



Shenzhen Huaxin Information Technology Service Co., Ltd

101, R & D Building, No.3 guansheng 4th Road, Luhua Community, Guanhu Street, Longhua District,
Shenzhen, Guangdong, China

Tel: +86-755-21018313 Http: //www.tecovo.net

Appendix for WCDMA Band 5

Applicant: Howen Technologies Co., Ltd.

**Address: Room 2001 & 2004, Building 2A, Shenzhen International
Innovation Valley, Dashi 1st Road, Nanshan District, Shenzhen,
China**

Product Name: Dashcam

**Model: Hero-ME40-02, Hero-MC30-01, Hero-MC30-02, Hero-MC30-
03, Hero-ME41-02, Hero-ME41-03, Hero-ME40-01, Hero-ME40-03,
Hero-MA90-01, Hero-MA90-02, Hero-MA90-03**

FCC ID: 2AGBD1-HERO-ME40-02

TABLE OF CONTENTS

1. Conducted Output Power	2
2. Frequency Stability	2
3. 99% & 26dB Bandwidth	5
4. Peak-Average Ratio	14
5. Spurious Emission and Band Edge	19

1. Conducted Output Power

1.1 Test Result

1.1.1 Band5

Band: 5					
ENV	Mode		Frequency (MHz)	Conducted Power (dBm)	Verdict
	Network	Subset			
NTNV	RMC	12.2kbps RMC	826.4	24.17	Pass
			836.6	24.55	Pass
			846.6	24.15	Pass
	HSDPA	Subtest 1	826.4	22.85	Pass
		Subtest 2	826.4	22.85	Pass
		Subtest 3	826.4	22.83	Pass
		Subtest 4	826.4	22.80	Pass
		Subtest 1	836.6	22.89	Pass
		Subtest 2	836.6	22.90	Pass
		Subtest 3	836.6	22.90	Pass
		Subtest 4	836.6	22.86	Pass
		Subtest 1	846.6	22.39	Pass
		Subtest 2	846.6	22.40	Pass
		Subtest 3	846.6	22.40	Pass
		Subtest 4	846.6	22.34	Pass
	HSUPA	Subtest 1	826.4	21.12	Pass
		Subtest 2	826.4	20.66	Pass
		Subtest 3	826.4	20.81	Pass
		Subtest 4	826.4	20.81	Pass
		Subtest 5	826.4	20.77	Pass
		Subtest 1	836.6	20.86	Pass
		Subtest 2	836.6	21.12	Pass
		Subtest 3	836.6	21.16	Pass
		Subtest 4	836.6	20.84	Pass
		Subtest 5	836.6	21.45	Pass
		Subtest 1	846.6	20.11	Pass
		Subtest 2	846.6	20.27	Pass
		Subtest 3	846.6	20.16	Pass
		Subtest 4	846.6	20.27	Pass
		Subtest 5	846.6	20.54	Pass

2. Frequency Stability

2.1 Test Result

2.1.1 Band5

Band: 5							
Network	Frequency (MHz)	Temp. (°C)	Voltage (VDC)	Freq. Error (Hz)	Freq. vs. Rated (ppm)		Verdict
					Result	Limit	
RMC	826.4	24	9.0	-4.678	-0.0057	-2.5 to 2.5	Pass
			12.0	-0.050	-0.0001	-2.5 to 2.5	Pass
			36.0	-1.502	-0.0018	-2.5 to 2.5	Pass

