



FCC ID:
VBNAHIB-

Test Report No:
D556049976

Config B:

Carrier Frequency: 2145.0 MHz						
Supply Voltage (DC) [V]	Ambient Temperature [°C]	Frequency Deviation		Manufacturer's Specification		Result
		[Hz]	[ppm]	[Hz]	[ppm]	
QPSK Modulation ANT1						
-48.0	-30.0	-4.38493	-0.002	107	0.05	compliant
-48.0	-20.0	-5.05244	-0.002	107	0.05	compliant
-48.0	-10.0	-3.81009	-0.002	107	0.05	compliant
-48.0	0.0	-3.63930	-0.002	107	0.05	compliant
-48.0	10.0	-3.20601	-0.001	107	0.05	compliant
-48.0	30.0	3.78200	0.002	107	0.05	compliant
-48.0	40.0	-3.42193	-0.002	107	0.05	compliant
-48.0	50.0	-1.38363	-0.001	107	0.05	compliant
QPSK Modulation ANT2						
-48.0	-30.0	-3.50140	-0.002	107	0.05	compliant
-48.0	-20.0	-4.07987	-0.002	107	0.05	compliant
-48.0	-10.0	-6.374405	-0.003	107	0.05	compliant
-48.0	0.0	-3.83163	-0.002	107	0.05	compliant
-48.0	10.0	-4.32926	-0.002	107	0.05	compliant
-48.0	30.0	-2.74412	-0.001	107	0.05	compliant
-48.0	40.0	2.87634	0.001	107	0.05	compliant
-48.0	50.0	-2.96201	-0.001	107	0.05	compliant
QPSK Modulation ANT3						
-48.0	-30.0	-2.90797	-0.001	107	0.05	compliant
-48.0	-20.0	3.73933	0.002	107	0.05	compliant
-48.0	-10.0	-5.33087	-0.002	107	0.05	compliant
-48.0	0.0	-3.15328	-0.001	107	0.05	compliant
-48.0	10.0	2.93678	0.001	107	0.05	compliant
-48.0	30.0	-2.62475	-0.001	107	0.05	compliant
-48.0	40.0	-3.34548	-0.002	107	0.05	compliant
-48.0	50.0	-3.36376	-0.002	107	0.05	compliant
QPSK Modulation ANT4						
-48.0	-30.0	-3.20773	-0.001	107	0.05	compliant
-48.0	-20.0	-2.77952	-0.001	107	0.05	compliant
-48.0	-10.0	-4.71623	-0.002	107	0.05	compliant
-48.0	0.0	-3.25680	-0.002	107	0.05	compliant
-48.0	10.0	-2.85875	-0.001	107	0.05	compliant
-48.0	30.0	-4.90044	-0.002	107	0.05	compliant
-48.0	40.0	-2.72115	-0.001	107	0.05	compliant
-48.0	50.0	-2.96470	-0.001	107	0.05	compliant
16QAM Modulation ANT1						

FCC 47 CFR part 27
(2016)

16. May 2017

Page 38 of 189



FCC ID:
VBNAHIB-

Test Report No:
D556049976

-48.0	-30.0	-3.66975	-0.002	107	0.05	compliant
-48.0	-20.0	4.34521	0.002	107	0.05	compliant
-48.0	-10.0	-2.78386	-0.001	107	0.05	compliant
-48.0	0.0	-2.25404	-0.001	107	0.05	compliant
-48.0	10.0	1.99184	0.001	107	0.05	compliant
-48.0	30.0	-4.11984	-0.002	107	0.05	compliant
-48.0	40.0	-2.49508	-0.001	107	0.05	compliant
-48.0	50.0	-2.27360	-0.001	107	0.05	compliant
16QAM Modulation ANT2						
-48.0	-30.0	-3.10574	-0.001	107	0.05	compliant
-48.0	-20.0	-4.64208	-0.002	107	0.05	compliant
-48.0	-10.0	-3.32631	-0.002	107	0.05	compliant
-48.0	0.0	-1.98729	-0.001	107	0.05	compliant
-48.0	10.0	-2.92917	-0.001	107	0.05	compliant
-48.0	30.0	3.02492	0.001	107	0.05	compliant
-48.0	40.0	2.62200	0.001	107	0.05	compliant
-48.0	50.0	-3.38466	-0.002	107	0.05	compliant
16QAM Modulation ANT3						
-48.0	-30.0	4.28224	0.002	107	0.05	compliant
-48.0	-20.0	-3.16087	-0.001	107	0.05	compliant
-48.0	-10.0	-1.33108	-0.001	107	0.05	compliant
-48.0	0.0	-3.15576	-0.001	107	0.05	compliant
-48.0	10.0	-4.72911	-0.002	107	0.05	compliant
-48.0	30.0	-2.27511	-0.001	107	0.05	compliant
-48.0	40.0	-2.53699	-0.001	107	0.05	compliant
-48.0	50.0	1.81837	0.001	107	0.05	compliant
16QAM Modulation ANT4						
-48.0	-30.0	-3.24258	-0.002	107	0.05	compliant
-48.0	-20.0	3.51196	0.002	107	0.05	compliant
-48.0	-10.0	-3.72249	-0.002	107	0.05	compliant
-48.0	0.0	-2.62269	-0.001	107	0.05	compliant
-48.0	10.0	-2.73292	-0.001	107	0.05	compliant
-48.0	30.0	-3.12739	-0.001	107	0.05	compliant
-48.0	40.0	-3.05721	-0.001	107	0.05	compliant
-48.0	50.0	-2.01710	-0.001	107	0.05	compliant
64QAM Modulation ANT1						
-48.0	-30.0	-4.55957	-0.002	107	0.05	compliant
-48.0	-20.0	-3.63044	-0.002	107	0.05	compliant
-48.0	-10.0	-3.45104	-0.002	107	0.05	compliant
-48.0	0.0	-3.30098	-0.002	107	0.05	compliant
-48.0	10.0	-1.47155	-0.001	107	0.05	compliant

FCC 47 CFR part 27
(2016)

16. May 2017

Page 39 of 189



FCC ID:
VBNAHIB-

Test Report No:
D556049976

-48.0	30.0	3.23057	0.002	107	0.05	compliant
-48.0	40.0	-3.19363	-0.001	107	0.05	compliant
-48.0	50.0	-2.46732	-0.001	107	0.05	compliant
64QAM Modulation ANT2						
-48.0	-30.0	-2.77629	-0.001	107	0.05	compliant
-48.0	-20.0	-2.88932	-0.001	107	0.05	compliant
-48.0	-10.0	5.25509	0.002	107	0.05	compliant
-48.0	0.0	-2.65795	-0.001	107	0.05	compliant
-48.0	10.0	-3.92291	-0.002	107	0.05	compliant
-48.0	30.0	-3.21454	-0.001	107	0.05	compliant
-48.0	40.0	-3.90191	-0.002	107	0.05	compliant
-48.0	50.0	-2.20139	-0.001	107	0.05	compliant
64QAM Modulation ANT3						
-48.0	-30.0	-3.99520	-0.002	107	0.05	compliant
-48.0	-20.0	-3.49924	-0.002	107	0.05	compliant
-48.0	-10.0	4.91622	0.002	107	0.05	compliant
-48.0	0.0	-3.22912	-0.002	107	0.05	compliant
-48.0	10.0	-3.88115	-0.002	107	0.05	compliant
-48.0	30.0	-3.76485	-0.002	107	0.05	compliant
-48.0	40.0	3.88736	0.002	107	0.05	compliant
-48.0	50.0	2.20271	0.001	107	0.05	compliant
64QAM Modulation ANT4						
-48.0	-30.0	1.89270	0.001	107	0.05	compliant
-48.0	-20.0	3.51196	0.002	107	0.05	compliant
-48.0	-10.0	-3.31613	-0.002	107	0.05	compliant
-48.0	0.0	-4.69684	-0.002	107	0.05	compliant
-48.0	10.0	2.32398	0.001	107	0.05	compliant
-48.0	30.0	-2.24444	-0.001	107	0.05	compliant
-48.0	40.0	-2.10587	-0.001	107	0.05	compliant
-48.0	50.0	-1.99095	-0.001	107	0.05	compliant
256QAM Modulation ANT1						
-48.0	-30	-5.47708	-0.003	107	0.05	compliant
-48.0	-20	-4.17887	-0.002	107	0.05	compliant
-48.0	-10	-3.39313	-0.002	107	0.05	compliant
-48.0	0	-5.79807	-0.003	107	0.05	compliant
-48.0	10	-3.34101	-0.002	107	0.05	compliant
-48.0	30	-4.11984	-0.002	107	0.05	compliant
-48.0	40	2.66351	0.001	107	0.05	compliant
-48.0	50	-2.57130	-0.001	107	0.05	compliant
256QAM Modulation ANT2						
-48.0	-30	3.32774	0.002	107	0.05	compliant

FCC 47 CFR part 27
(2016)

16. May 2017

Page 40 of 189



FCC ID:
VBNAHIB-

Test Report No:
D556049976

-48.0	-20	3.342811	0.002	107	0.05	compliant
-48.0	-10	-3.12811	-0.001	107	0.05	compliant
-48.0	0	-3.14483	-0.001	107	0.05	compliant
-48.0	10	-1.24442	-0.001	107	0.05	compliant
-48.0	30	-3.34991	-0.002	107	0.05	compliant
-48.0	40	2.71591	0.001	107	0.05	compliant
-48.0	50	3.67739	0.002	107	0.05	compliant
256QAM Modulation ANT3						
-48.0	-30	-3.57954	-0.002	107	0.05	compliant
-48.0	-20	-3.71966	-0.002	107	0.05	compliant
-48.0	-10	-2.54279	-0.001	107	0.05	compliant
-48.0	0	-3.15328	-0.001	107	0.05	compliant
-48.0	10	3.46360	0.002	107	0.05	compliant
-48.0	30	-3.47759	-0.002	107	0.05	compliant
-48.0	40	-2.02870	-0.001	107	0.05	compliant
-48.0	50	-3.21129	-0.001	107	0.05	compliant
256QAM Modulation ANT4						
-48.0	-30	-2.78724	-0.001	107	0.05	compliant
-48.0	-20	5.59985	0.003	107	0.05	compliant
-48.0	-10	-2.62658	-0.001	107	0.05	compliant
-48.0	0	-2.86560	-0.001	107	0.05	compliant
-48.0	10	3.09187	0.001	107	0.05	compliant
-48.0	30	3.23306	0.002	107	0.05	compliant
-48.0	40	-3.83918	-0.002	107	0.05	compliant
-48.0	50	-5.84061	-0.003	107	0.05	compliant
Measurement Uncertainty:					±1.0 Hz	

Table 21 Frequency stability with temp. var. (20 MHz Channel BW)



FCC ID:
VBNAHIB-

Test Report No:
D556049976

Frequency Stability with Voltage Variation:

The EUT was placed in a climatic chamber and allowed to stabilize at +20 degrees Celsius for at least 60 minutes. With the supply voltage of the EUT set to 85% of the nominal value, the frequency error was measure. This procedure was repeated at 100% and 115% of the nominal supply voltage value.

