel / 400MHz



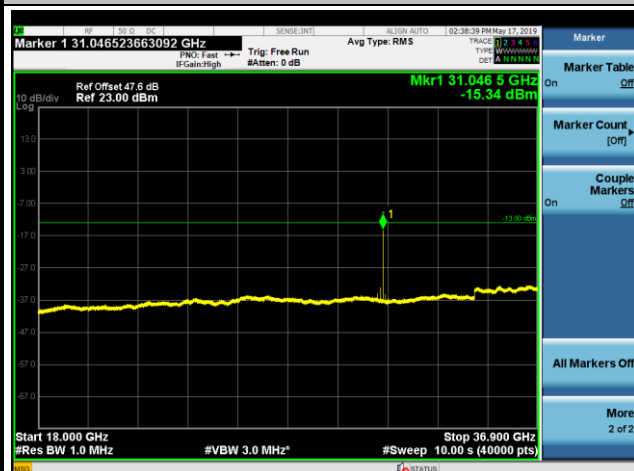
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Middle Channel / 400MHz



intentionally blank

Highest Channel / 400MHz



intentionally blank

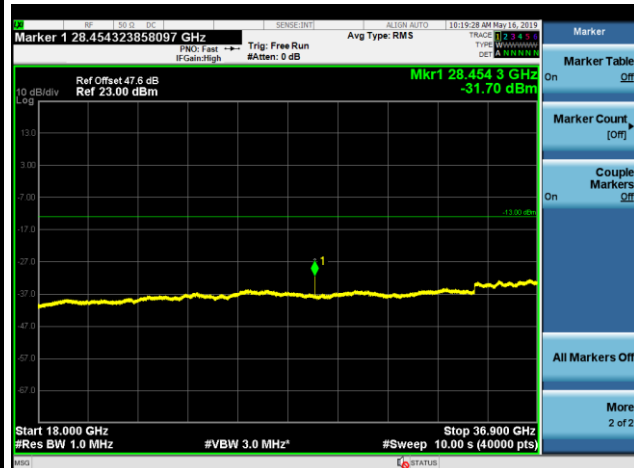
Remark: In band and out of band frequencies are omitted.



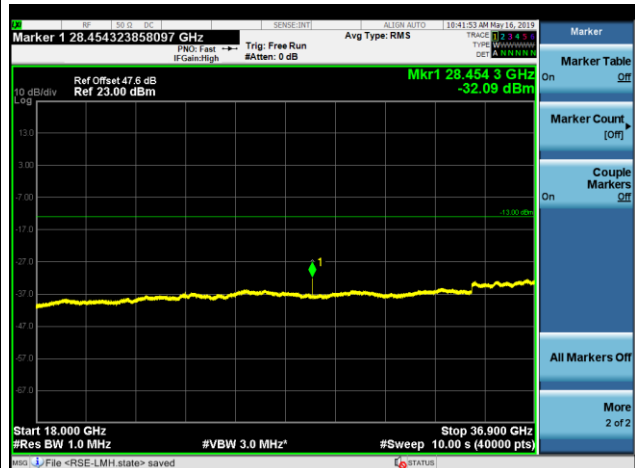
Module 1

NR Band n260 QPSK (18-40GHz)

Lowest Channel / 50MHz



Lowest Channel / 100MHz



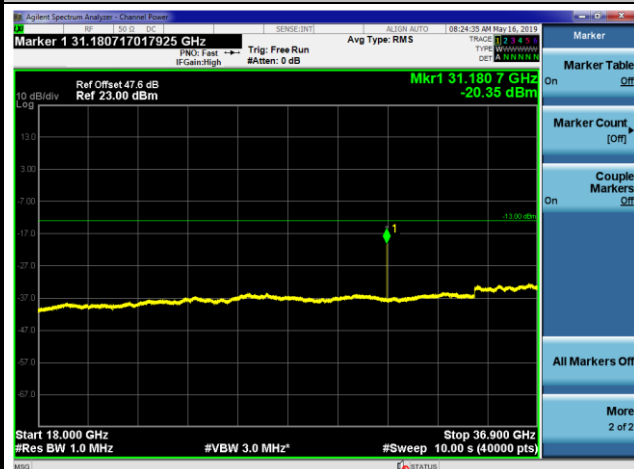
Middle Channel / 50MHz



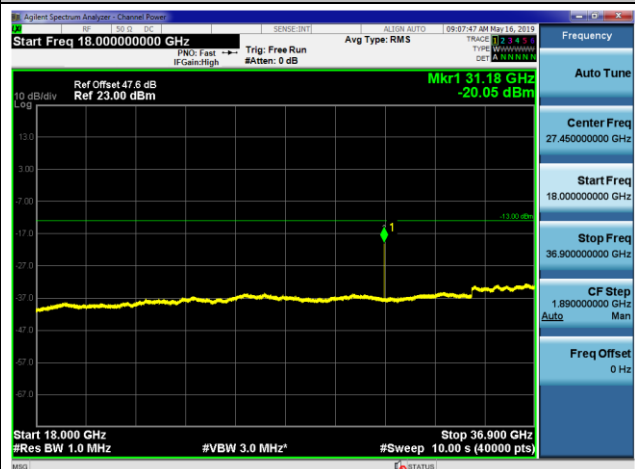
Middle Channel / 100MHz



Highest Channel / 50MHz



Highest Channel / 100MHz



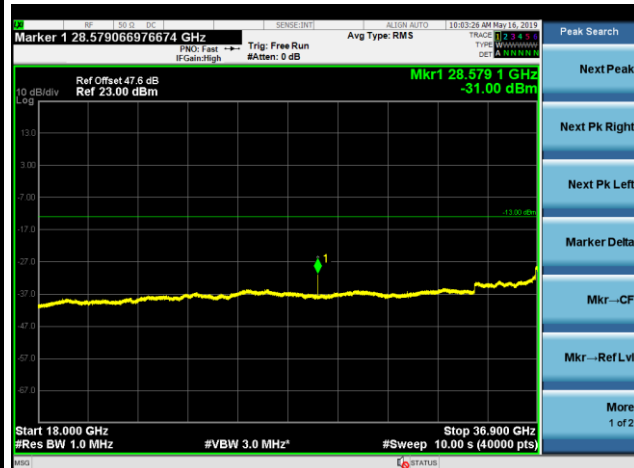
Remark: In band and out of band frequencies are omitted.



