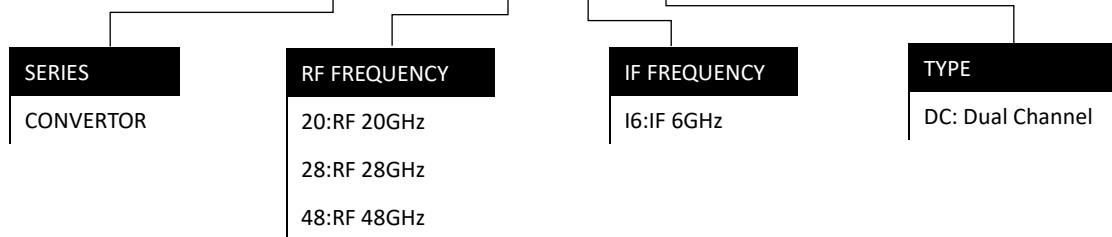


PART NUMBER DESCRIPTION

RPC -R **I6-DC**



PRODUCT OVERVIEW

Rapidtek UDC Module is dual-channel with an integrated mixer & an internal local oscillator (LO). It can support Wifi6E, Wifi7, UWB Non Signaling & Signaling test.

FEATURE SPECIFICATIONS

Rapidtek PN.		RPC-R20I6-DC	RPC-R28I6-DC	RPC-R48I6-DC
ITEM	CONDITION	APPEARANCE		
Power Supply Voltage	4.8V-5.5VDC	NA		
Power Supply Current	3A	NA		
Power Consumption	15W	NA		
Reference Clock Type	10MHz	MMCX(F)		
Control I/O Type	NA	Mini-USB 2.0(F)		
Trigger Signal(T/R) Type	High Level : 1.8V~3.3V Low Level : 0~0.8V	MMCX(F)		
Wight	350g	NA		
IF Port Type	NA	2.92mm(F)		
RF Port Type	NA	2.92mm(F)	2.4mm(F)	



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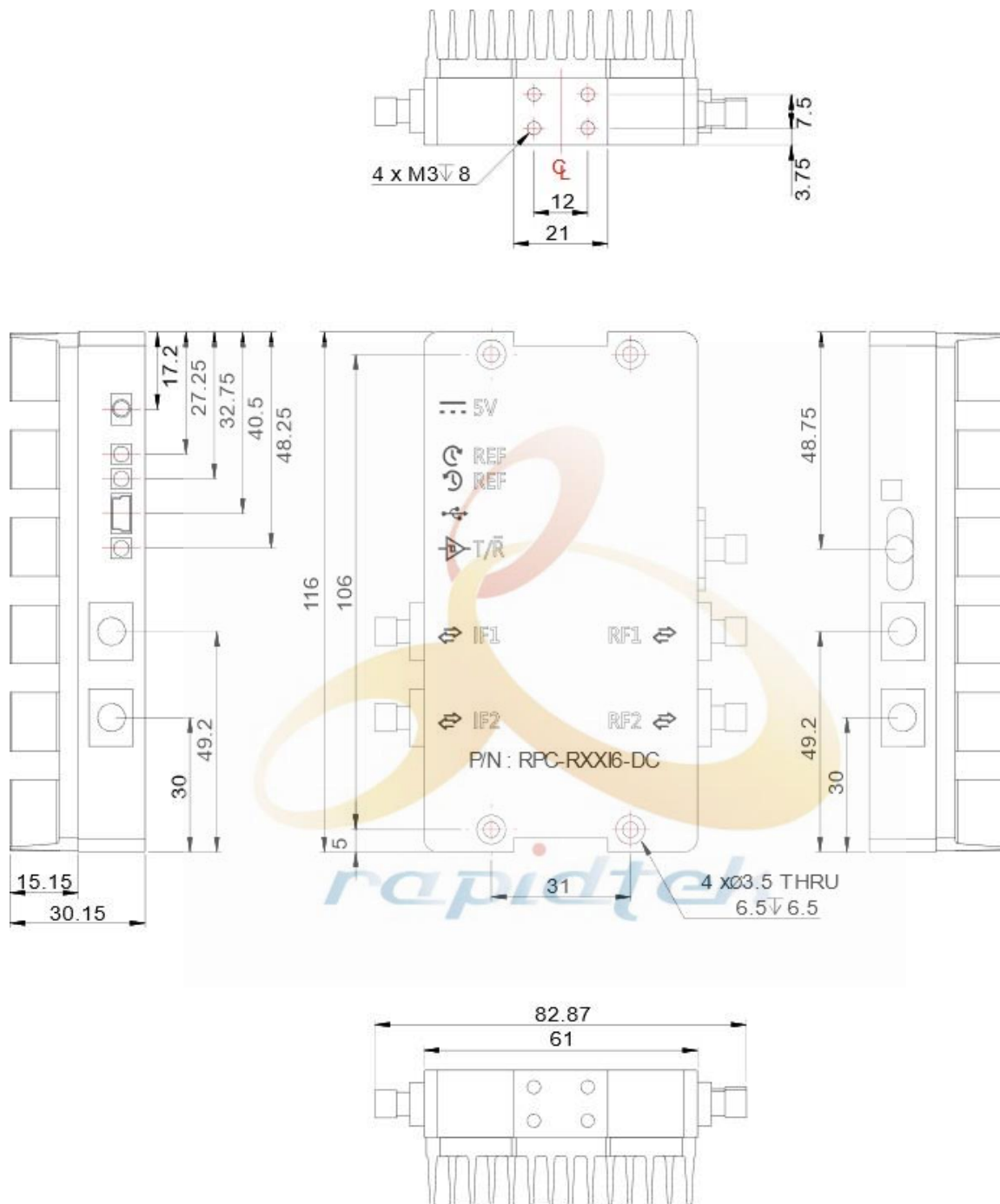
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FREQUENCY CONVERSION SPECIFICATIONS