Config A:

Continuing Test

Carrier Frequency: 2145.0 MHz						
Supply Voltage (DC) [V]	Ambient Temperature [°C]	Frequency Deviation		Manufacturer's Specification		Result
		[Hz]	[ppm]	[Hz]	[ppm]	
QPSK Modulation ANT1						
-40.8	20.0	-3.42824	-0.002	107	0.05	compliant
-48.0	20.0	3.84421	0.002	107	0.05	compliant
-55.2	20.0	-2.59075	-0.001	107	0.05	compliant
QPSK Modulation ANT2						
-40.8	20.0	1.59122	0.001	107	0.05	compliant
-48.0	20.0	-3.79180	-0.002	107	0.05	compliant
-55.2	20.0	3.42476	0.002	107	0.05	compliant
QPSK Modulation ANT3						
-40.8	20.0	-2.77333	-0.001	107	0.05	compliant
-48.0	20.0	-5.40811	-0.003	107	0.05	compliant
-55.2	20.0	-3.66669	-0.002	107	0.05	compliant
QPSK Modulation ANT4						
-40.8	20.0	-4.34803	-0.002	107	0.05	compliant
-48.0	20.0	-4.14300	-0.002	107	0.05	compliant
-55.2	20.0	-3.63907	-0.002	107	0.05	compliant
16QAM Modulation ANT1						
-40.8	20.0	-4.18826	-0.002	107	0.05	compliant
-48.0	20.0	-3.35158	-0.002	107	0.05	compliant
-55.2	20.0	-3.16071	-0.001	107	0.05	compliant
16QAM Modulation ANT2						
-40.8	20.0	-4.85166	-0.002	107	0.05	compliant
-48.0	20.0	-3.64834	-0.002	107	0.05	compliant
-55.2	20.0	-3.23242	-0.002	107	0.05	compliant
16QAM Modulation ANT3						
-40.8	20.0	-2.27695	-0.001	107	0.05	compliant
-48.0	20.0	-3.45360	-0.002	107	0.05	compliant
-55.2	20.0	4.00484	0.002	107	0.05	compliant

FCC 47 CFR part 27
(2016)

16. May 2017

Page 42 of 189



FCC ID:
VBNAHIB-

Test Report No:
D556049976

16QAM Modulation ANT4						
-40.8	20.0	2.19460	0.001	107	0.05	compliant
-48.0	20.0	-2.55329	-0.001	107	0.05	compliant
-55.2	20.0	3.78519	0.002	107	0.05	compliant
64QAM Modulation ANT1						
-40.8	20.0	-4.42446	-0.002	107	0.05	compliant
-48.0	20.0	-2.56983	-0.001	107	0.05	compliant
-55.2	20.0	-3.61937	-0.002	107	0.05	compliant
64QAM Modulation ANT2						
-40.8	20.0	4.45775	0.002	107	0.05	compliant
-48.0	20.0	1.93438	0.001	107	0.05	compliant
-55.2	20.0	2.67695	0.001	107	0.05	compliant
64QAM Modulation ANT3						
-40.8	20.0	-5.78444	-0.003	107	0.05	compliant
-48.0	20.0	2.65434	0.001	107	0.05	compliant
-55.2	20.0	-5.31033	-0.002	107	0.05	compliant
64QAM Modulation ANT4						
-40.8	20.0	-4.79217	-0.002	107	0.05	compliant
-48.0	20.0	-3.65313	-0.002	107	0.05	compliant
-55.2	20.0	-3.59839	-0.002	107	0.05	compliant
256QAM Modulation ANT1						
-40.8	20	-3.26659	-0.002	107	0.05	compliant
-48	20	-3.69572	-0.002	107	0.05	compliant
-55.2	20	-2.96731	-0.001	107	0.05	compliant
256QAM Modulation ANT2						
-40.8	20	-5.85594	-0.003	107	0.05	compliant
-48	20	-1.95016	-0.001	107	0.05	compliant
-55.2	20	2.50041	0.001	107	0.05	compliant
256QAM Modulation ANT3						
-40.8	20	-2.50884	-0.001	107	0.05	compliant
-48	20	-1.98080	-0.001	107	0.05	compliant
-55.2	20	-4.10500	-0.002	107	0.05	compliant
256QAM Modulation ANT4						
-40.8	20	-2.65717	-0.001	107	0.05	compliant
-48	20	-3.43810	-0.002	107	0.05	compliant
-55.2	20	-4.11823	-0.002	107	0.05	compliant
Measurement Uncertainty:					±1.0 Hz	

Table 22 Frequency stability with voltage var. (10 MHz Channel BW)



FCC ID:
VBNAHIB-

Test Report No:
D556049976

Config B:

Coning B.

Carrier Frequency: 2145.0 MHz						
Supply Voltage (DC) [V]	Ambient Temperature [°C]	Frequency Deviation		Manufacturer's Specification		Result
		[Hz]	[ppm]	[Hz]	[ppm]	
QPSK Modulation ANT1						
-40.8	20.0	-4.10330	-0.002	107	0.05	compliant
-48.0	20.0	-3.20601	-0.001	107	0.05	compliant
-55.2	20.0	-4.59942	-0.002	107	0.05	compliant
QPSK Modulation ANT2						
-40.8	20.0	-5.17908	-0.002	107	0.05	compliant
-48.0	20.0	-2.38215	-0.001	107	0.05	compliant
-55.2	20.0	-4.57216	-0.002	107	0.05	compliant
QPSK Modulation ANT3						
-40.8	20.0	-2.33665	-0.001	107	0.05	compliant
-48.0	20.0	2.75850	0.001	107	0.05	compliant
-55.2	20.0	-2.89980	-0.001	107	0.05	compliant
QPSK Modulation ANT4						
-40.8	20.0	-3.98903	-0.002	107	0.05	compliant
-48.0	20.0	-3.16662	-0.001	107	0.05	compliant
-55.2	20.0	-4.54427	-0.002	107	0.05	compliant
16QAM Modulation ANT1						
-40.8	20.0	-2.98668	-0.001	107	0.05	compliant
-48.0	20.0	1.99184	0.001	107	0.05	compliant
-55.2	20.0	-4.93676	-0.002	107	0.05	compliant
16QAM Modulation ANT2						
-40.8	20.0	4.69443	0.002	107	0.05	compliant
-48.0	20.0	-2.79610	-0.001	107	0.05	compliant
-55.2	20.0	2.17217	0.001	107	0.05	compliant
16QAM Modulation ANT3						
-40.8	20.0	3.30398	0.002	107	0.05	compliant
-48.0	20.0	-2.20569	-0.001	107	0.05	compliant
-55.2	20.0	2.34834	0.001	107	0.05	compliant
16QAM Modulation ANT4						
-40.8	20.0	-2.23830	-0.001	107	0.05	compliant
-48.0	20.0	-2.95879	-0.001	107	0.05	compliant
-55.2	20.0	3.96738	0.002	107	0.05	compliant
64QAM Modulation ANT1						
-40.8	20.0	-2.20398	-0.001	107	0.05	compliant
-48.0	20.0	-1.47155	-0.001	107	0.05	compliant
-55.2	20.0	-4.67437	-0.002	107	0.05	compliant
64QAM Modulation ANT2						

FCC 47 CFR part 27
(2016)

16. May 2017

Page 44 of 189



FCC ID:
VBNAHIB-

Test Report No:
D556049976

-40.8	20.0	-3.23672	-0.002	107	0.05	compliant
-48.0	20.0	-2.44805	-0.001	107	0.05	compliant
-55.2	20.0	-3.53048	-0.002	107	0.05	compliant
64QAM Modulation ANT3						
-40.8	20.0	3.32001	0.002	107	0.05	compliant
-48.0	20.0	2.95459	0.001	107	0.05	compliant
-55.2	20.0	-4.93237	-0.002	107	0.05	compliant
64QAM Modulation ANT4						
-40.8	20.0	-2.74497	-0.001	107	0.05	compliant
-48.0	20.0	-5.06852	-0.002	107	0.05	compliant
-55.2	20.0	2.58396	0.001	107	0.05	compliant
256QAM Modulation ANT1						
-40.8	20	-3.48498	-0.002	107	0.05	compliant
-48	20	-3.34101	-0.002	107	0.05	compliant
-55.2	20	-3.72825	-0.002	107	0.05	compliant
256QAM Modulation ANT2						
-40.8	20	-4.21019	-0.002	107	0.05	compliant
-48	20	-3.74198	-0.002	107	0.05	compliant
-55.2	20	-3.24455	-0.002	107	0.05	compliant
256QAM Modulation ANT3						
-40.8	20	-2.81335	-0.001	107	0.05	compliant
-48	20	-1.44340	-0.001	107	0.05	compliant
-55.2	20	2.92423	0.001	107	0.05	compliant
256QAM Modulation ANT4						
-40.8	20	-2.53966	-0.001	107	0.05	compliant
-48	20	-4.50907	-0.002	107	0.05	compliant
-55.2	20	-3.75706	-0.002	107	0.05	compliant
Measurement Uncertainty:					±1.0 Hz	

Table 23 Frequency stability with voltage var. (20 MHz Channel BW)

The measured frequency stability was found to be compliant with the manufacturer's specifications and with all requirements of the FCC rules.