Module 1

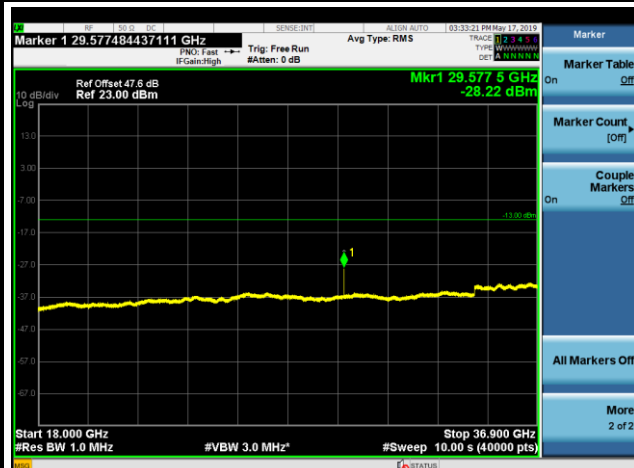
NR Band n260 QPSK (18-40GHz)

Lowest Channel / 400MHz



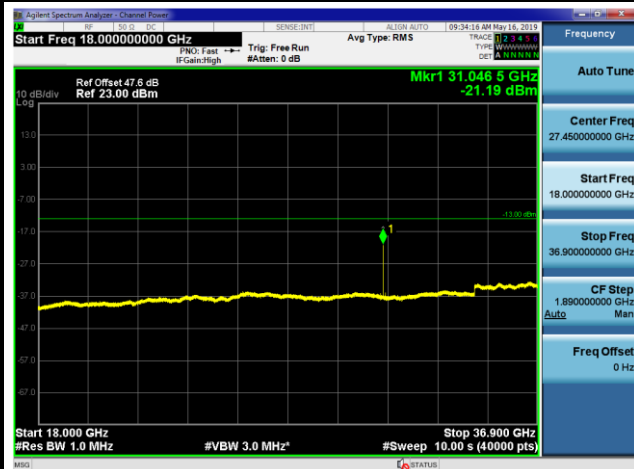
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Middle Channel / 400MHz



intentionally blank

Highest Channel / 400MHz



intentionally blank

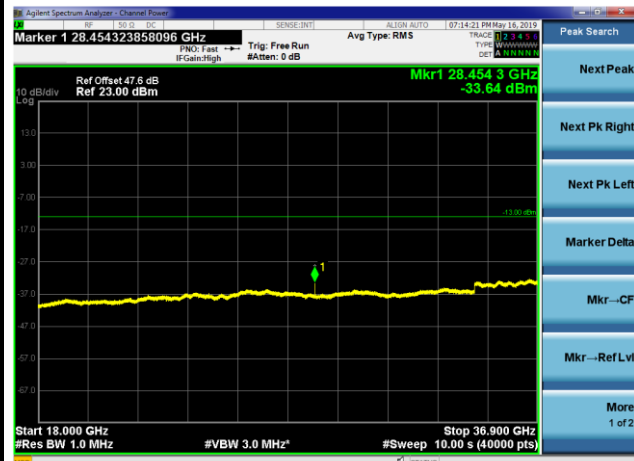
Remark: In band and out of band frequencies are omitted.



Module 2

NR Band n260 QPSK (18-40GHz)

Lowest Channel / 50MHz



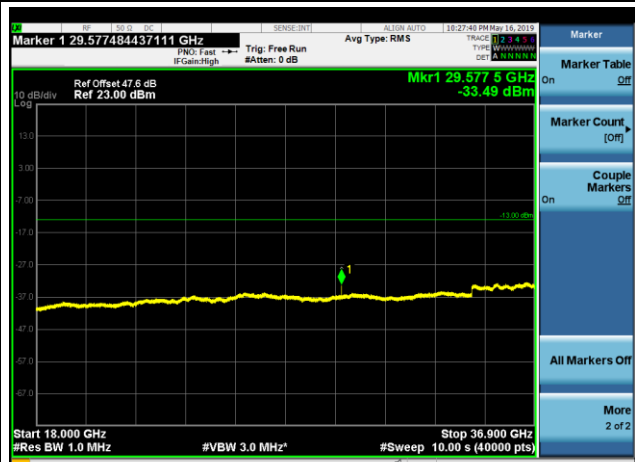
Lowest Channel / 100MHz



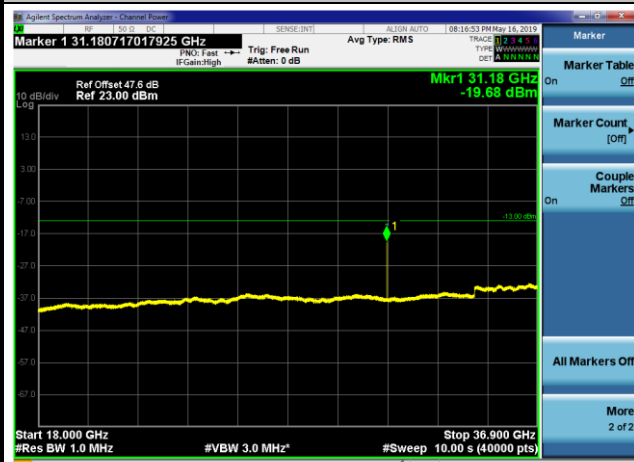
Middle Channel / 50MHz



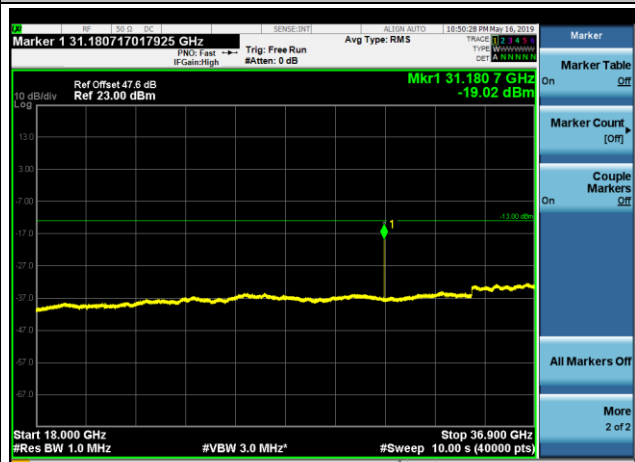
Middle Channel / 100MHz



Highest Channel / 50MHz



Highest Channel / 100MHz



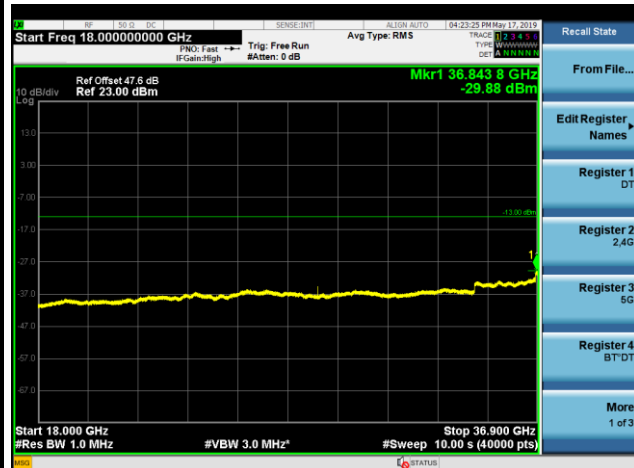
Remark: In band and out of band frequencies are omitted.