		-40	12.0	-7.346	-0.0089	-2.5 to 2.5	Pass
		-30	12.0	-4.499	-0.0054	-2.5 to 2.5	Pass
		-20	12.0	-8.597	-0.0104	-2.5 to 2.5	Pass
		-10	12.0	-5.021	-0.0061	-2.5 to 2.5	Pass
		0	12.0	-9.348	-0.0113	-2.5 to 2.5	Pass
		10	12.0	-0.873	-0.0011	-2.5 to 2.5	Pass
		30	12.0	-0.958	-0.0012	-2.5 to 2.5	Pass
		40	12.0	-1.230	-0.0015	-2.5 to 2.5	Pass
		50	12.0	-2.139	-0.0026	-2.5 to 2.5	Pass
		60	12.0	-2.797	-0.0034	-2.5 to 2.5	Pass
		70	12.0	-5.651	-0.0068	-2.5 to 2.5	Pass
	836.6	24	9.0	-1.273	-0.0015	-2.5 to 2.5	Pass
			12.0	-4.671	-0.0056	-2.5 to 2.5	Pass
			36.0	-5.164	-0.0062	-2.5 to 2.5	Pass
		-40	12.0	-5.894	-0.0070	-2.5 to 2.5	Pass
		-30	12.0	0.887	0.0011	-2.5 to 2.5	Pass
		-20	12.0	1.166	0.0014	-2.5 to 2.5	Pass
		-10	12.0	-0.572	-0.0007	-2.5 to 2.5	Pass
		0	12.0	-3.369	-0.0040	-2.5 to 2.5	Pass
		10	12.0	-7.997	-0.0096	-2.5 to 2.5	Pass
		30	12.0	-0.687	-0.0008	-2.5 to 2.5	Pass
		40	12.0	-7.632	-0.0091	-2.5 to 2.5	Pass
		50	12.0	2.618	0.0031	-2.5 to 2.5	Pass
		60	12.0	-4.706	-0.0056	-2.5 to 2.5	Pass
		70	12.0	-0.815	-0.0010	-2.5 to 2.5	Pass
	846.6	24	9.0	1.616	0.0019	-2.5 to 2.5	Pass
			12.0	-3.240	-0.0038	-2.5 to 2.5	Pass
			36.0	0.200	0.0002	-2.5 to 2.5	Pass
		-40	12.0	-5.729	-0.0068	-2.5 to 2.5	Pass
		-30	12.0	-3.912	-0.0046	-2.5 to 2.5	Pass
		-20	12.0	-3.519	-0.0042	-2.5 to 2.5	Pass
		-10	12.0	-2.010	-0.0024	-2.5 to 2.5	Pass
		0	12.0	0.451	0.0005	-2.5 to 2.5	Pass
		10	12.0	-6.909	-0.0082	-2.5 to 2.5	Pass
		30	12.0	-2.117	-0.0025	-2.5 to 2.5	Pass
		40	12.0	-6.223	-0.0074	-2.5 to 2.5	Pass
		50	12.0	-7.110	-0.0084	-2.5 to 2.5	Pass
		60	12.0	0.701	0.0008	-2.5 to 2.5	Pass
		70	12.0	-5.708	-0.0067	-2.5 to 2.5	Pass
HSDPA	826.4	24	9.0	1.631	0.0020	-2.5 to 2.5	Pass
			12.0	-1.938	-0.0023	-2.5 to 2.5	Pass
			36.0	5.085	0.0062	-2.5 to 2.5	Pass
		-40	12.0	3.691	0.0045	-2.5 to 2.5	Pass
		-30	12.0	4.714	0.0057	-2.5 to 2.5	Pass
		-20	12.0	1.202	0.0015	-2.5 to 2.5	Pass
		-10	12.0	5.200	0.0063	-2.5 to 2.5	Pass
		0	12.0	3.362	0.0041	-2.5 to 2.5	Pass
		10	12.0	-1.173	-0.0014	-2.5 to 2.5	Pass
		30	12.0	0.873	0.0011	-2.5 to 2.5	Pass
		40	12.0	-1.273	-0.0015	-2.5 to 2.5	Pass
		50	12.0	0.987	0.0012	-2.5 to 2.5	Pass
		60	12.0	0.701	0.0008	-2.5 to 2.5	Pass
		70	12.0	0.751	0.0009	-2.5 to 2.5	Pass
	836.6	24	9.0	-3.448	-0.0041	-2.5 to 2.5	Pass
			12.0	-0.343	-0.0004	-2.5 to 2.5	Pass
			36.0	-5.379	-0.0064	-2.5 to 2.5	Pass
		-40	12.0	4.420	0.0053	-2.5 to 2.5	Pass
		-30	12.0	3.827	0.0046	-2.5 to 2.5	Pass
		-20	12.0	0.386	0.0005	-2.5 to 2.5	Pass