PRODUC NAME			RPC-R2016-DC		RPC-R2816-DC		RPC-R4816-DC	
ITEM	CONVERSION TYPE		UP	DOWN	UP	DOWN	UP	DOWN
	UNIT							
IF Frequency	GHz	MIN.	1	1	2	2	2	2
		TYP.	--	--	--	--	--	--
		MAX.	6	6	6	6	6	6
IF Return Loss	dB	MIN.	--	--	--	--	--	--
		TYP.	10	10	10	10	10	10
		MAX.	--	--	--	--	--	--
RF Frequency	GHz	MIN.	2	2	20	20	30	30
		TYP.	--	--	--	--	--	--
		MAX.	20	20	30	30	48.2	48.2
RF Return Loss	dB	MIN.	--	--	--	--	--	--
		TYP.	10	10	10	10	10	10
		MAX.	--	--	--	--	--	--
LO Frequency	GHz	MIN.	1	1	18	18	28	28
		TYP.	--	--	--	--	--	--
		MAX.	14	14	24	24	42.2	42.2
Conversion Gain	dB	MIN.	--	--	--	--	--	--
		TYP.	10	8	18	0	20	10
		MAX.	--	--	--	--	--	--
Input Power	dBm	MIN.	--	--	-	---	--	--
		TYP.	--	--	--	--	--	--
		MAX.	-5	-10	-5	0	5	5
OP1dB	dBm		10	--	8	--	7	--
IP1dB	dBm		--	-5	--	0	--	0
LO Initial Accuracy	Hz		±100		±100		±100	
Gain Variation	dB		≤4		≤4		≤4	
Impedance	Ω		50		50		50	
Frequency Step	MHz		1		4		4	



EXTERIOR DIMENSION (mm)



*Tolerance $\pm 3\text{mm}$

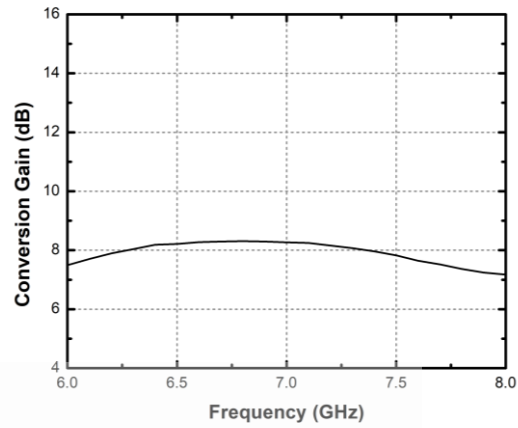
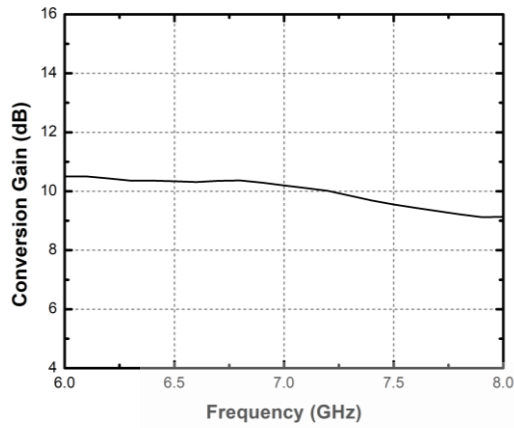


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TYPICAL PERFORMANCE CHARACTERISTICS