Module 2

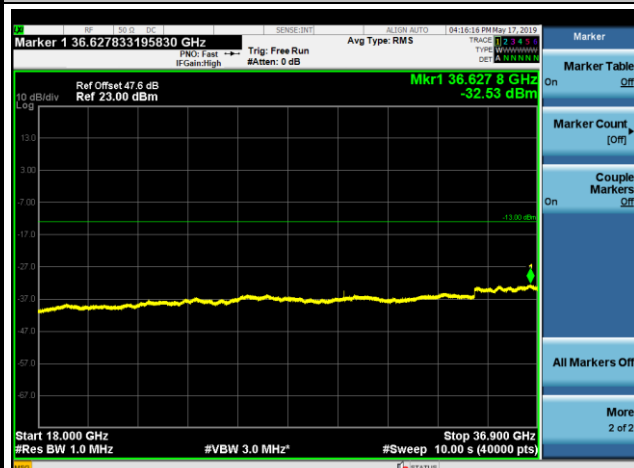
NR Band n260 QPSK (18-40GHz)

Lowest Channel / 400MHz



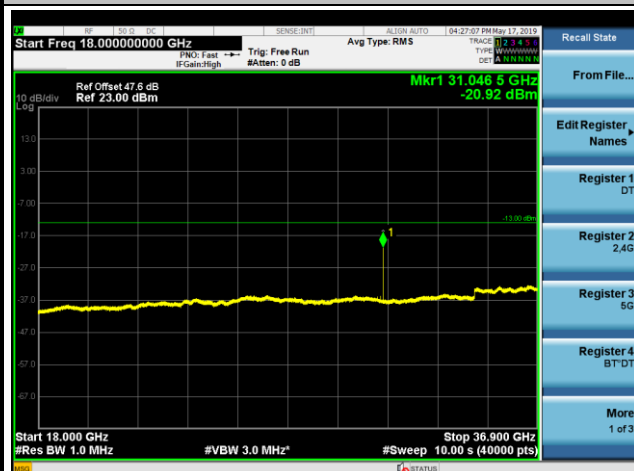
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Middle Channel / 400MHz



intentionally blank

Highest Channel / 400MHz



intentionally blank

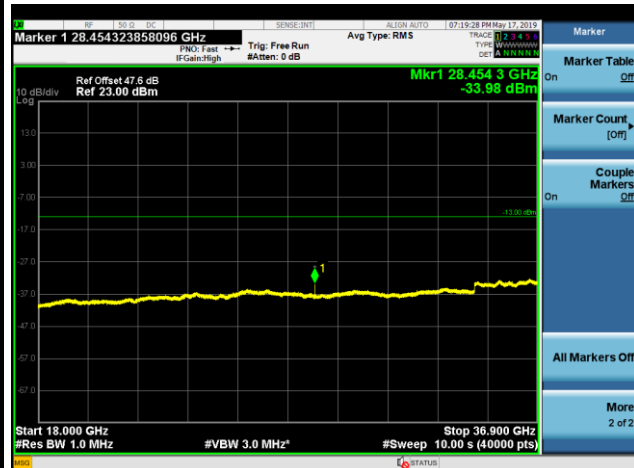
Remark: In band and out of band frequencies are omitted.



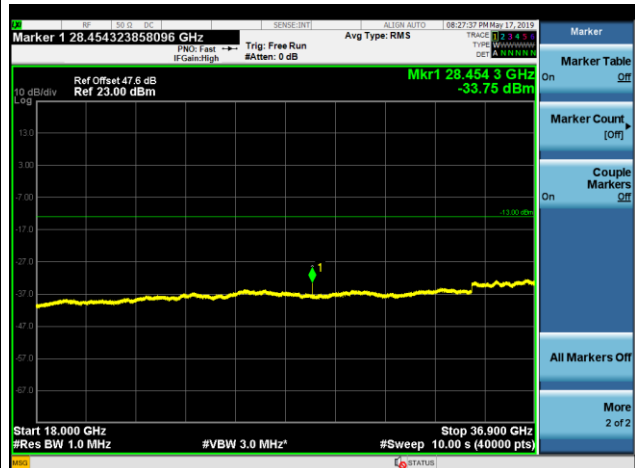
Module 3

NR Band n260 QPSK (18-40GHz)