FCC ID:
VBNAHIB-

Test Report No:
D556049976

5. TEST DATA AND SCREENSHOTS

5.1 Part List of the RF Measurement Test Equipment

No.	Test Equipment	Manufacturer & Type	Serial Number	Calibration date	Calibration due	Test No.
1	Signal Analyzer	Rohde & Schwarz: FSV 30	100781	06/2016	06/2017	1, 2, 3, 4, 6
2	Signal Analyzer	Rohde & Schwarz: FSQ 26	200206	01/2017	01/2018	1, 2, 3, 4, 6
3	Vector Network Analyzer	Rohde & Schwarz: ZVA40	100146	01/2017	01/2018	1, 2, 3, 4, 6
4	Vector Network Analyzer	Rohde & Schwarz: ZVL13	101177	07/2016	07/2017	1, 2, 3, 4, 6
5	Calibration Unit	Rohde & Schwarz: ZV-Z54	100125	06/2016	06/2017	1, 2, 3, 4, 6
6	Calibration Kit	Hewlett-Packard: HP85032B	2919A04843	07/2016	07/2017	1, 2, 3, 4, 6
7	Frequency Standard	Microsemi 8040	162230101016	09/2016	09/2017	6
8	Multimeter	Fluke 83	65870302	12/2016	12/2017	1, 2, 3, 4, 6
9	Humidity and Temperature Indicator	Vaisala: HMI 31	P3730008	01/2017	01/2018	1, 2, 3, 4, 6
10	DC Power Supply	Maxion: EA-PSI 8080-510	13314600001	cnn	-	1, 2, 3, 4, 6
11	DC Power Supply	Toellner: 8870	61247	cnn	-	1, 2, 3, 4, 6
12	Attenuator	Aeroflex/Weinschel: 66-20-33	BV3346	cnn	-	1, 2, 3, 4, 6
13	EMI Test Receiver	R&S ESIB26	100335	06/2016	06/2017	5
14	Horn Antenna	ETS-Lindgren 3116C-PA	00206990	09/2016	09/2017	5
15	Horn Antenna	ETS-Lindgren ETS3115	92148	06/2016	06/2017	5
16	Bilog Antenna	Chase CBL6112B	2003	06/2016	06/2017	5
17	Mast Controller	Maturo NCD/180 2	17210416	cnn	-	5
18	4 meter mast	Maturo TAM4.0-E	086/17210915	cnn	-	5
19	Anechoic Chamber	S&MC	B83317-C6019	09/2016	09/2019	5
20	Amplifier	Miteq 4FSX4	902638	cnn	-	5

Table 24 Part List of the RF Measurement Test Equipment



Product Service

FCC ID:
VBNAHIB-

Test Report No:
D556049976

5.2 Spectral Plots

5.2.1. Test No. 2: Modulation Characteristics

No additional measurements are required for the modulation characteristics. Please refer to test no. 3, occupied bandwidth on page 15.

Screenshots below shows information about the modulations I/Q constellation form and modulation information table, displaying error to ideal modulation symbols.

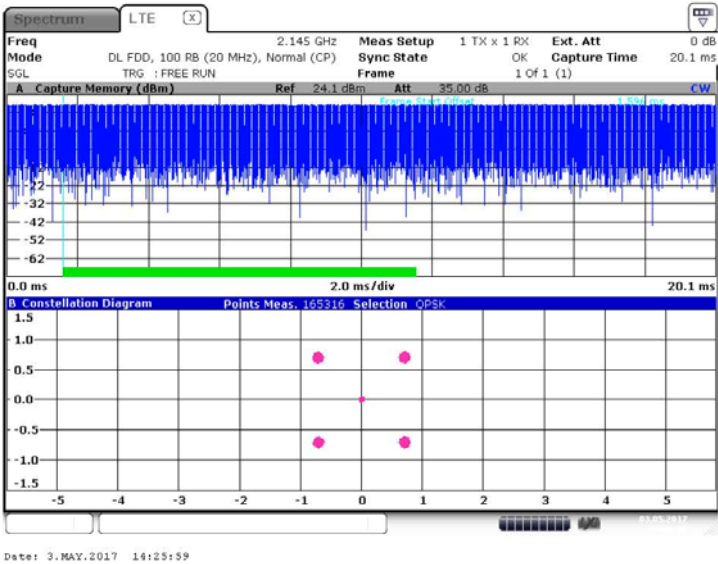


Figure 5 I/Q constellation diagram with capture buffer – QPSK (2145.0 MHz)
(20MHz Channel BW)



Product Service

FCC ID:
VBNAHIB-

Test Report No:
D556049976



Figure 6 I/Q constellation table with I/Q error – QPSK (2145.0 MHz) (20MHz Channel BW)

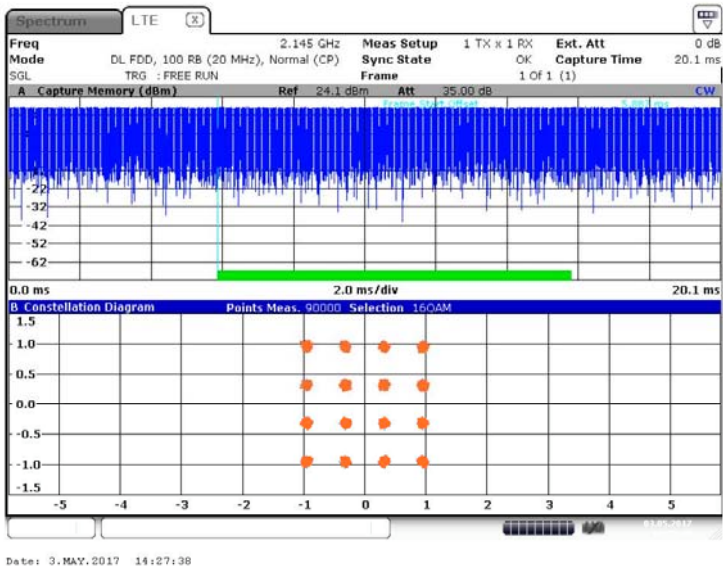


Figure 7 I/Q constellation diagram with capture buffer – 16QAM (2145.0 MHz) (20MHz Channel BW)



Product Service

FCC ID:
VBNAHIB-

Test Report No:
D556049976



Figure 8 I/Q constellation table with I/Q error – 16QAM (2145.0 MHz) (20MHz Channel BW)

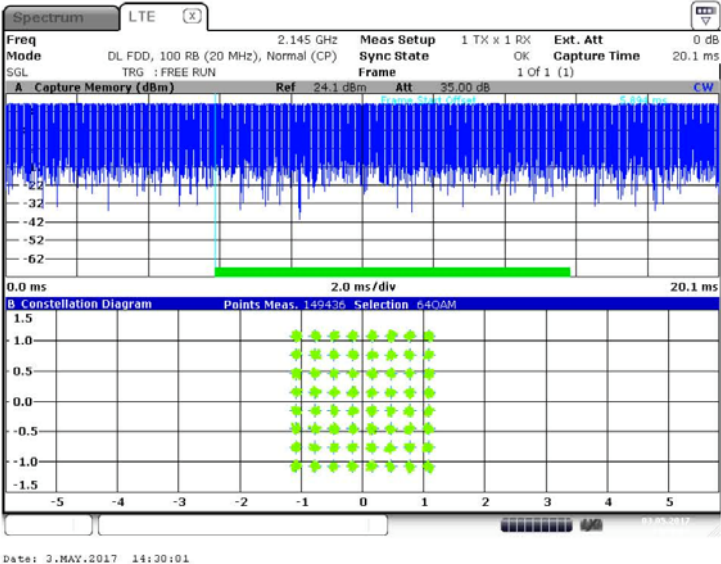


Figure 9 I/Q constellation diagram with capture buffer – 64QAM (2145.0 MHz) (20MHz Channel BW)



Product Service

FCC ID:
VBNAHIB-

Test Report No:
D556049976



Figure 10 I/Q constellation table with I/Q error – 64QAM (2145.0 MHz)
(20MHz Channel BW)

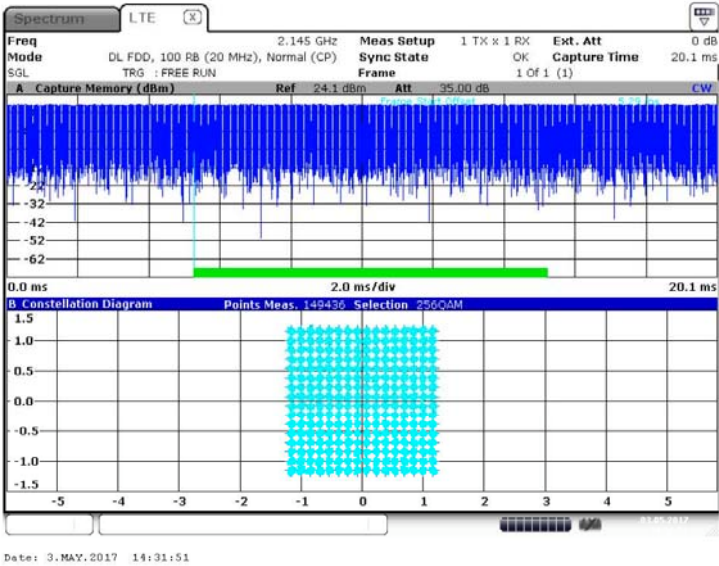


Figure 11 I/Q constellation diagram with capture buffer – 256QAM (2145.0 MHz)
(20MHz Channel BW)