		-10	12.0	-0.422	-0.0005	-2.5 to 2.5	Pass
		0	12.0	1.881	0.0022	-2.5 to 2.5	Pass
		10	12.0	-3.476	-0.0042	-2.5 to 2.5	Pass
		30	12.0	-5.450	-0.0065	-2.5 to 2.5	Pass
		40	12.0	-2.317	-0.0028	-2.5 to 2.5	Pass
		50	12.0	-3.097	-0.0037	-2.5 to 2.5	Pass
		60	12.0	2.596	0.0031	-2.5 to 2.5	Pass
		70	12.0	3.326	0.0040	-2.5 to 2.5	Pass
	846.6	24	9.0	-3.333	-0.0039	-2.5 to 2.5	Pass
			12.0	2.367	0.0028	-2.5 to 2.5	Pass
			36.0	2.854	0.0034	-2.5 to 2.5	Pass
		-40	12.0	-1.159	-0.0014	-2.5 to 2.5	Pass
		-30	12.0	0.358	0.0004	-2.5 to 2.5	Pass
		-20	12.0	-0.801	-0.0009	-2.5 to 2.5	Pass
		-10	12.0	-2.561	-0.0030	-2.5 to 2.5	Pass
		0	12.0	0.165	0.0002	-2.5 to 2.5	Pass
		10	12.0	2.260	0.0027	-2.5 to 2.5	Pass
		30	12.0	1.781	0.0021	-2.5 to 2.5	Pass
		40	12.0	-1.810	-0.0021	-2.5 to 2.5	Pass
		50	12.0	1.531	0.0018	-2.5 to 2.5	Pass
		60	12.0	-1.380	-0.0016	-2.5 to 2.5	Pass
		70	12.0	3.548	0.0042	-2.5 to 2.5	Pass
HSUPA	826.4	24	9.0	-5.786	-0.0070	-2.5 to 2.5	Pass
			12.0	-7.288	-0.0088	-2.5 to 2.5	Pass
			36.0	-2.210	-0.0027	-2.5 to 2.5	Pass
		-40	12.0	-1.481	-0.0018	-2.5 to 2.5	Pass
		-30	12.0	-6.316	-0.0076	-2.5 to 2.5	Pass
		-20	12.0	-4.299	-0.0052	-2.5 to 2.5	Pass
		-10	12.0	-2.096	-0.0025	-2.5 to 2.5	Pass
		0	12.0	-4.041	-0.0049	-2.5 to 2.5	Pass
		10	12.0	-2.382	-0.0029	-2.5 to 2.5	Pass
		30	12.0	-1.373	-0.0017	-2.5 to 2.5	Pass
		40	12.0	-5.314	-0.0064	-2.5 to 2.5	Pass
		50	12.0	-12.095	-0.0146	-2.5 to 2.5	Pass
		60	12.0	-6.866	-0.0083	-2.5 to 2.5	Pass
		70	12.0	-3.591	-0.0043	-2.5 to 2.5	Pass
	836.6	24	9.0	-1.280	-0.0015	-2.5 to 2.5	Pass
			12.0	-0.479	-0.0006	-2.5 to 2.5	Pass
			36.0	-2.704	-0.0032	-2.5 to 2.5	Pass
		-40	12.0	-0.565	-0.0007	-2.5 to 2.5	Pass
		-30	12.0	-1.752	-0.0021	-2.5 to 2.5	Pass
		-20	12.0	-4.206	-0.0050	-2.5 to 2.5	Pass
		-10	12.0	-6.287	-0.0075	-2.5 to 2.5	Pass
		0	12.0	-7.453	-0.0089	-2.5 to 2.5	Pass
		10	12.0	-1.667	-0.0020	-2.5 to 2.5	Pass
		30	12.0	-3.490	-0.0042	-2.5 to 2.5	Pass
		40	12.0	-7.725	-0.0092	-2.5 to 2.5	Pass
		50	12.0	2.403	0.0029	-2.5 to 2.5	Pass
		60	12.0	-1.559	-0.0019	-2.5 to 2.5	Pass
		70	12.0	-0.658	-0.0008	-2.5 to 2.5	Pass
	846.6	24	9.0	-7.410	-0.0088	-2.5 to 2.5	Pass
			12.0	-8.304	-0.0098	-2.5 to 2.5	Pass
			36.0	-7.546	-0.0089	-2.5 to 2.5	Pass
		-40	12.0	-9.463	-0.0112	-2.5 to 2.5	Pass
		-30	12.0	-9.656	-0.0114	-2.5 to 2.5	Pass
		-20	12.0	-4.013	-0.0047	-2.5 to 2.5	Pass
		-10	12.0	-7.832	-0.0093	-2.5 to 2.5	Pass
		0	12.0	-8.254	-0.0097	-2.5 to 2.5	Pass
		10	12.0	-6.788	-0.0080	-2.5 to 2.5	Pass

		30	12.0	-3.684	-0.0044	-2.5 to 2.5	Pass
		40	12.0	-6.115	-0.0072	-2.5 to 2.5	Pass
		50	12.0	-5.915	-0.0070	-2.5 to 2.5	Pass
		60	12.0	-3.691	-0.0044	-2.5 to 2.5	Pass
		70	12.0	-4.306	-0.0051	-2.5 to 2.5	Pass