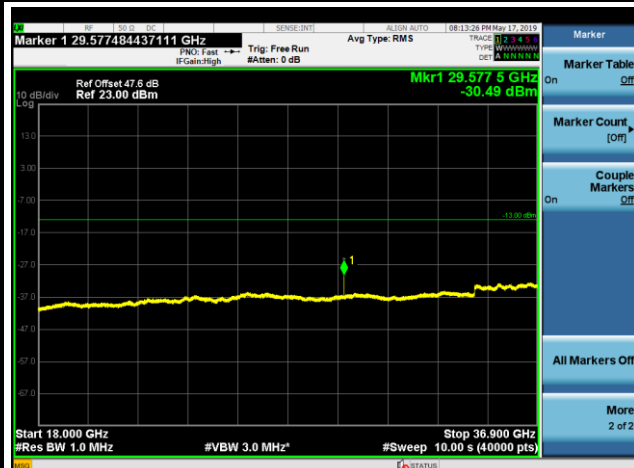
Lowest Channel / 50MHz



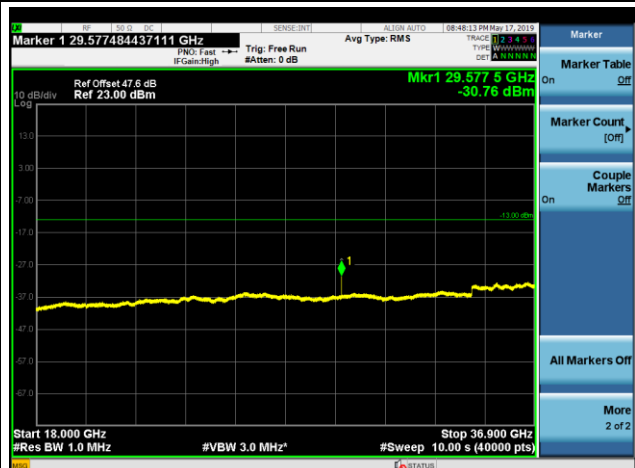
Lowest Channel / 100MHz



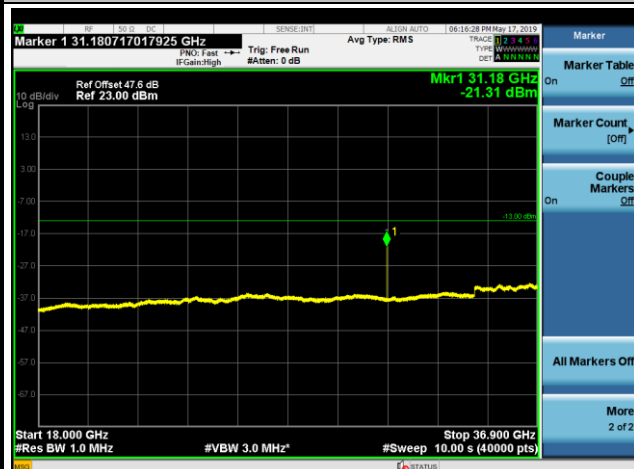
Middle Channel / 50MHz



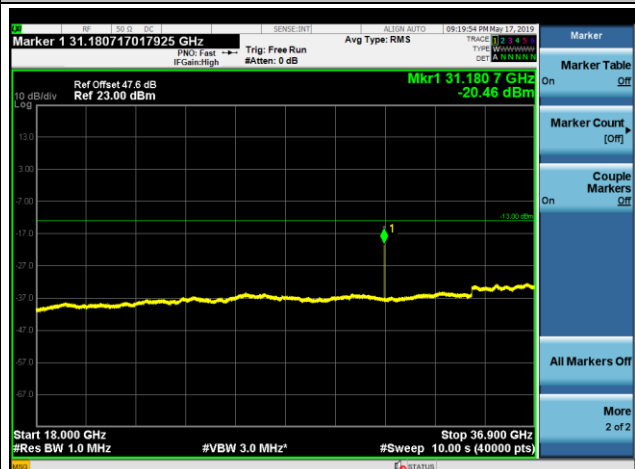
Middle Channel / 100MHz



Highest Channel / 50MHz



Highest Channel / 100MHz



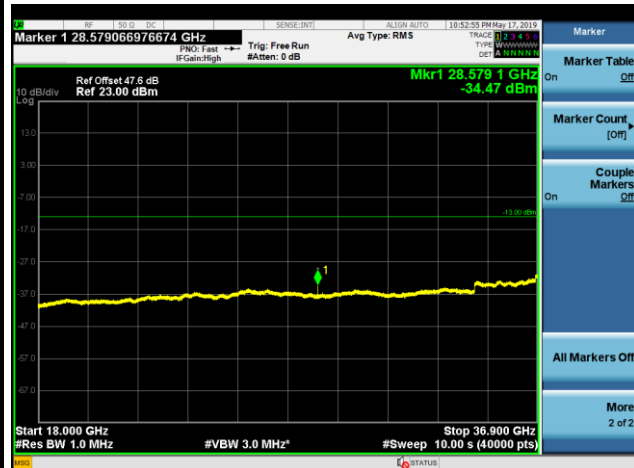
Remark: In band and out of band frequencies are omitted.



Module 3

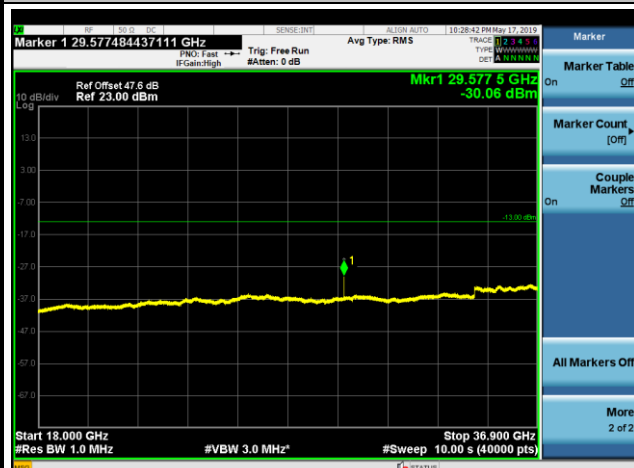
NR Band n260 QPSK (18-40GHz)

Lowest Channel / 400MHz



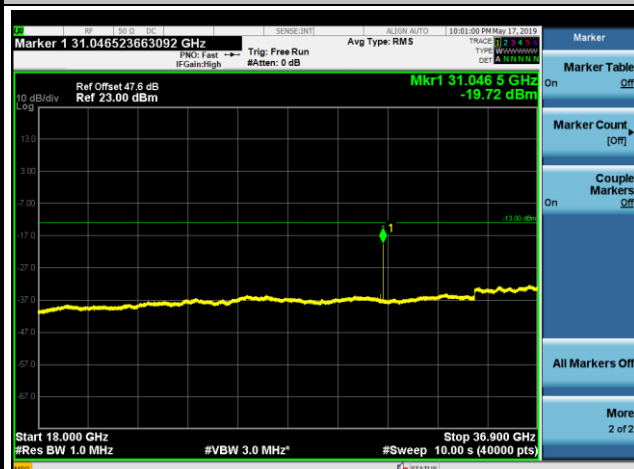
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Middle Channel / 400MHz