Product Service

FCC ID:
VBNAHIB-

Test Report No:
D556049976



**Figure 12 I/Q constellation table with I/Q error – 256QAM (2145.0 MHz)
(20MHz Channel BW)**



Product Service

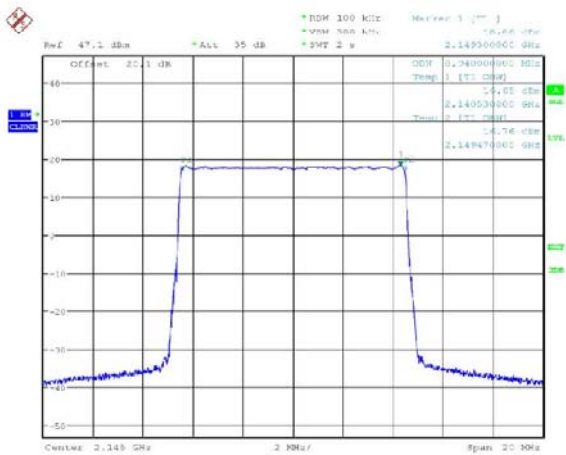
FCC ID:
VBNAHIB-

Test Report No:
D556049976

5.2.2. Test No. 3: Occupied Bandwidth

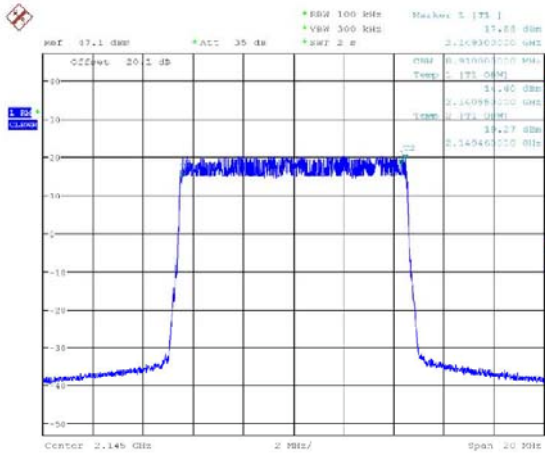
The value ‘OBW’ is the measured occupied bandwidth.

Config A ANT1:



Date: 4.MAY.2017 10:28:43

Figure 13 Occupied Bandwidth – QPSK (2145.0 MHz) (10MHz Channel BW)



Date: 4.MAY.2017 10:32:57

Figure 14 Occupied Bandwidth – 16QAM (2145.0 MHz) (10MHz Channel BW)

FCC 47 CFR part 27
(2016)

16. May 2017

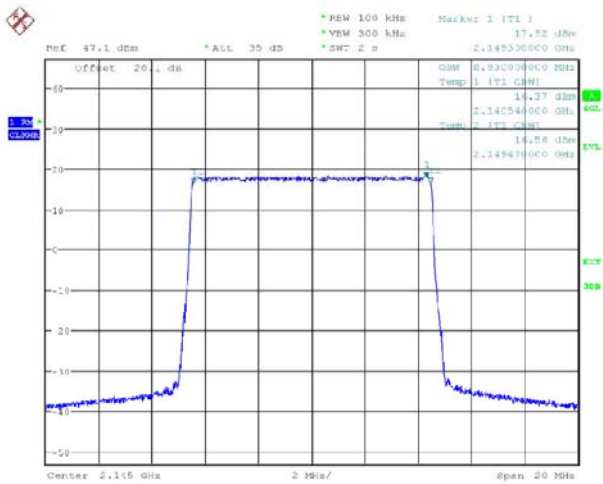
Page 52 of 189



Product Service

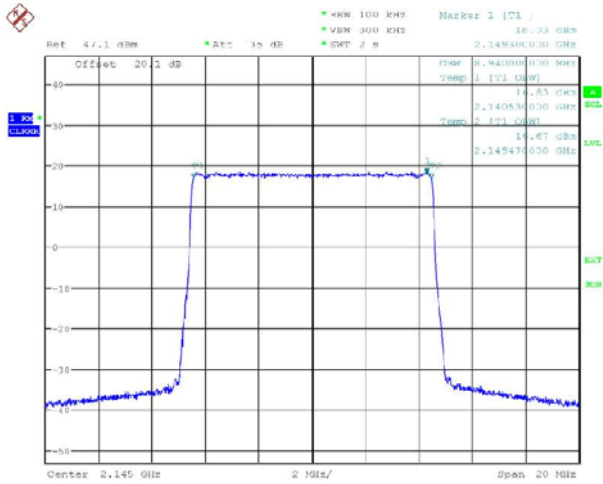
FCC ID:
VBNAHIB-

Test Report No:
D556049976



Date: 4.MAY.2017 10:35:31

Figure 15 Occupied Bandwidth – 64QAM (2145.0 MHz) (10MHz Channel BW)



Date: 4.MAY.2017 10:39:57

Figure 16 Occupied Bandwidth – 256QAM (2145.0 MHz) (10MHz Channel BW)



Product Service

FCC ID:
VBNAHIB-

Test Report No:
D556049976

Config A ANT2:

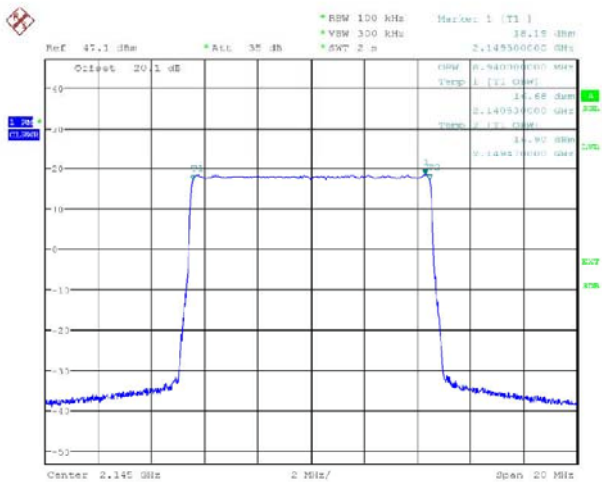


Figure 17 Occupied Bandwidth – QPSK (2145.0 MHz) (10MHz Channel BW)

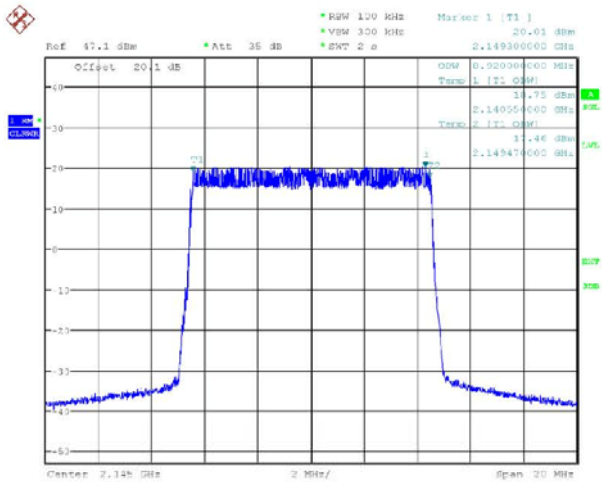
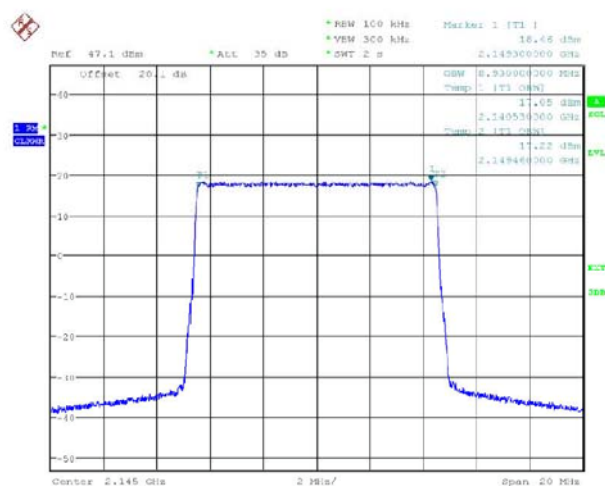


Figure 18 Occupied Bandwidth – 16QAM (2145.0 MHz) (10MHz Channel BW)



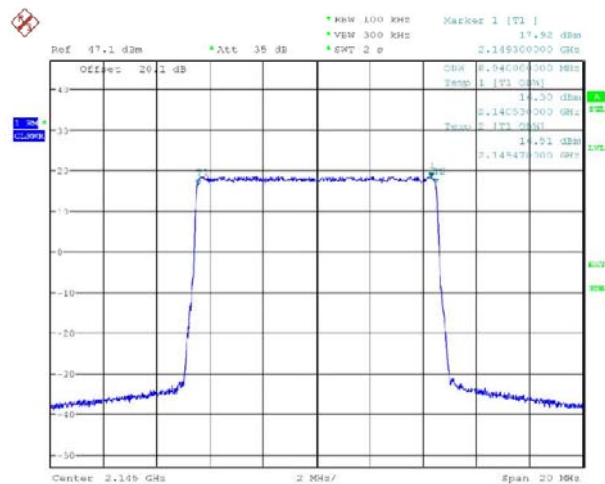
FCC ID:
VBNAHIB-

Test Report No:
D556049976



Date: 4.MAY.2017 08:48:12

Figure 19 Occupied Bandwidth – 64QAM (2145.0 MHz) (10MHz Channel BW)



Date: 4.MAY.2017 08:51:20

Figure 20 Occupied Bandwidth – 256QAM (2145.0 MHz) (10MHz Channel BW)