RPC-R2016-DC

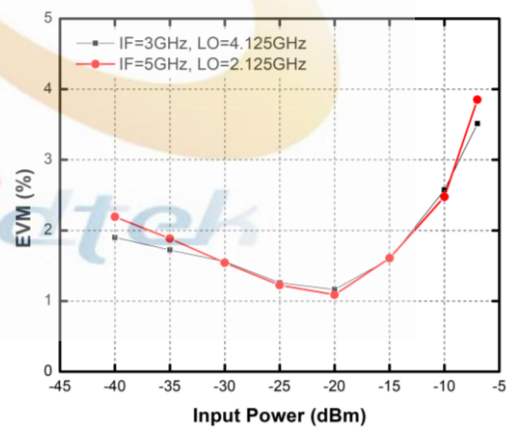
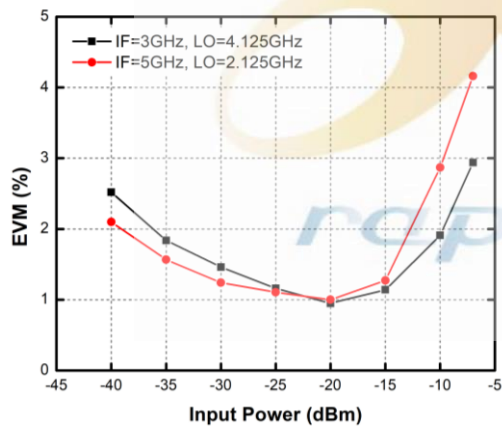


UP Convert Gain V.S. Frequency

Down Convert Gain V.S. Frequency

Condition: IEEE 802.11ax

Band Width:160MHz, 1024QAM, RF=7.125GHz



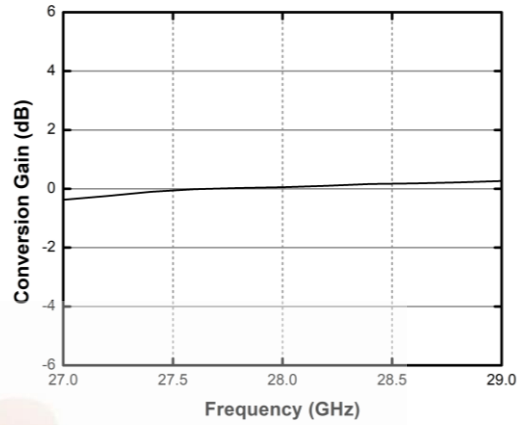
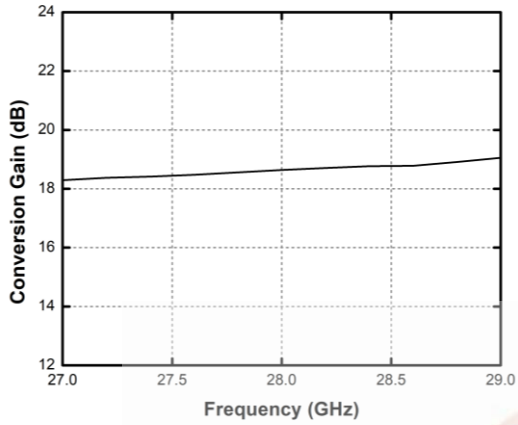
Input power V.S. EVM (Up Convert)

Input power V.S. EVM (Down Convert)



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RPC-R28I6-DC

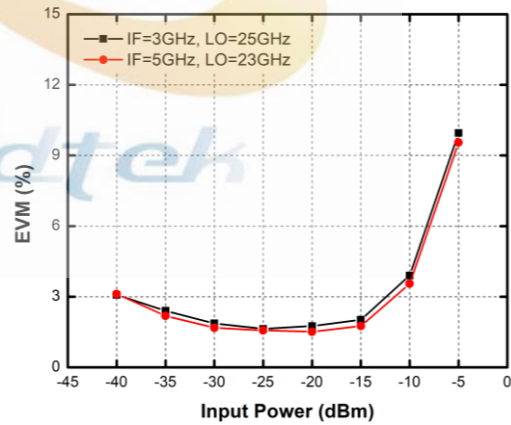
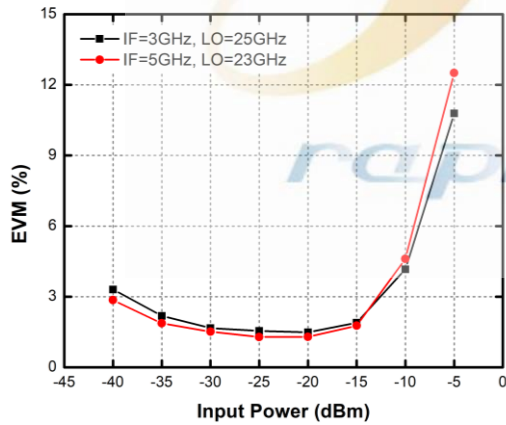