intentionally blank

Highest Channel / 400MHz

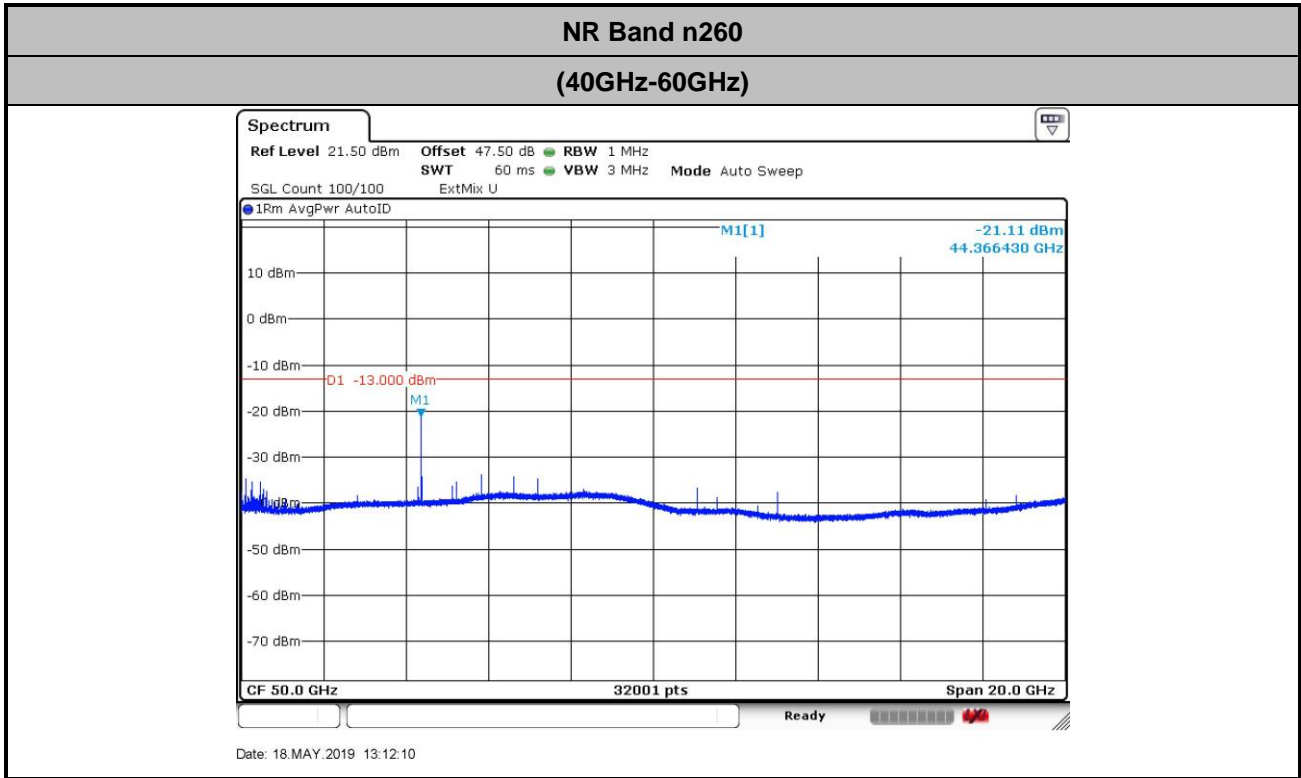


intentionally blank

Remark: In band and out of band frequencies are omitted.



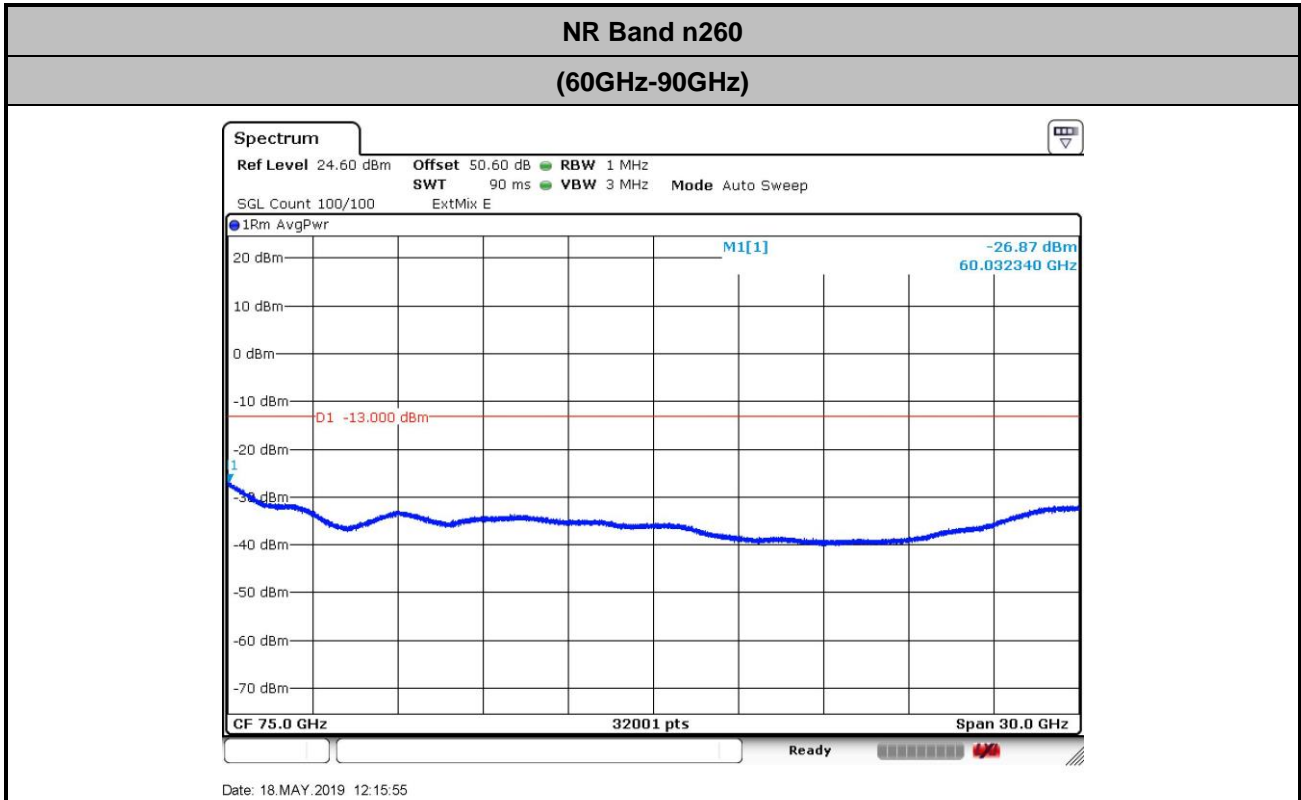
Pre-scan has been performed for all possible configurations for emissions from 40GHz up to 60GHz.
Only the worst case emission is reported.



$$\begin{aligned} \text{Offset} &= \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} + 107 + 20\log(D) - 104.8 \\ &= 42.3 + 3.0 + 107 + 20\log(1) - 104.8 = 47.5 \text{ (dB)} \end{aligned}$$