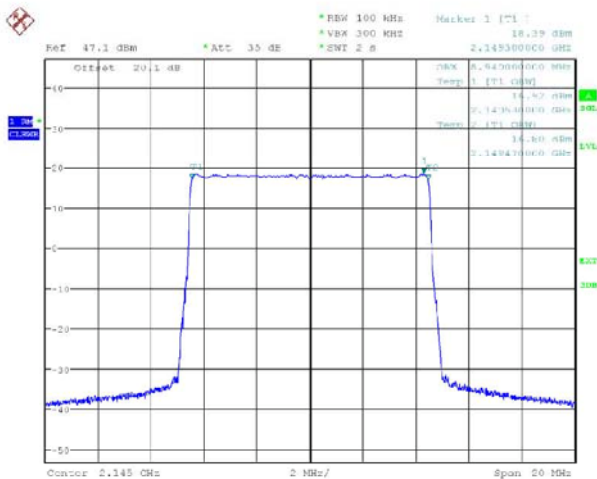


Product Service

FCC ID:
VBNAHIB-

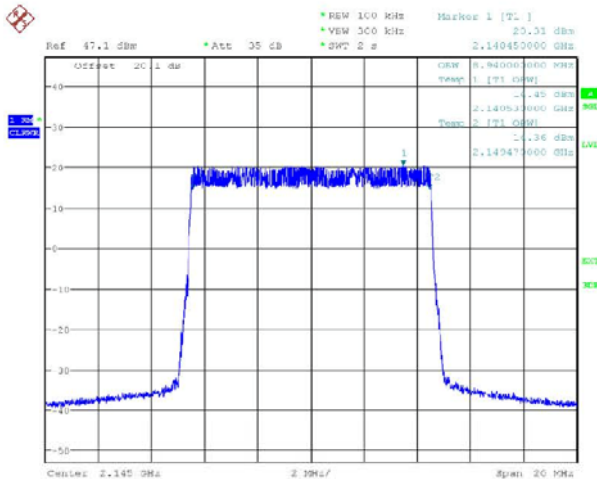
Test Report No:
D556049976

Config A ANT3:



Date: 4.MAY.2017 07:48:03

Figure 21 Occupied Bandwidth – QPSK (2145.0 MHz) (10MHz Channel BW)

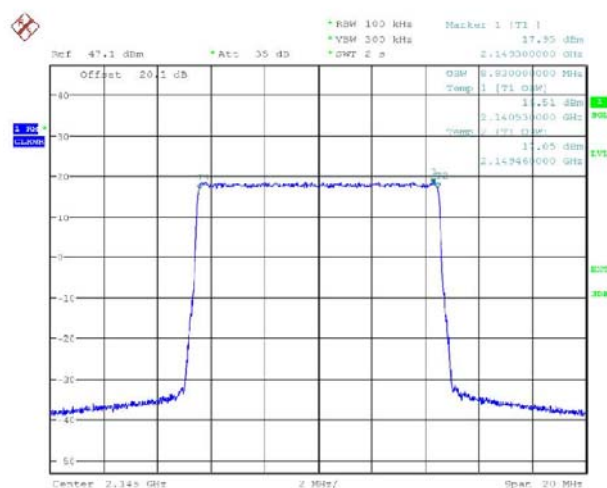


Date: 4.MAY.2017 07:55:27

Figure 22 Occupied Bandwidth – 16QAM (2145.0 MHz) (10MHz Channel BW)

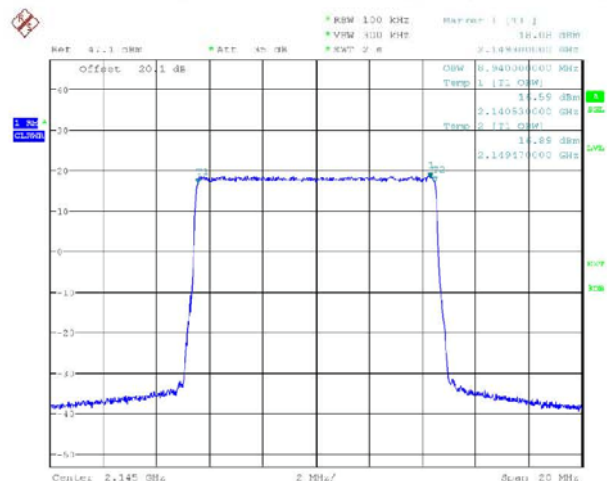
FCC ID:
VBNAHIB-

Test Report No:
D556049976



Date: 4.MAY.2017 08:01:23

Figure 23 Occupied Bandwidth – 64QAM (2145.0 MHz) (10MHz Channel BW)



Date: 4.MAY.2017 08:04:41

Figure 24 Occupied Bandwidth – 256QAM (2145.0 MHz) (10MHz Channel BW)

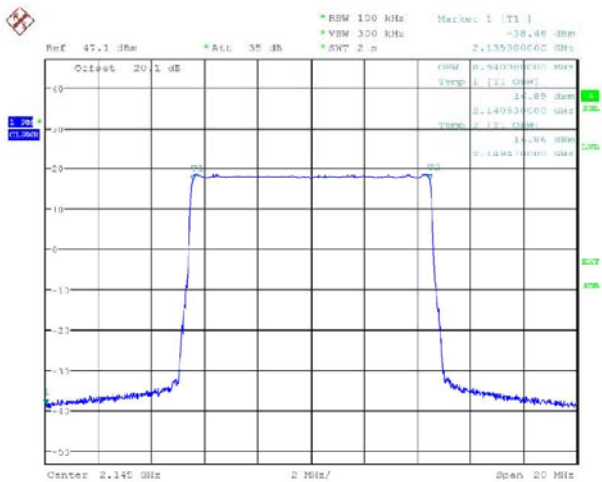


Product Service

FCC ID:
VBNAHIB-

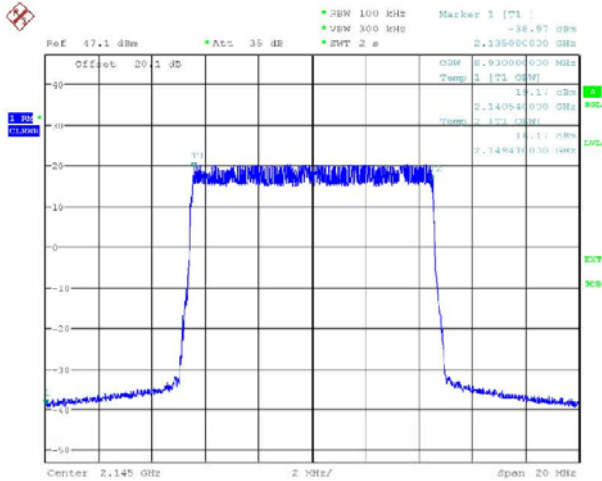
Test Report No:
D556049976

Config A ANT4:



Date: 3.MAY.2017 13:20:30

Figure 25 Occupied Bandwidth – QPSK (2145.0 MHz) (10MHz Channel BW)



Date: 3.MAY.2017 13:24:42

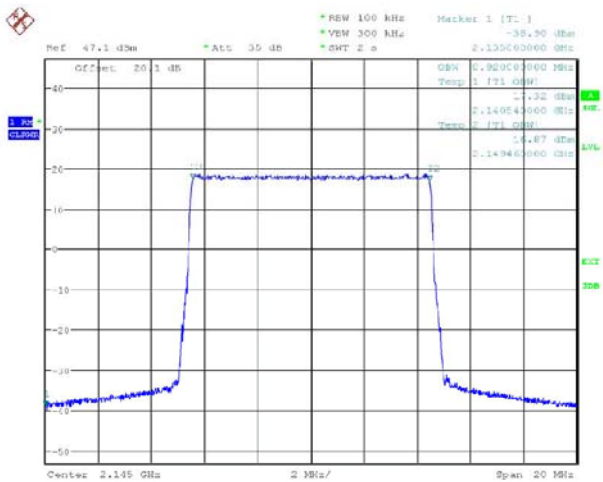
Figure 26 Occupied Bandwidth – 16QAM (2145.0 MHz) (10MHz Channel BW)



Product Service

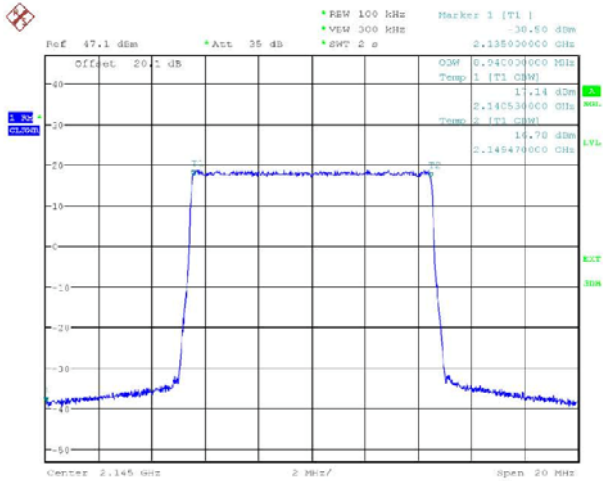
FCC ID:
VBNAHIB-

Test Report No:
D556049976



Date: 3.MAY.2017 13:27:50

Figure 27 Occupied Bandwidth – 64QAM (2145.0 MHz) (10MHz Channel BW)



Date: 3.MAY.2017 13:31:00

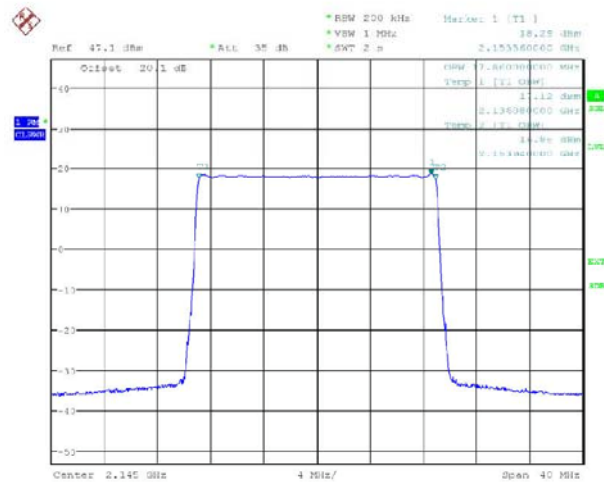
Figure 28 Occupied Bandwidth – 256QAM (2145.0 MHz) (10MHz Channel BW)