UP Convert Gain V.S. Frequency

Down Convert Gain V.S. Frequency

Condition: 5GNR

Band Width:200MHz, 64QAM, RF 28GHz

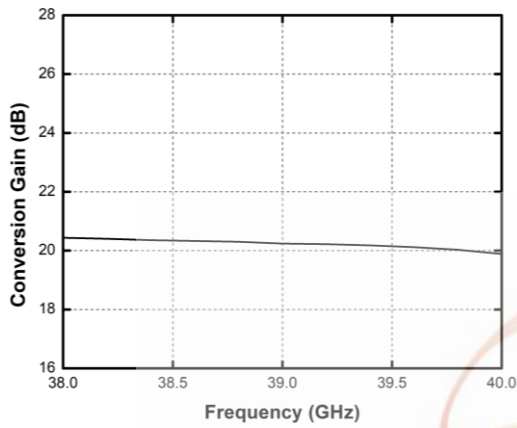


Input power V.S. EVM (Up Convert)

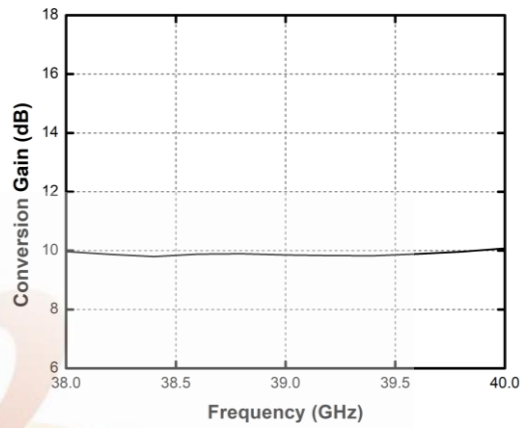
Input power V.S. EVM (Down Convert)