3. 99% & 26dB Bandwidth

3.1 Test Result

3.1.1 Band5_OBW

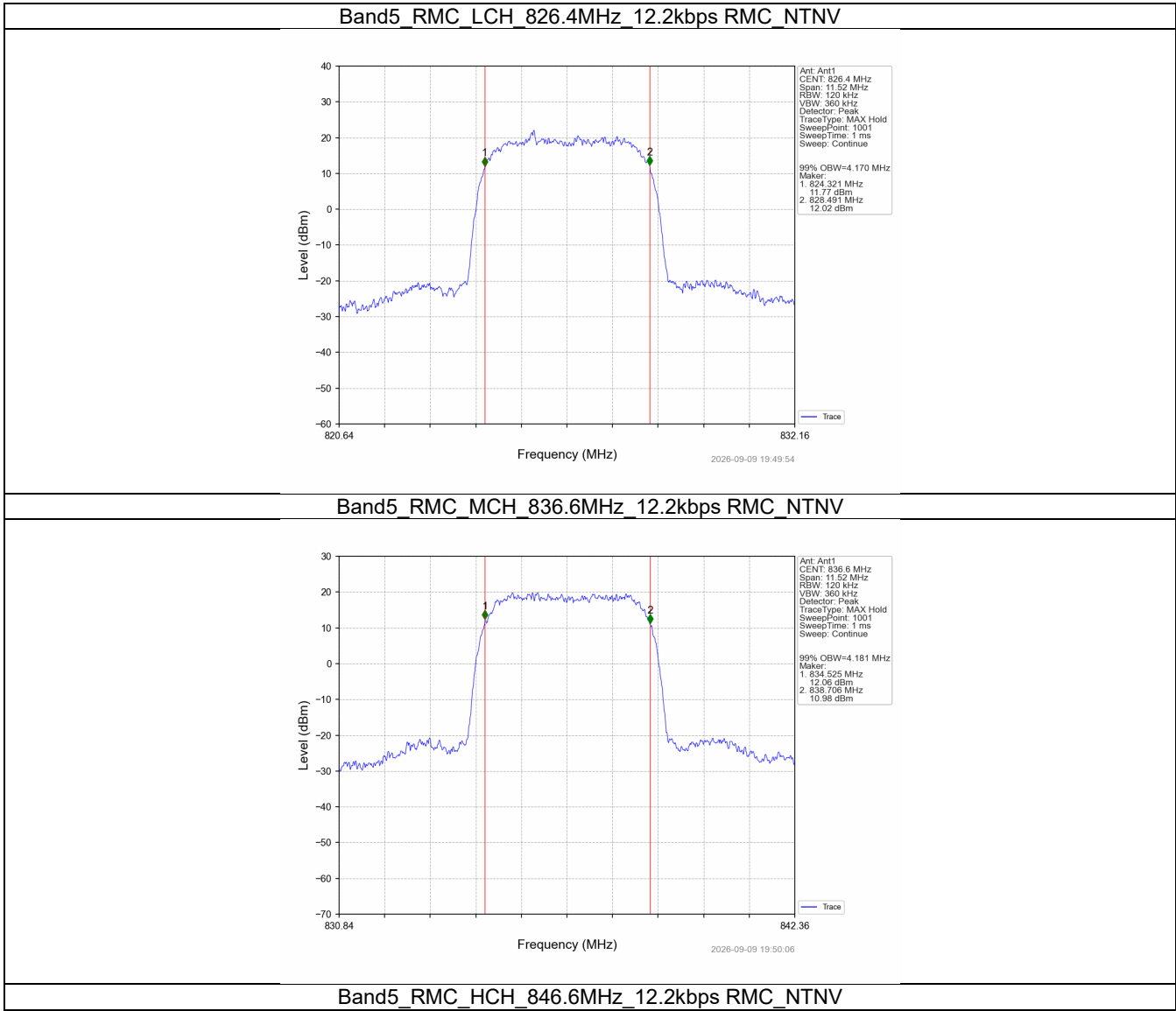
Band: 5						
ENV	Mode		Frequency (MHz)	99% Occupied Bandwidth (MHz)		Verdict
	Network	Subset		Result	Limit	
NTNV	RMC	12.2kbps RMC	826.4	4.170	/	Pass
			836.6	4.181	/	Pass
			846.6	4.182	/	Pass
	HSDPA	Subtest 1	826.4	4.192	/	Pass
			836.6	4.162	/	Pass
			846.6	4.165	/	Pass
	HSUPA	Subtest 1	826.4	4.183	/	Pass
			836.6	4.200	/	Pass
			846.6	4.184	/	Pass