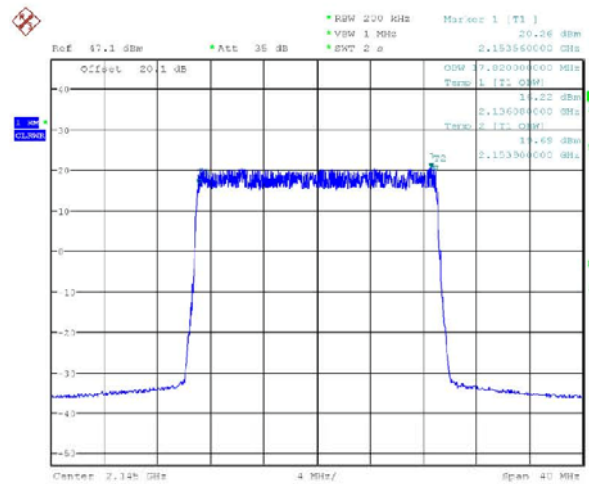
Product Service

FCC ID:
VBNAHIB-

Test Report No:
D556049976

Config B ANT1:

Date: 4.MAY.2017 12:34:20

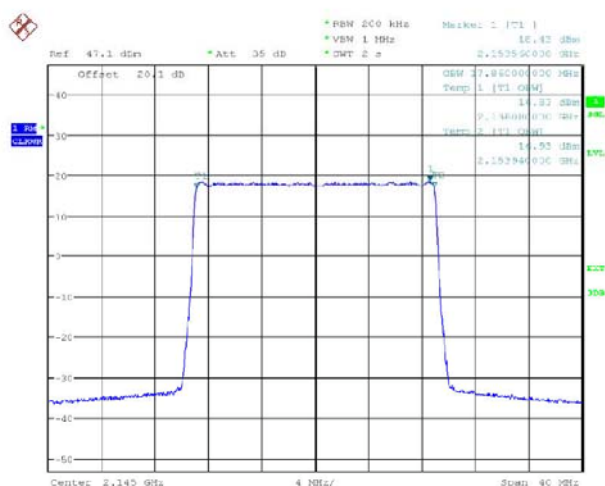
Figure 29 Occupied Bandwidth – QPSK (2145.0 MHz) (20MHz Channel BW)

Date: 4.MAY.2017 12:35:59

Figure 30 Occupied Bandwidth – 16QAM (2145.0 MHz) (20MHz Channel BW)

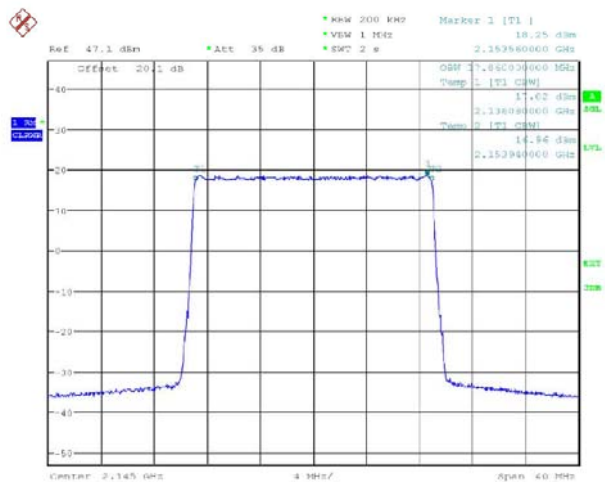
FCC ID:
VBNAHIB-

Test Report No:
D556049976



Date: 4.MAY.2017 12:53:18

Figure 31 Occupied Bandwidth – 64QAM (2145.0 MHz) (20MHz Channel BW)



Date: 4.MAY.2017 12:55:58

Figure 32 Occupied Bandwidth – 256QAM (2145.0 MHz) (20MHz Channel BW)

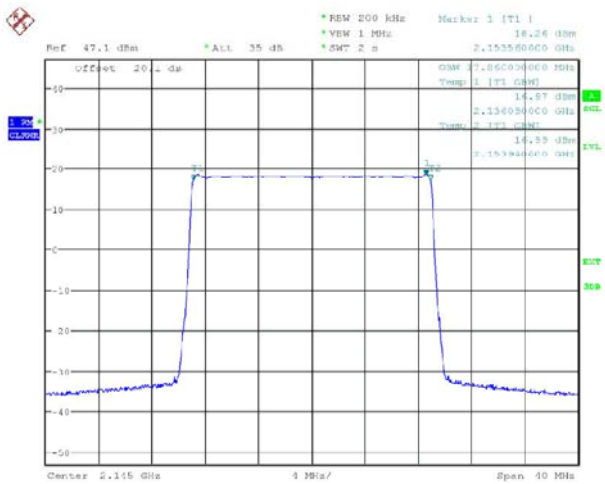


Product Service

FCC ID:
VBNAHIB-

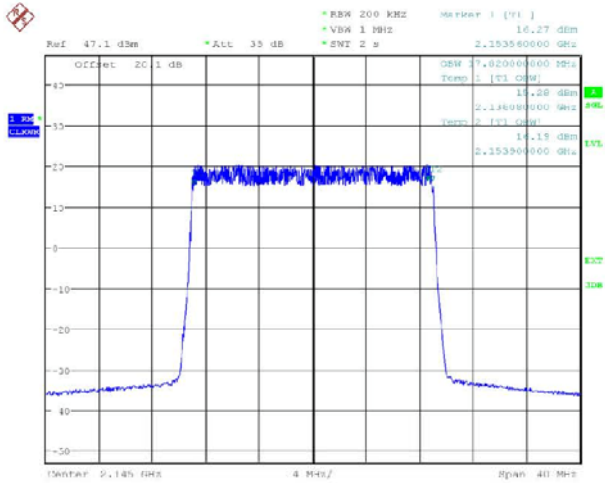
Test Report No:
D556049976

Config B ANT2:



Date: 5.MAY.2017 07:33:04

Figure 33 Occupied Bandwidth – QPSK (2145.0 MHz) (20MHz Channel BW)



Date: 5.MAY.2017 07:41:37

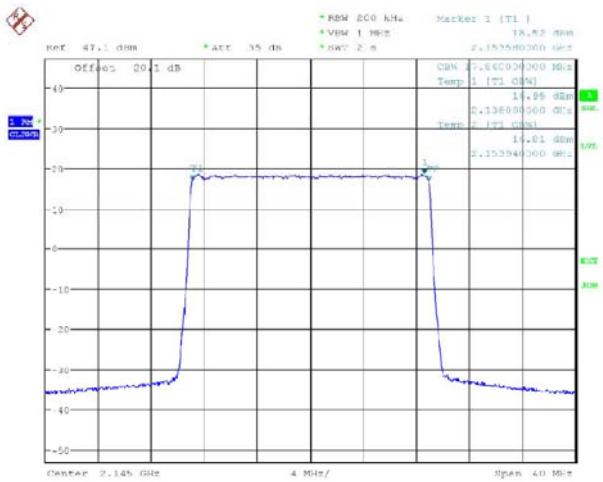
Figure 34 Occupied Bandwidth – 16QAM (2145.0 MHz) (20MHz Channel BW)



Product Service

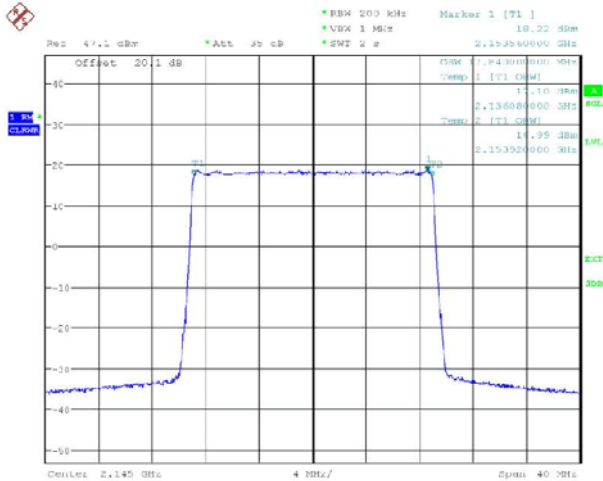
FCC ID:
VBNAHIB-

Test Report No:
D556049976



Date: 5.MAY.2017 07:44:39

Figure 35 Occupied Bandwidth – 64QAM (2145.0 MHz) (20MHz Channel BW)



Date: 5.MAY.2017 07:47:57

Figure 36 Occupied Bandwidth – 256QAM (2145.0 MHz) (20MHz Channel BW)

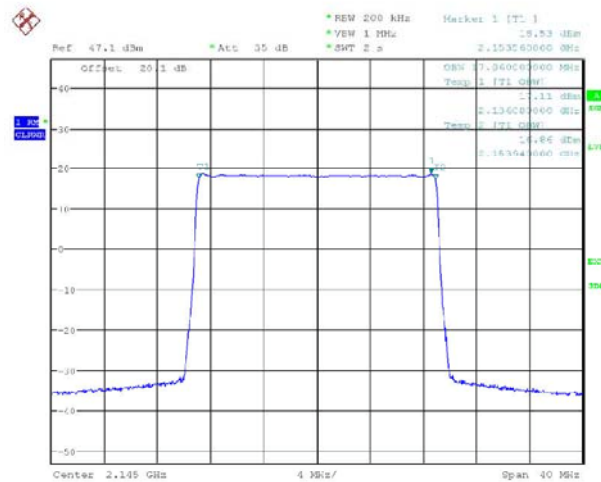


Product Service

FCC ID:
VBNAHIB-

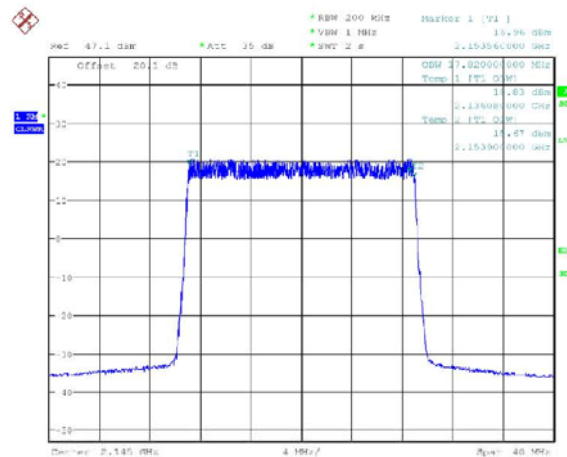
Test Report No:
D556049976

Config B ANT3:



Date: 5.MAY.2017 06:50:30

Figure 37 Occupied Bandwidth – QPSK (2145.0 MHz) (20MHz Channel BW)



Date: 5.MAY.2017 08:58:02

Figure 38 Occupied Bandwidth – 16QAM (2145.0 MHz) (20MHz Channel BW)



Product Service

FCC ID:
VBNAHIB-

Test Report No:
D556049976

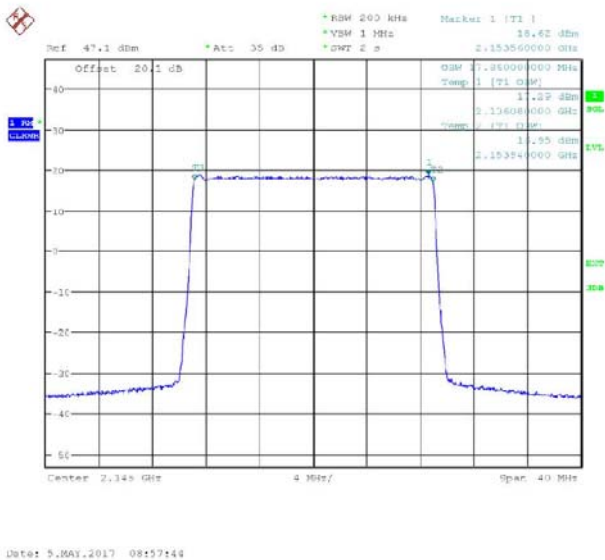


Figure 39 Occupied Bandwidth – 64QAM (2145.0 MHz) (20MHz Channel BW)

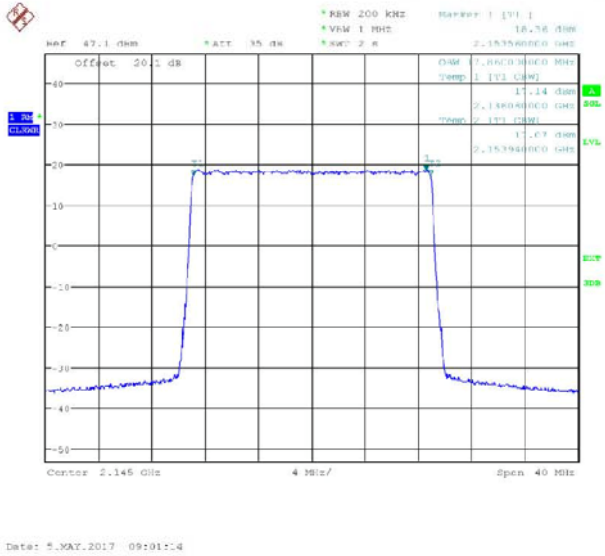


Figure 40 Occupied Bandwidth – 256QAM (2145.0 MHz) (20MHz Channel BW)

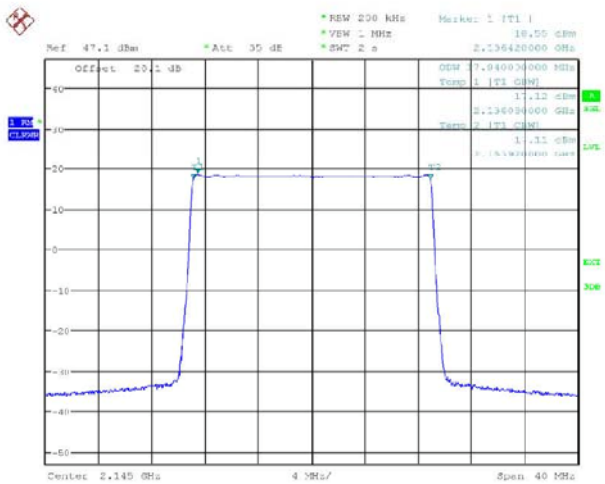


Product Service

FCC ID:
VBNAHIB-

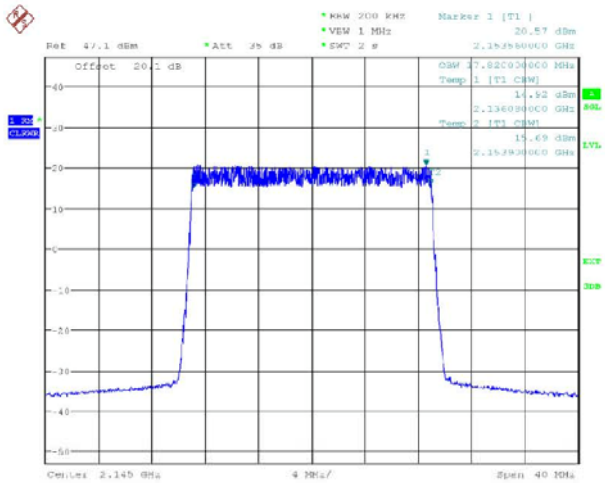
Test Report No:
D556049976

Config B ANT4:



Date: 5.MAY.2017 10:25:01

Figure 41 Occupied Bandwidth – QPSK (2145.0 MHz) (20MHz Channel BW)



Date: 5.MAY.2017 10:22:09

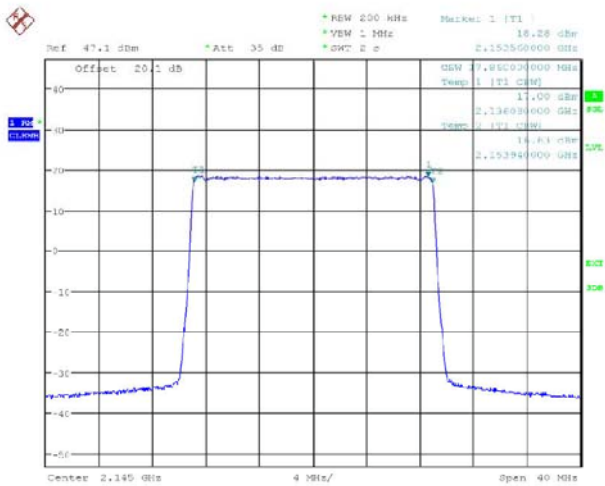
Figure 42 Occupied Bandwidth – 16QAM (2145.0 MHz) (20MHz Channel BW)



Product Service

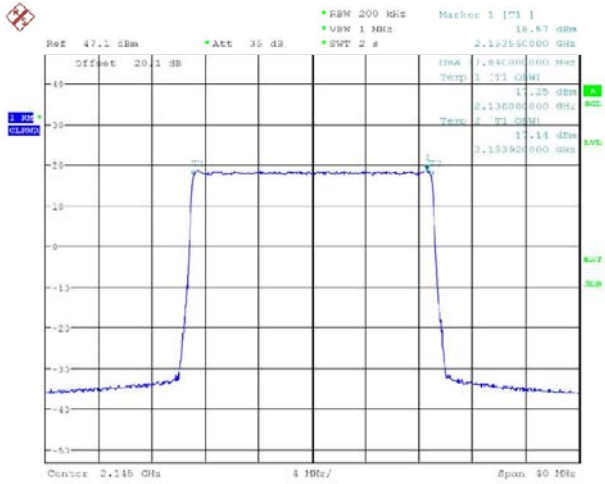
FCC ID:
VBNAHIB-

Test Report No:
D556049976



Date: 5.MAY.2017 10:32:50

Figure 43 Occupied Bandwidth – 64QAM (2145.0 MHz) (20MHz Channel BW)



Date: 5.MAY.2017 10:56:19

Figure 44 Occupied Bandwidth – 256QAM (2145.0 MHz) (20MHz Channel BW)

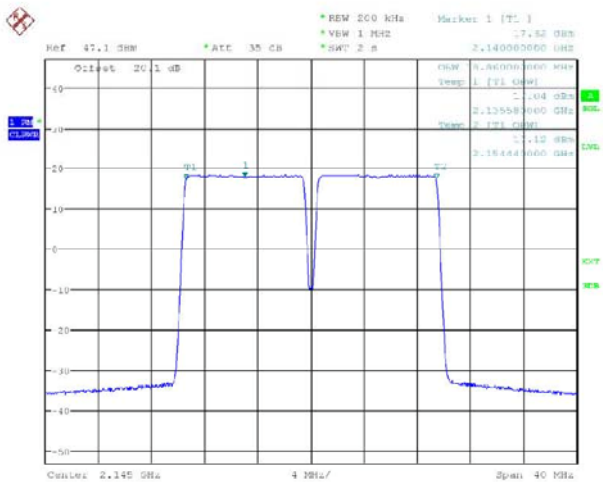


Product Service

FCC ID:
VBNAHIB-

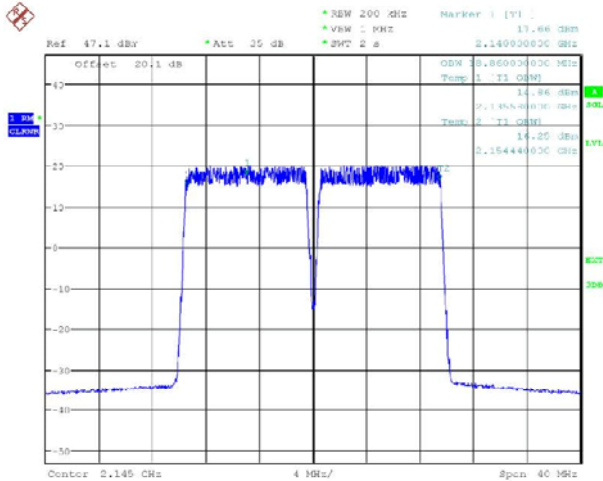
Test Report No:
D556049976

Config C ANT1:



Date: 28.APR.2017 10:59:25

Figure 45 Occupied Bandwidth – QPSK (2140/2150 MHz) (10+10MHz Channel BW)