RPC-R48I6-DC



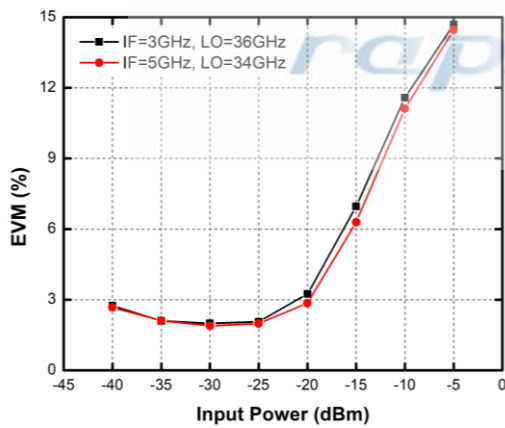
UP Convert Gain V.S. Frequency



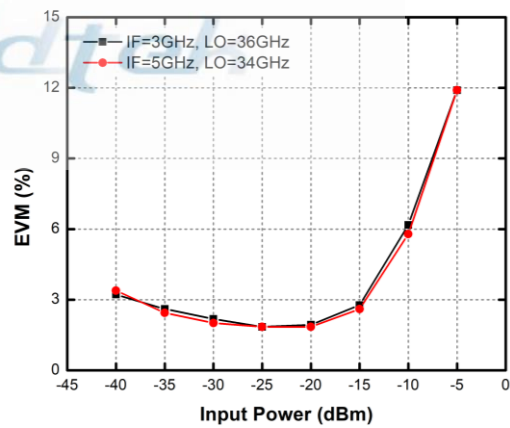
Down Convert Gain V.S. Frequency

Condition: 5GNR

Band Width:200MHz, 64QAM, RF 39GHz



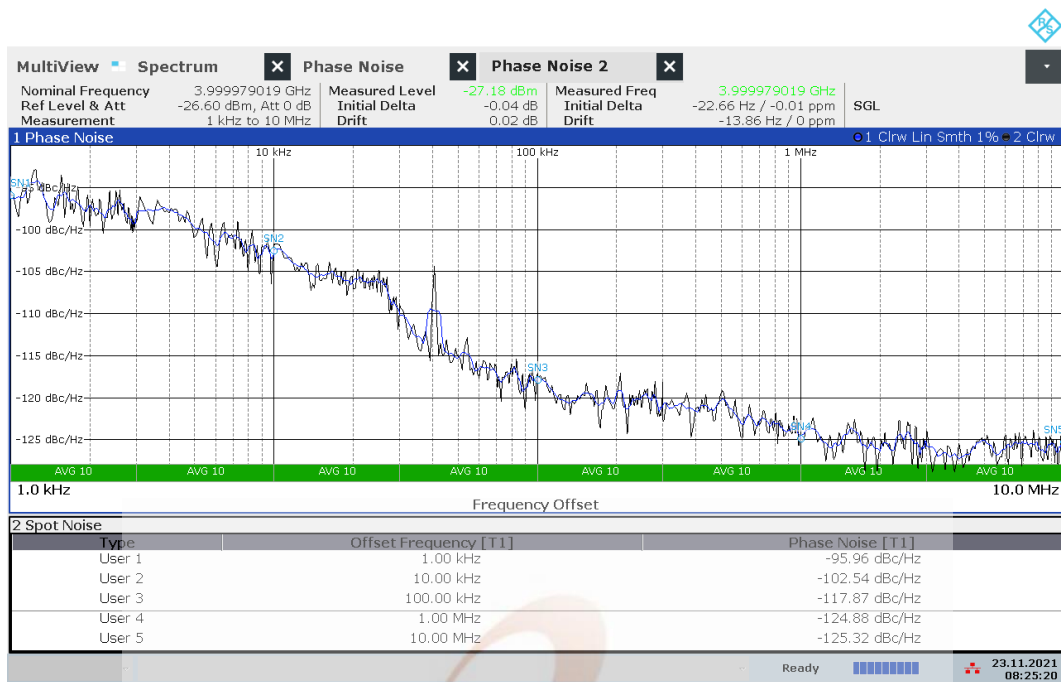
Input power V.S. EVM (Up Convert)



Input power V.S. EVM (Down Convert)