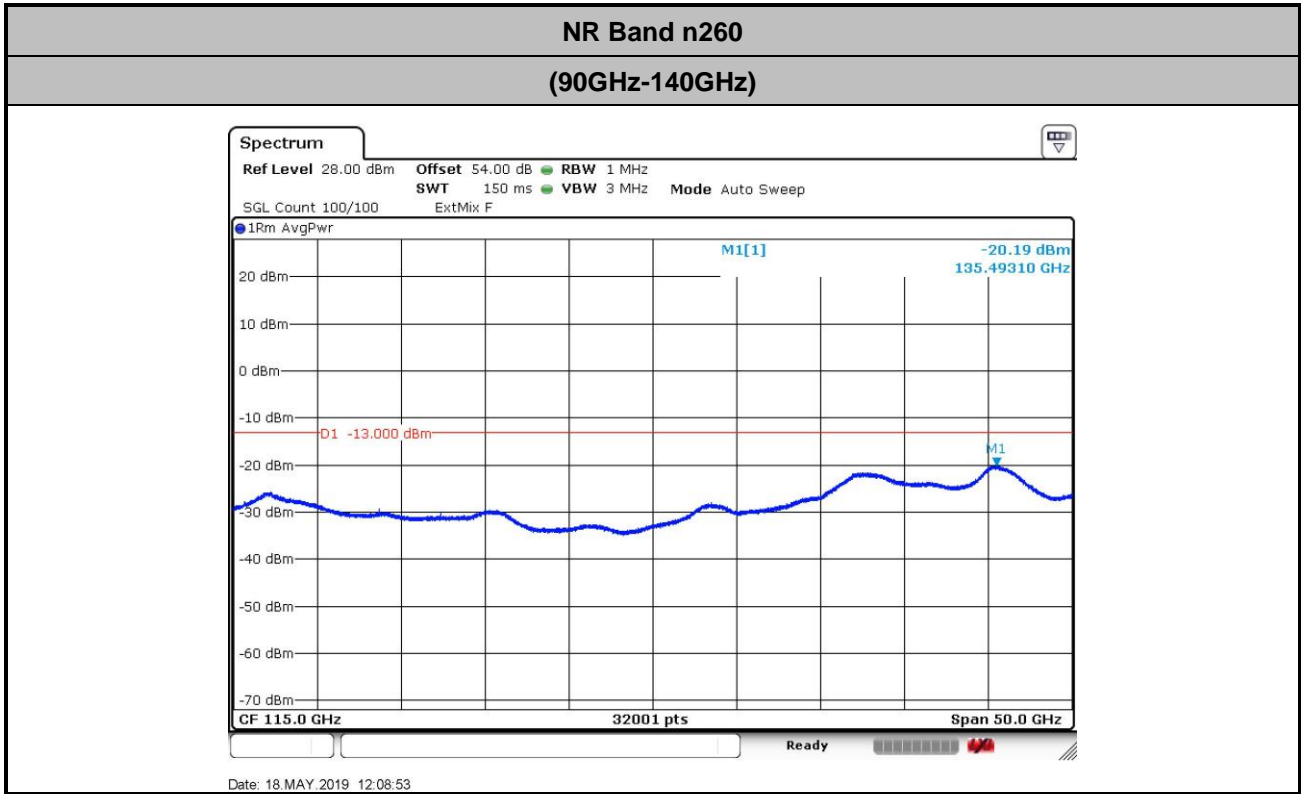
There is no significant spurious emission signal found for frequency started from 60GHz up to 90GHz.
Only the noise floor is reported.



$$\begin{aligned} \text{Offset} &= \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} + 107 + 20\log(D) - 104.8 \\ &= 45.4 + 3.0 + 107 + 20\log(1) - 104.8 = 50.6 \text{ (dB)} \end{aligned}$$



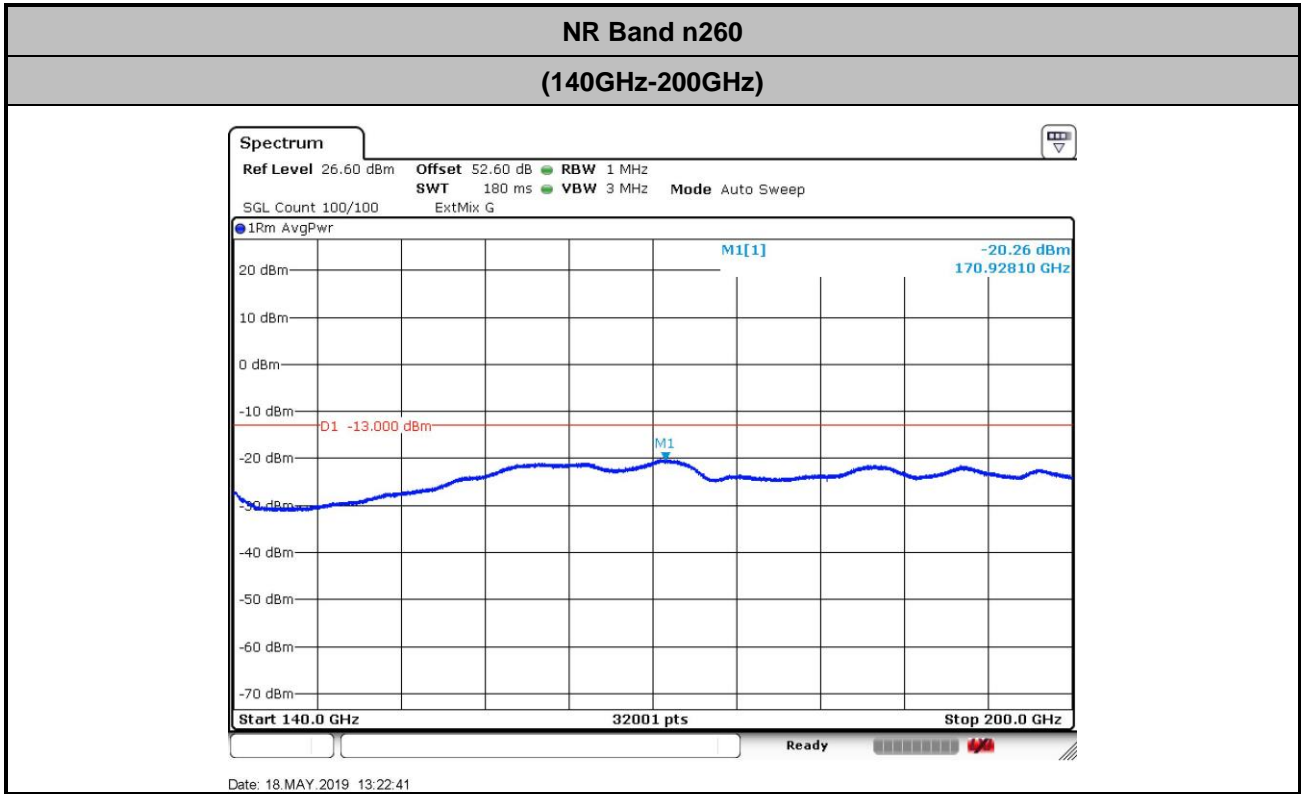
There is no significant spurious emission signal found for frequency started from 90GHz up to 140GHz.
Only the noise floor is reported.



$$\begin{aligned} \text{Offset} &= \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} + 107 + 20\log(D) - 104.8 \\ &= 48.8 + 3.0 + 107 + 20\log(1) - 104.8 = 54.0 \text{ (dB)} \end{aligned}$$



There is no significant spurious emission signal found for frequency started from 140GHz up to 200GHz. Only the noise floor is reported.



$$\begin{aligned} \text{Offset} &= \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} + 107 + 20\log(D) - 104.8 \\ &= 53.4 + 3.0 + 107 + 20\log(0.5) - 104.8 = 52.6 \text{ (dB)} \end{aligned}$$



Frequency Stability

Test Conditions		NR Band n260 / Middle Channel			Limit
Temperature (°C)	Voltage (Volt)	CW tone			Note 2.
		Frequency (GHz)	Deviation (kHz)	Deviation (ppm)	Result
50	Normal Voltage	38499839250	30.500	0.79	PASS
40	Normal Voltage	38499804875	-3.875	-0.10	
30	Normal Voltage	38499800500	-8.250	-0.21	
20(Ref.)	Normal Voltage	38499808750	0.000	0.00	
10	Normal Voltage	38499870500	61.750	1.60	
0	Normal Voltage	38499941875	133.125	3.46	
-10	Normal Voltage	38499999125	190.375	4.94	
-20	Normal Voltage	38500055125	246.375	6.40	
-30	Normal Voltage	38500034750	226.000	5.87	
20	Maximum Voltage	38499808750	0.000	0.00	
20	Normal Voltage	38499808750	0.000	0.00	
20	Battery End Point	38499808750	0.000	0.00	

Note:

1. Normal Voltage =3.8 V. ; Battery End Point (BEP) =3.3 V. ; Maximum Voltage =4.3 V.
2. The frequency fundamental emissions stay within the operation band.