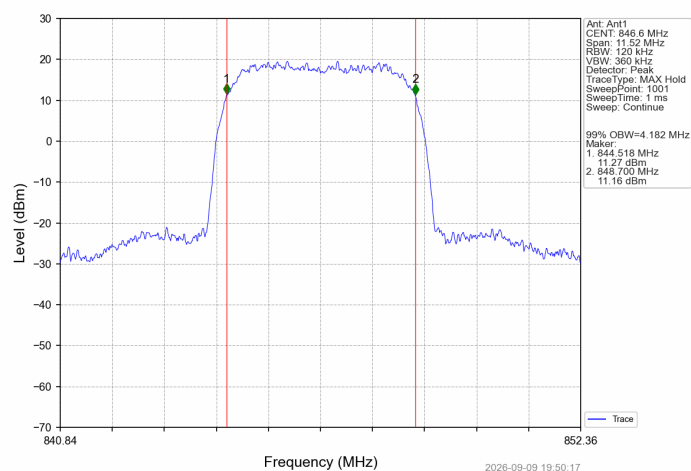
3.1.2 Band5_XDB

Band: 5						
ENV	Mode		Frequency (MHz)	26dB Bandwidth (MHz)		Verdict
	Network	Subset		Result	Limit	
NTNV	RMC	12.2kbps RMC	826.4	4.740	/	Pass
			836.6	4.771	/	Pass
			846.6	4.766	/	Pass
	HSDPA	Subtest 1	826.4	4.733	/	Pass
			836.6	4.721	/	Pass
			846.6	4.748	/	Pass
	HSUPA	Subtest 1	826.4	4.742	/	Pass
			836.6	4.739	/	Pass
			846.6	4.750	/	Pass