Date: 2.MAY.2017 09:03:02

Figure 46 Occupied Bandwidth – 16QAM (2140/2150 MHz) (10+10MHz channel BW)

FCC 47 CFR part 27
(2016)

16. May 2017

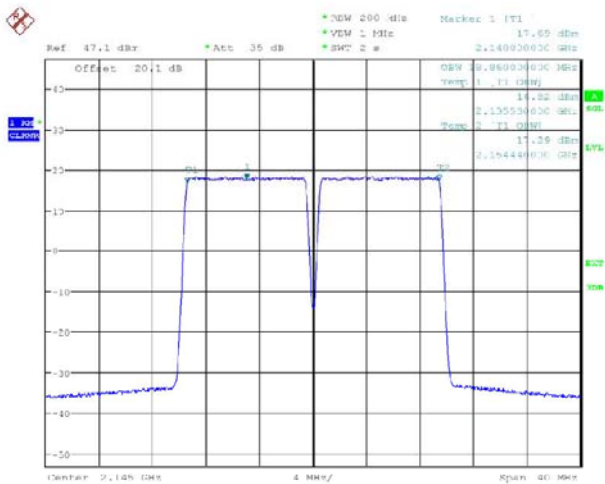
Page 68 of 189



Product Service

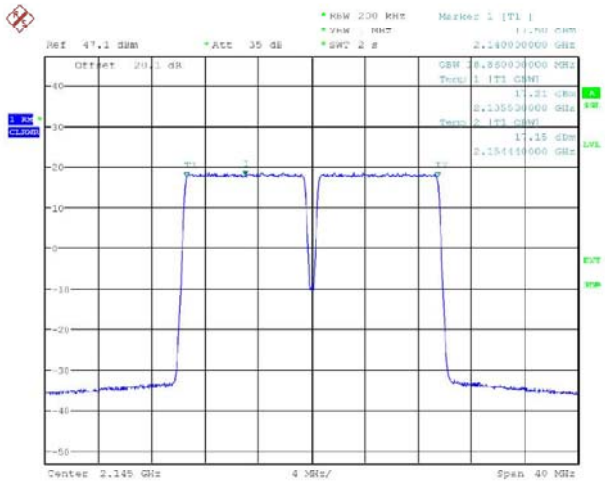
FCC ID:
VBNAHIB-

Test Report No:
D556049976



Date: 2.MAY.2017 09:09:48

Figure 47 Occupied Bandwidth – 64QAM (2140/2150 MHz) (10+10MHz Channel BW)



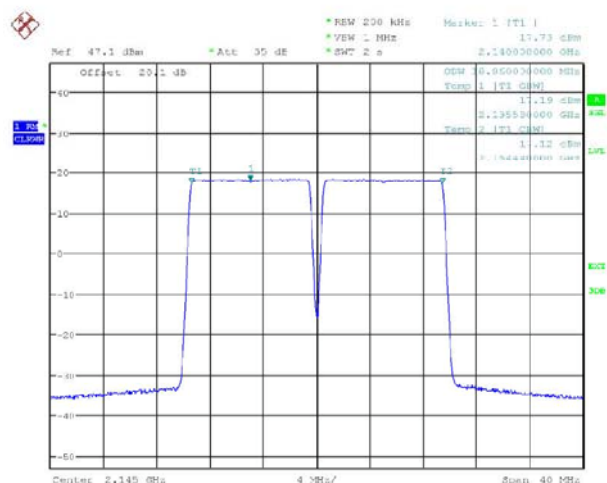
Date: 2.MAY.2017 10:03:05

Figure 48 Occupied Bandwidth – 256QAM (2140/2150 MHz) (10+10MHz Channel BW)



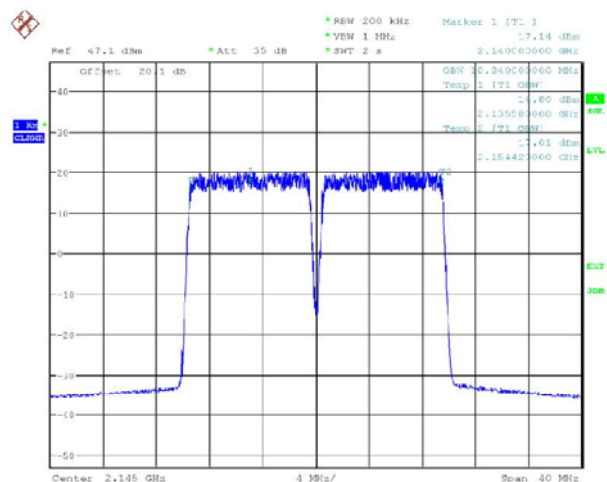
FCC ID:
VBNAHIB-

Test Report No:
D556049976

Config C ANT2:

Date: 2-MAY-2017 11:43:06

Figure 49 Occupied Bandwidth – QPSK (2140/2150 MHz) (10+10MHz Channel BW)



Date: 2.MAY.2017 12:24:16

Figure 50 Occupied Bandwidth – 16QAM (2140/2150 MHz) (10+10MHz channel BW)

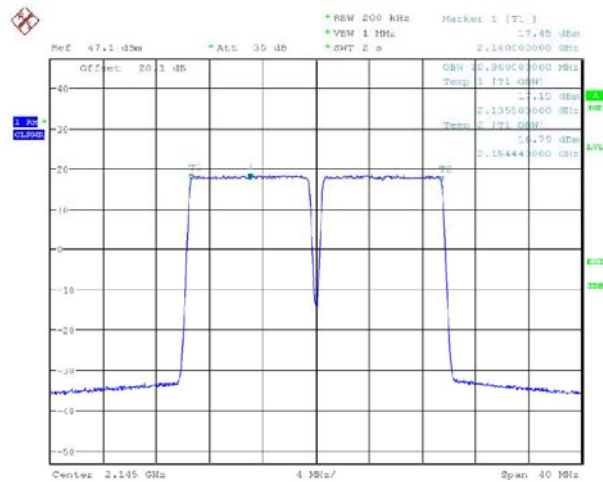
FCC 47 CFR part 27
(2016)

16. May 2017

Page 70 of 189

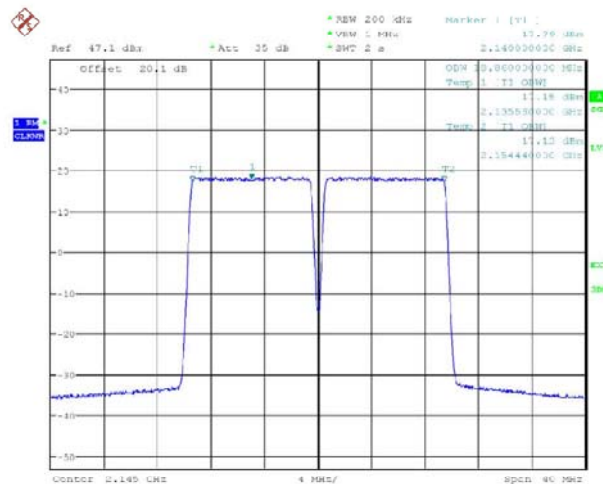


Product Service

FCC ID:
VBNAHIB-Test Report No:
D556049976

Date: 2.MAY.2017 12:29:53

Figure 51 Occupied Bandwidth – 64QAM (2140/2150 MHz) (10+10MHz Channel BW)



Date: 2.MAY.2017 12:38:06

Figure 52 Occupied Bandwidth – 256QAM (2140/2150 MHz) (10+10MHz Channel BW)

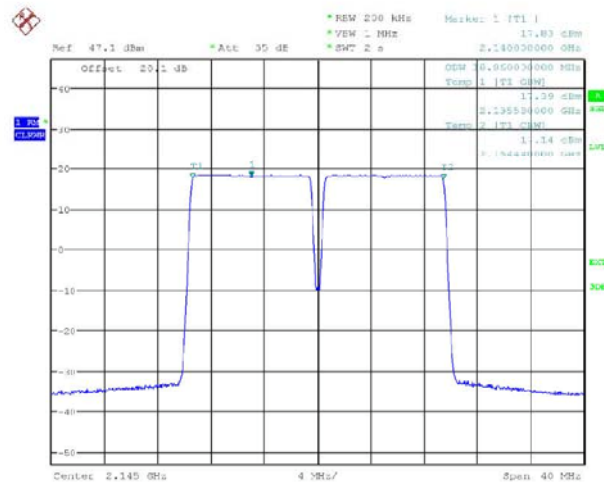


Product Service

FCC ID:
VBNAHIB-

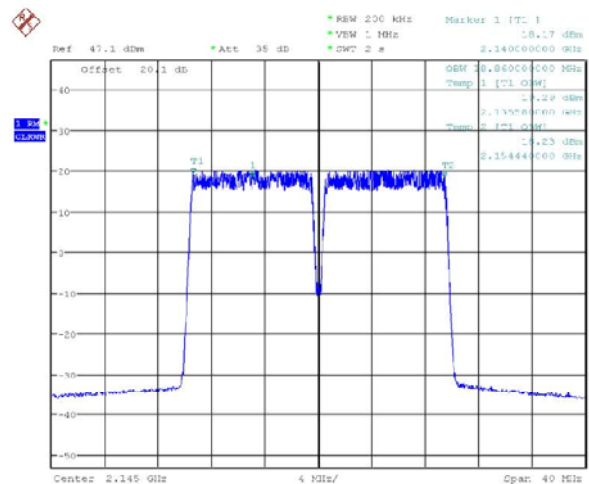
Test Report No:
D556049976

Config C ANT3:



Date: 2.MAY.2017 13:14:07

Figure 53 Occupied Bandwidth – QPSK (2140/2150 MHz) (10+10MHz Channel BW)



Date: 2.MAY.2017 13:51:13

Figure 54 Occupied Bandwidth – 16QAM (2140/2150 MHz) (10+10MHz channel BW)

FCC 47 CFR part 27
(2016)

16. May 2017

Page 72 of 189