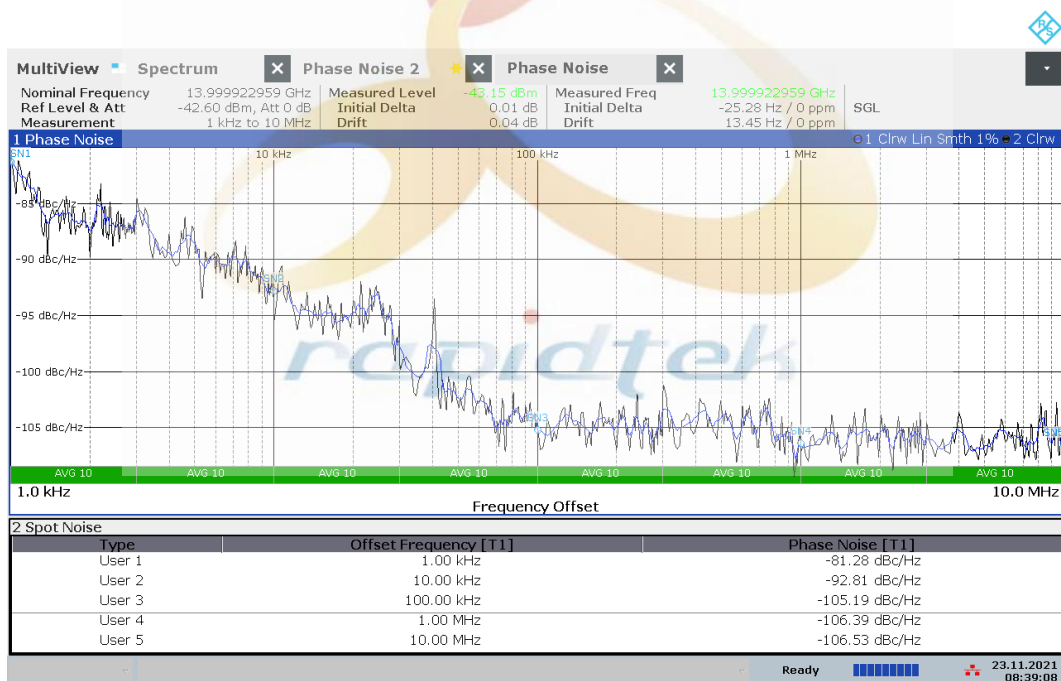


RPC-R2016-DC Phase noise



08:25:20 23.11.2021

LO 4GHz



08:39:08 23.11.2021

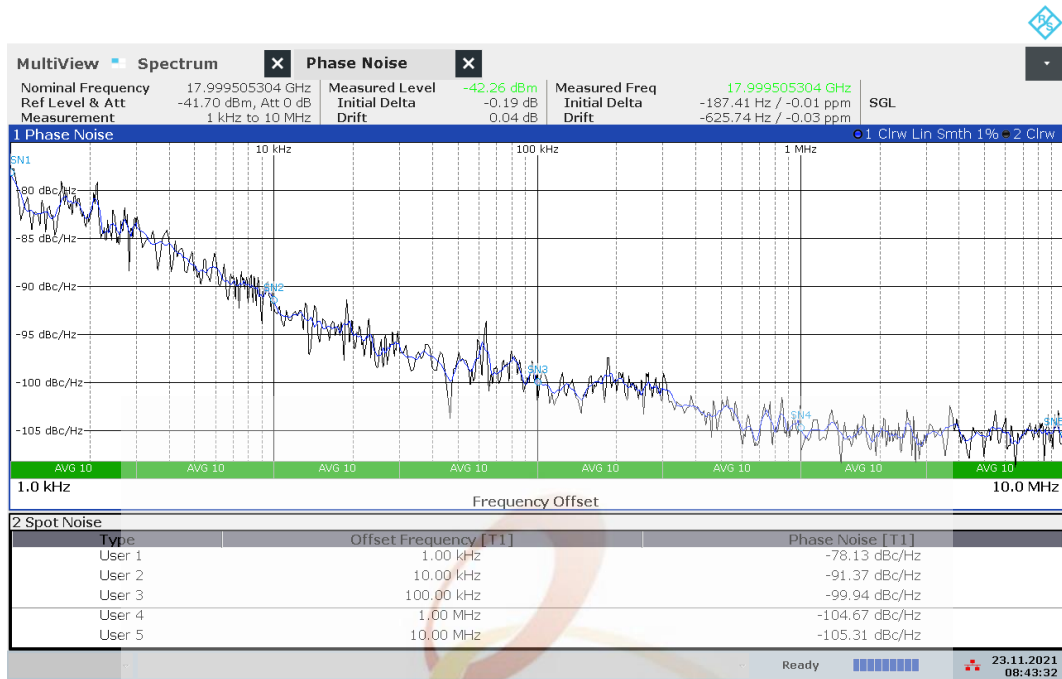
LO 14GHz



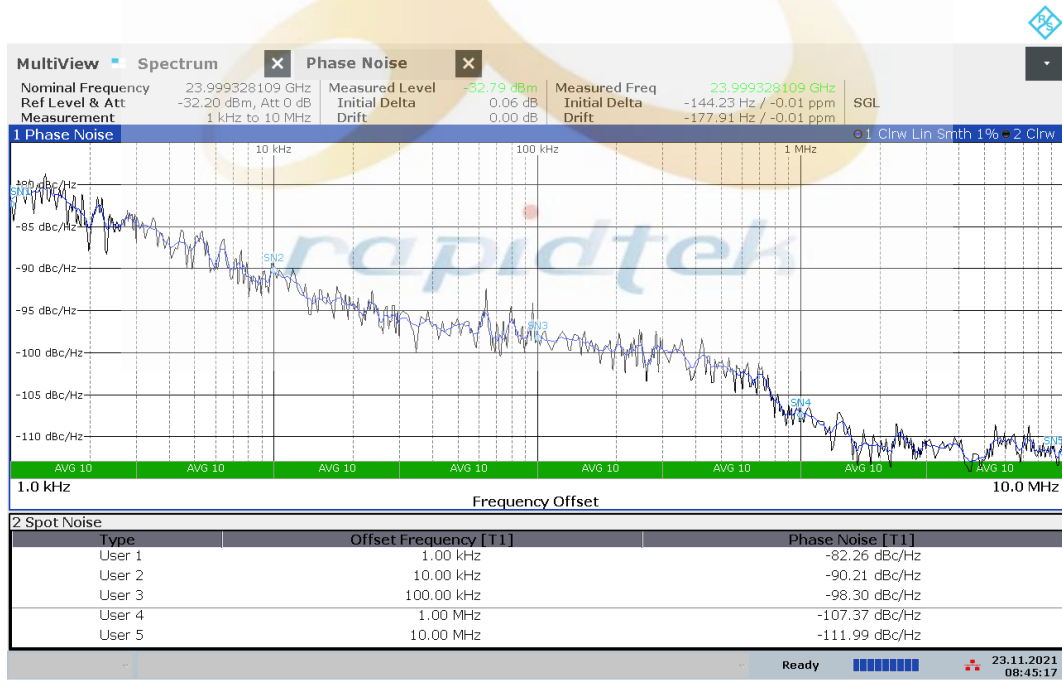
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RPC-R2816-DC