Appendix C. R&S Mixer Certificate

Calibration Method
Kalibrieranweisung

RPG-PAQA-TN-2014-002

Relative Humidity 20 % - 80 %
Relative Luftfeuchte

Ambient Temperature
Umgebungstemperatur

(23⁺⁷₋₃) °C

Working standards used (having a significant effect on the accuracy) Verwendete Gebrauchsnormale (mit signifikantem Einfluss auf die Genauigkeit)				
Item Gegenstand	Type Typ	Serial Number Seriennummer	Calibration Certificate Number Kalibrierscheinnummer	Cal. Due Kalibr. bis
Vector Network Analyzer	R&S® ZVA67	101097	20-300432406	2020-07-21
Powersensor	R&S® NRP-Z55	140093	20-300426315	2019-05-17
Powersensor	R&S® NRP-Z57	101423	20-541799	2019-04-27
Calibration Kit	WR19	U10001	24-0060-U10001-01	2019-02-01

UGB1 A compliance statement may be possible where a confidence level of less than 95 % is acceptable.
Die Bestätigung der Konformität ist möglich, sofern ein Grad des Vertrauens von weniger als 95 % akzeptabel ist.

UGB2 A non-compliance statement may be possible where a confidence level of less than 95 % is acceptable.
Die Bestätigung der Nicht-Konformität ist möglich, sofern ein Grad des Vertrauens von weniger als 95 % akzeptabel ist.

Ref.: ILAC-G8:03/2009 'Guidelines on the Reporting of Compliance with Specification'.

Notes

Anmerkungen

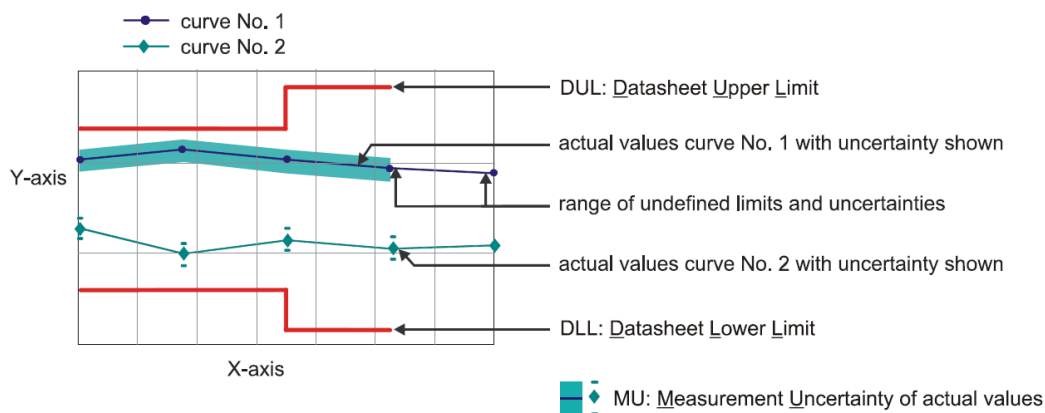
If the new product is stored under the climate conditions as specified in the data sheet upon delivery, the product's accuracy is not significantly affected within 12 month after its calibration in our factory. In this case, the recommended calibration interval starts on the date when the product is actually put into operation.

Outgoing Results

The following abbreviations may be used in this document

- {a) No measurement uncertainty stated because the errors always add together.
So it is sure that a measurement result evaluated as "PASS" is pass.
- {b) The measurement uncertainty depends on the measurement result. The stated measurement uncertainty is valid for the close area around the specification. Measurement results outside the close area have a higher measurement uncertainty but are within the specification.
- {c) Functional test, therefore no measurement uncertainty is stated.
- {d) Typical value, refer to performance test.
- {e) The measurement uncertainty is taken into account when setting the measuring system.
- DL or DT Data Limit for symmetrical tolerance limits
- DLL Datasheet Lower Limit
- DUL Datasheet Upper Limit
- MU Measurement Uncertainty
- MLL or MLV Measurement Uncertainty Lower Value
- MUL or MUV Measurement Uncertainty Upper Value
- Nom. Nominal Value
- Dev. Deviation
- MErr. Measurement Error
- Act. Actual Value
- UGB Uncertainty Guard Band: Measuring uncertainty violates the data (spec.) limit.
- UGB1 Measurement results marked as UGB1 show conformity with a probability of >50 %and <95 %.
- UGB2 Measurement results marked as UGB2 show non-conformity with a probability of >50 %and <95 %.
- DU Datasheet Uncertainty