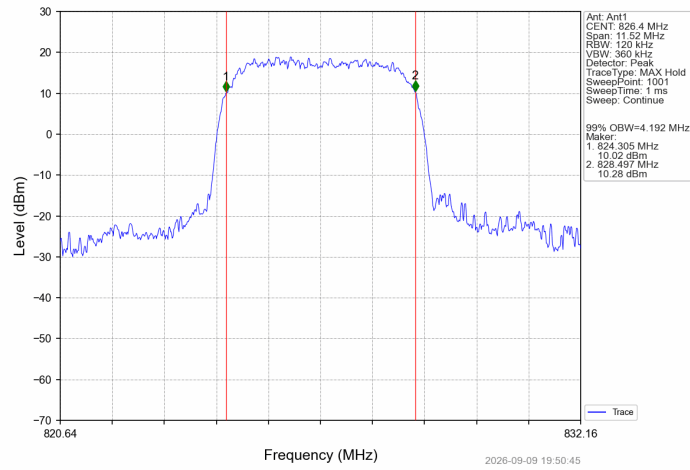
3.2 Test Graph

3.2.1 Band5_OBW

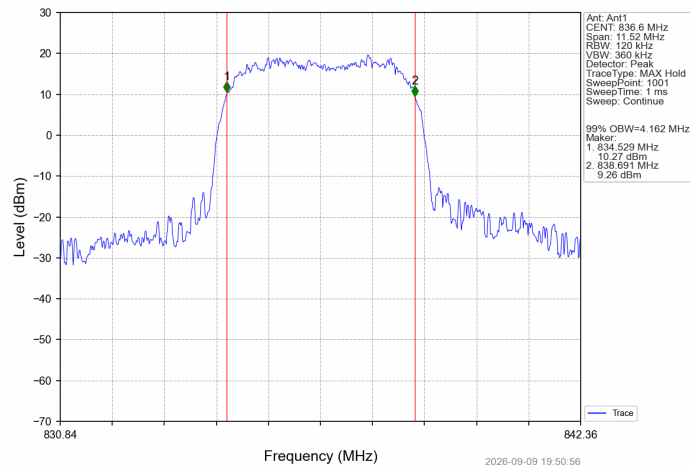




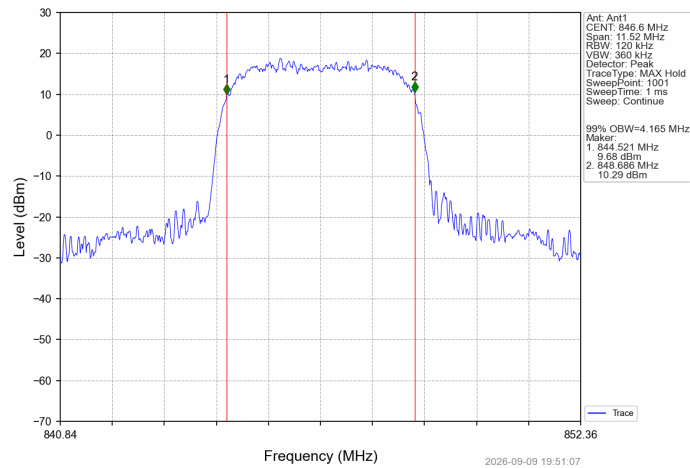
Band5_HSDPA_LCH_826.4MHz_Subtest 1_NTNV



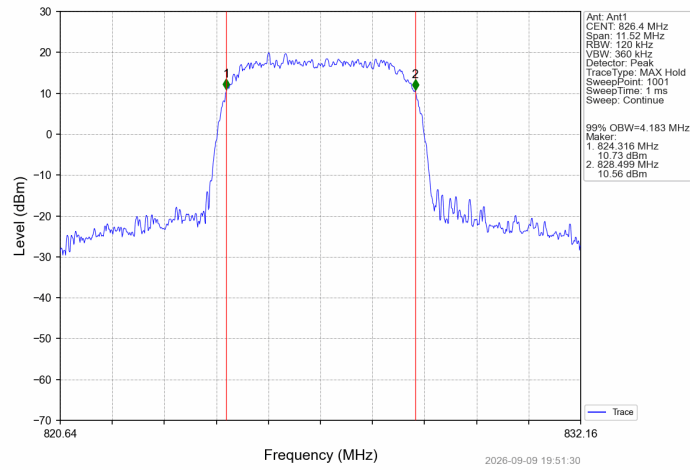
Band5_HSDPA_MCH_836.6MHz_Subtest 1_NTNV



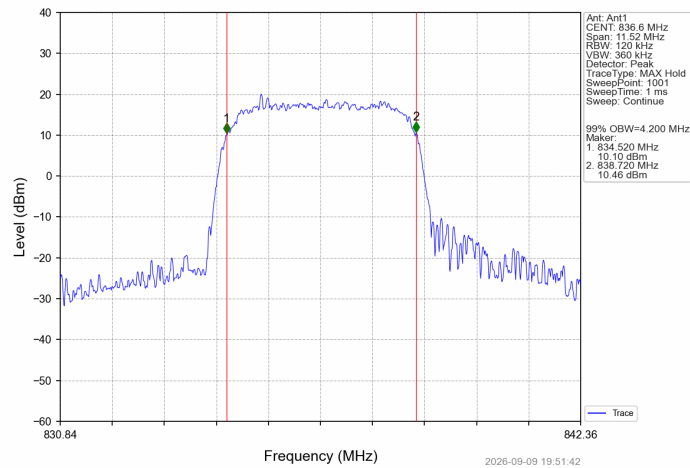