LO 18GHz



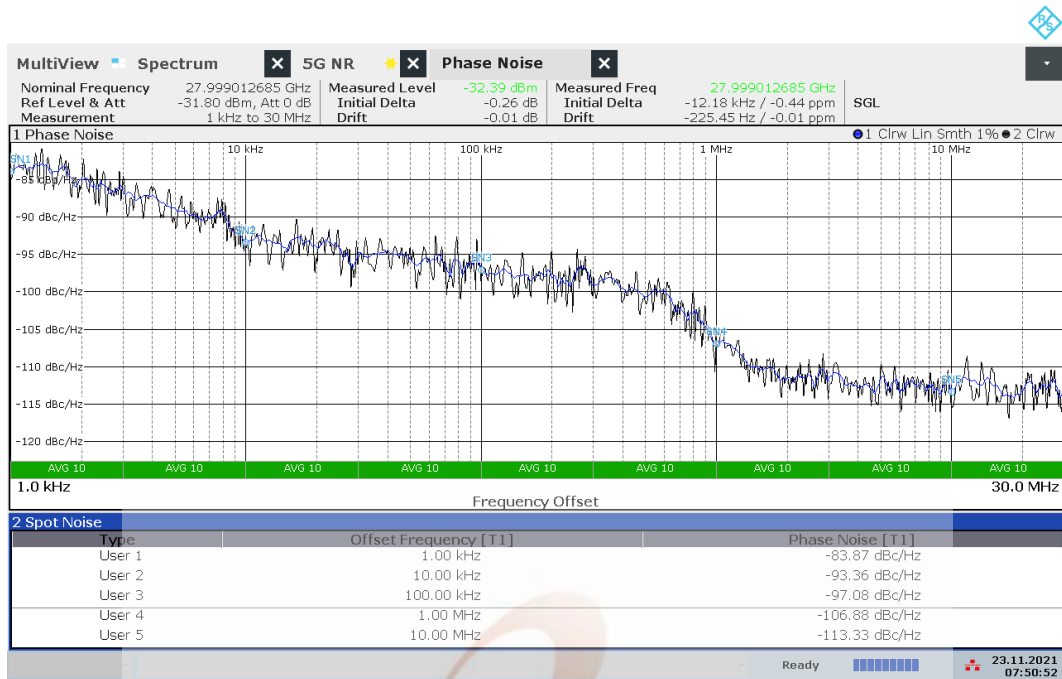
LO 24GHz



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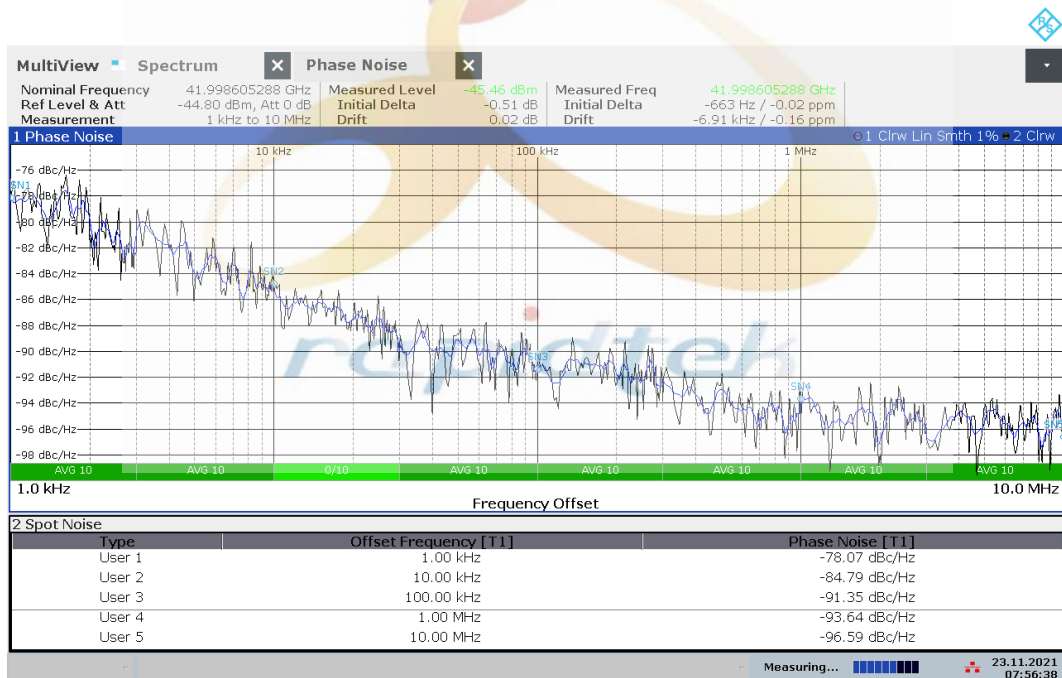
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RPC-R4816-DC