Explanation of charts



Software used for measurement

Item Type

Measurement Studio Professional Edition
MixerCertification

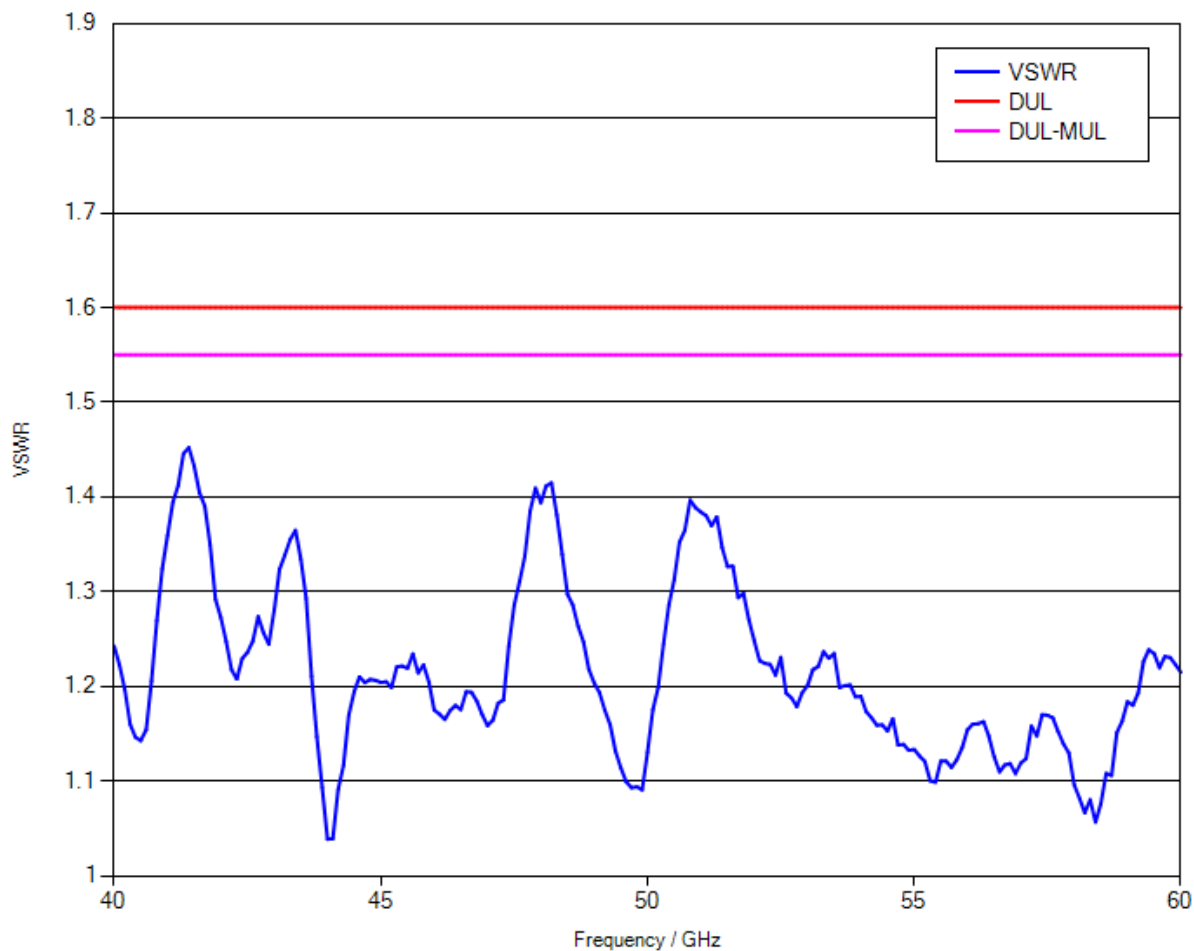
Version

2013
7_09

Remark

1.1 RF Input – VSWR

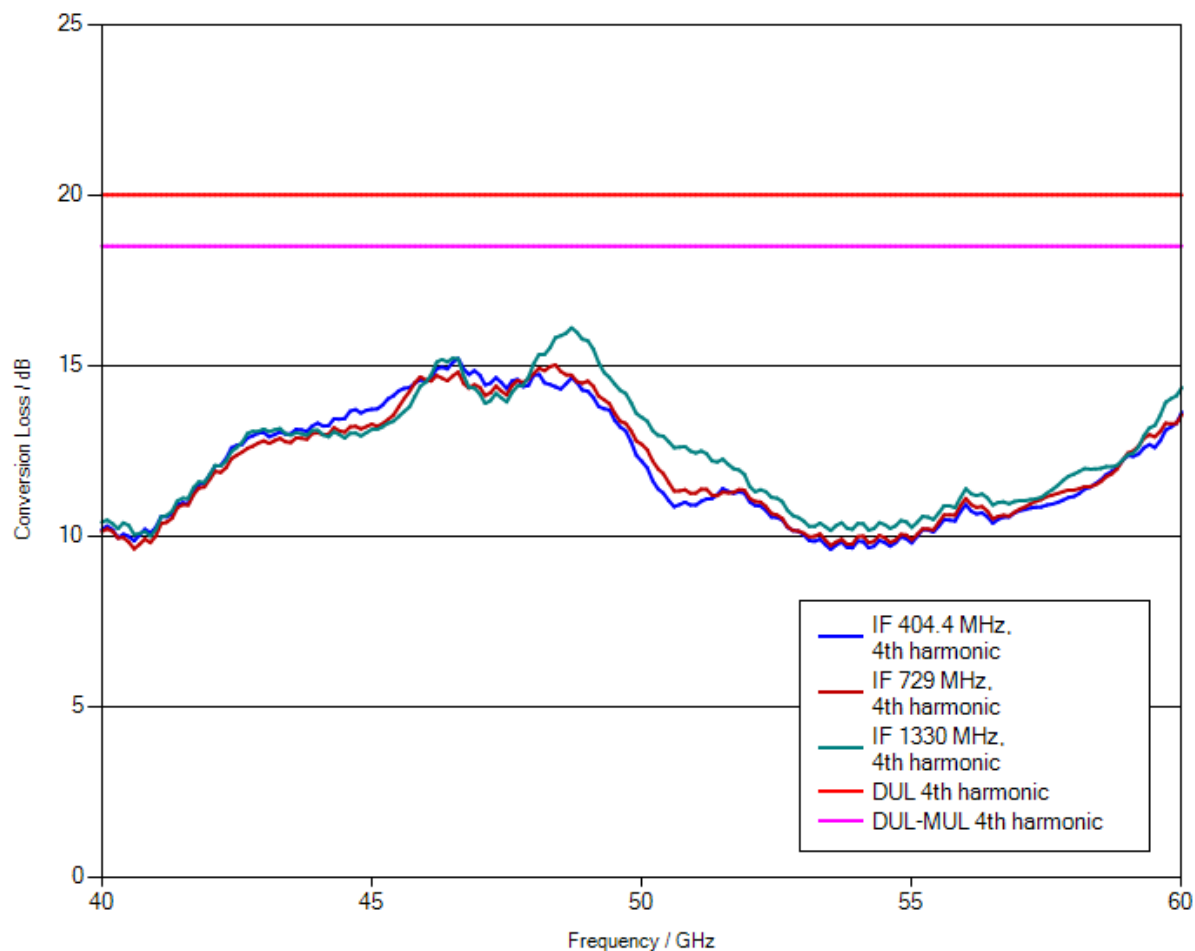
Measurement uncertainty: 0.05 (VSWR)



1.2 Conversion loss

LO level +13 dBm nominal
Bias 0 A

Measurement uncertainty: 1.5 dB



Note: Numeric calibration data can be found attached to the PDF file of the calibration certificate. Click the “paper clip” symbol to display the file.

The file has been renamed for safety reasons.

When downloading the file onto your PC, please delete the “.file” extension and unzip the data.

1.3 Frequency response within 1 GHz

	DUL	Actual (worst case)	Evaluation
IF = 404.4 MHz, 4th harmonic	4 dB	2.32 dB	PASS
IF = 729 MHz, 4th harmonic	4 dB	1.99 dB	PASS
IF = 1330 MHz, 4th harmonic	4 dB	2.14 dB	PASS