Band5_HSDPA_HCH_846.6MHz_Subtest 1_NTNV



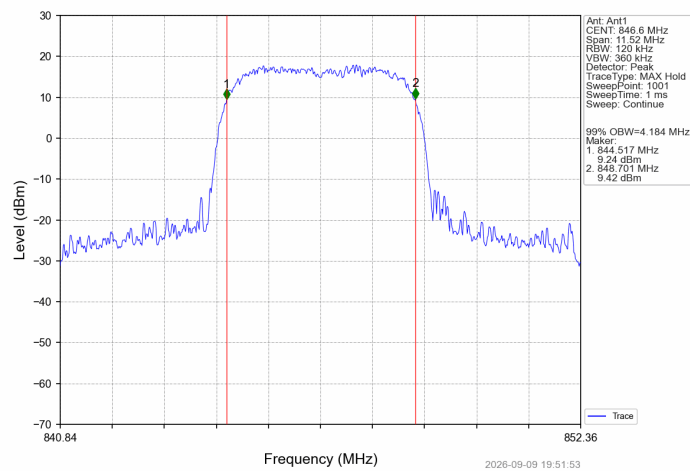
Band5_HSUPA_LCH_826.4MHz_Subtest 1_NTNV



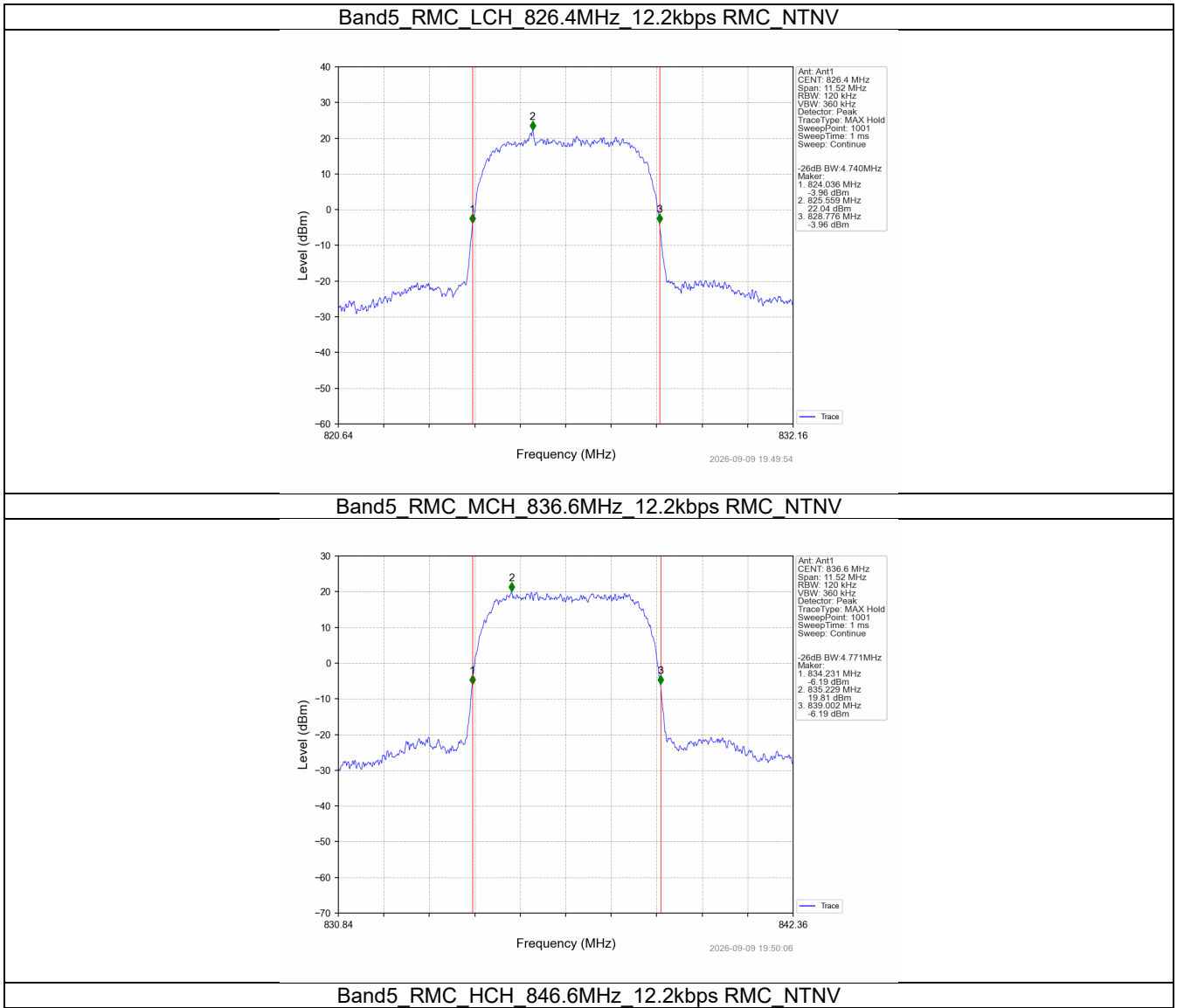
Band5_HSUPA_MCH_836.6MHz_Subtest 1_NTNV

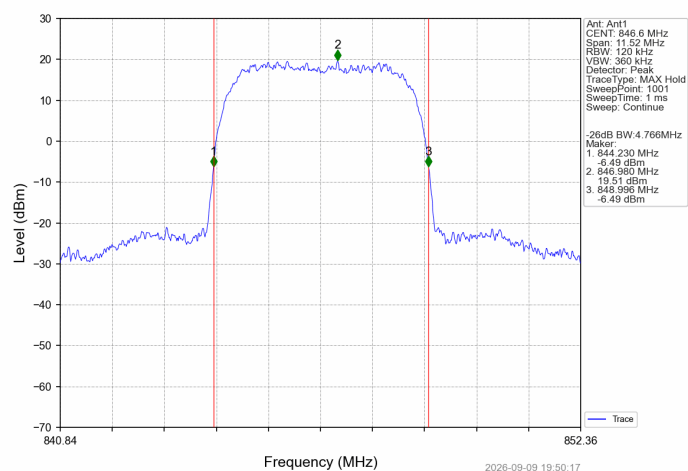


Band5_HSUPA_HCH_846.6MHz_Subtest 1_NTNV

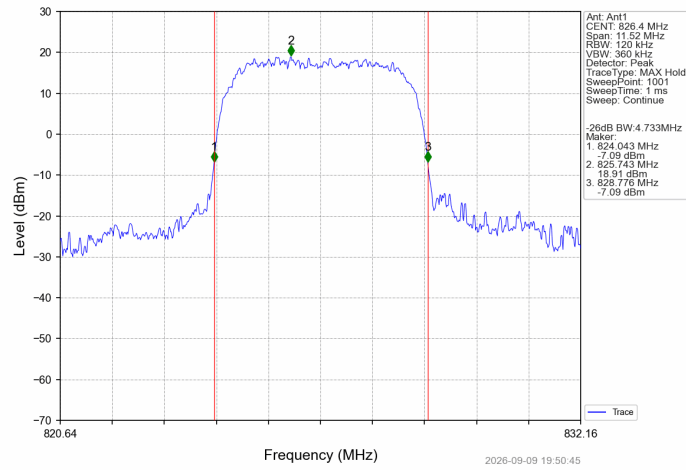