07:50:53 23.11.2021

LO 28GHz



07:56:39 23.11.2021

LO 42GHz



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COMMAND LIST

Model Setting Command		Channel Function Status
XMM 0		IF1-RF1: Stand by IF2-RF2: Stand by
XMM 1	T/R Low	IF1-RF1: Down conversion IF2-RF2: Down conversion
	T/R High	IF1-RF1: Up conversion IF2-RF2: Up conversion
XMM 2		IF1-RF1: Up conversion IF2-RF2: Down conversion
XMM 3		IF1-RF1: Down conversion IF2-RF2: Up conversion
XMM 4		IF1-RF1: Up conversion IF2-RF2: Up conversion
XMM 5		IF1-RF1: Down conversion IF2-RF2: Down conversion
XMM 6	T/R Low	IF1-RF1: Down conversion IF2-RF2: Up conversion
	T/R High	IF1-RF1: Up conversion IF2-RF2: Down conversion

Part name	LO Setting Command
RPC-R2016-DC	XF HEX(Frequency)
RPC-R2816-DC	XF HEX(Frequency/4)
RPC-R4816-DC	XF HEX(Frequency/4)

Example LO setting:

Part Name	RPC-R2016-DC	
LO(MHz)	HEX	Command
4000	FA0	XF FA0
6000	1770	XF 1770
8000	1F40	XF 1F40
10000	2710	XF 2710
12000	2EE0	XF 2EE0
14000	36B0	XF 36B0

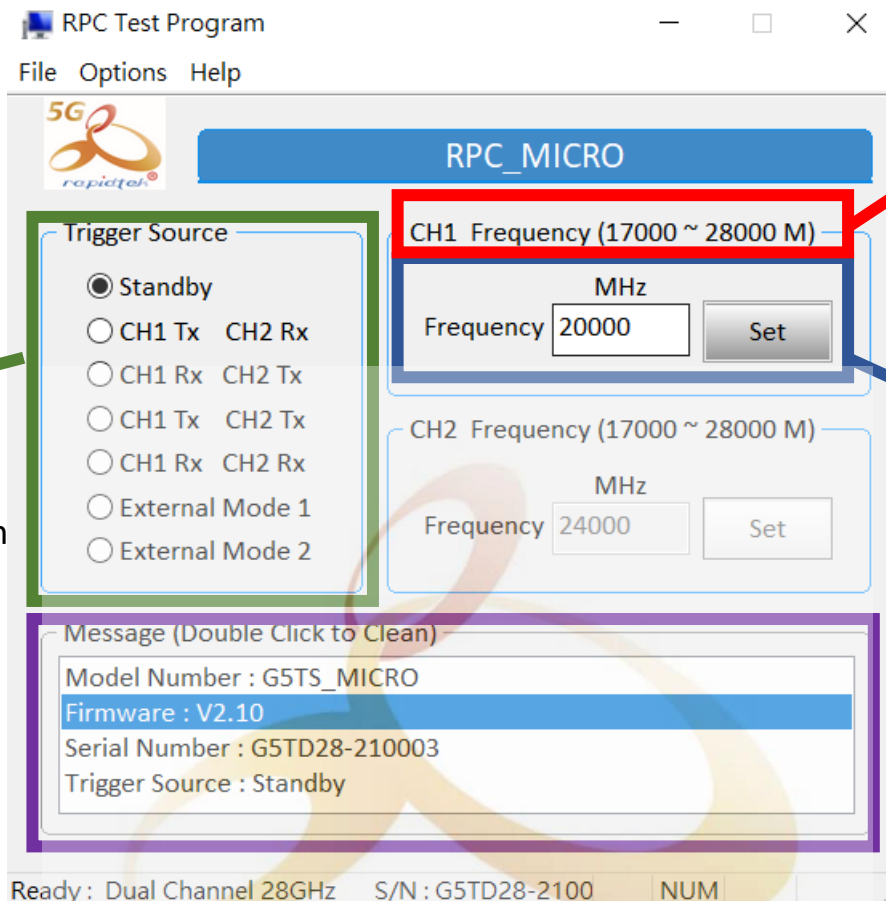
Part Name	RPC-R2816-DC		
LO(MHz)	LO/4	HEX	Command
22000	5500	157C	XF 157C
23000	5750	1676	XF 1676
24000	6000	1770	XF 1770
25000	6250	186A	XF 186A
26000	6500	1964	XF 1964



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CONTROL PROGRAM INTRODUCTION



ACCESSORIES

- A to D Power Adapter *1pcs**
AC Input: 100~240VAC/0.5A
DC Output: 5VDC/3A
- USB Cable*1pcs**
USB Type A to USB Mini Type B
- Reference Clock Cable*1pcs**
SMA(M) to MMCX(M) 20cm



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