3.2.2 Band5_XDB

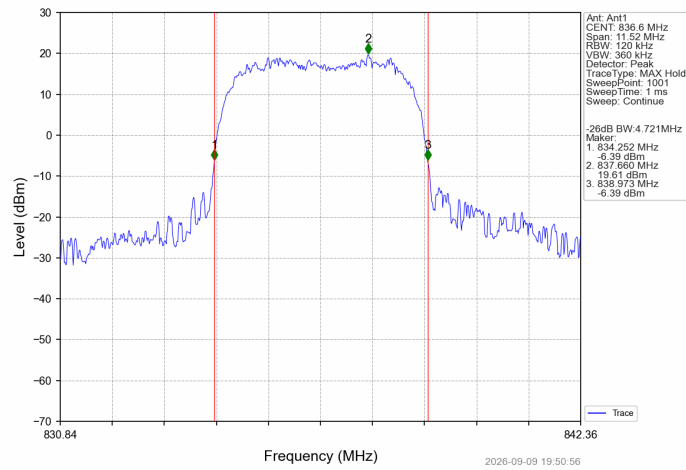




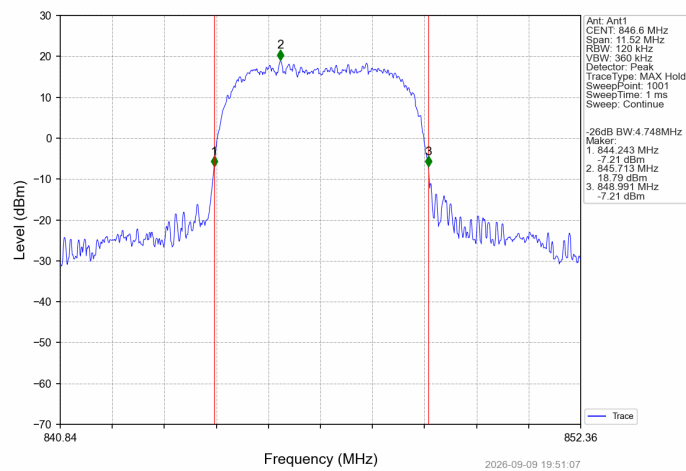
Band5_HSDPA_LCH_826.4MHz_Subtest_1_NTNV



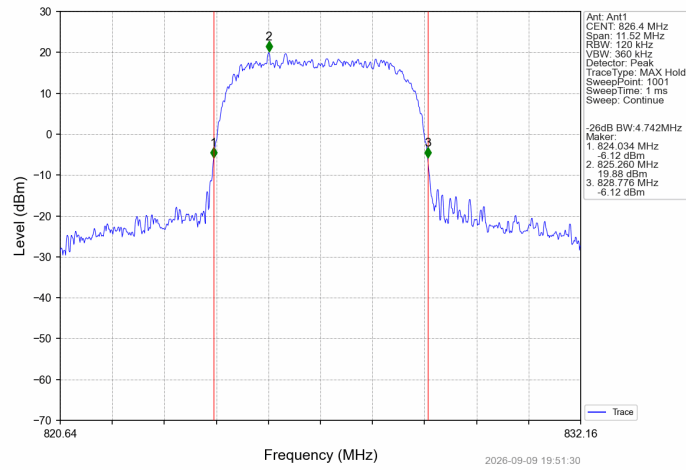
Band5_HSDPA_MCH_836.6MHz_Subtest_1_NTNV



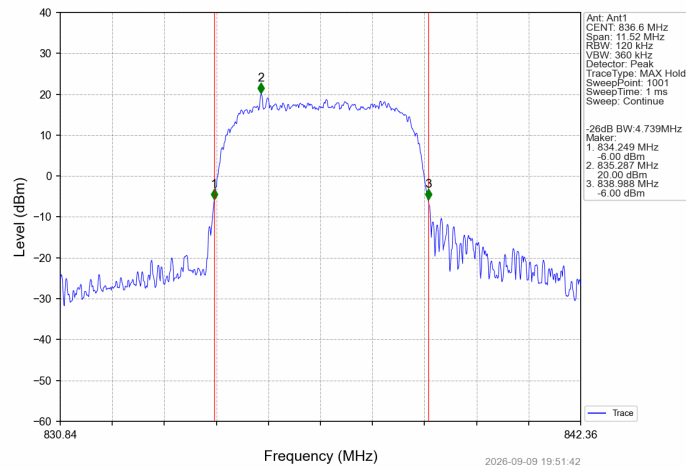
Band5_HSDPA_HCH_846.6MHz_Subtest_1_NTNV



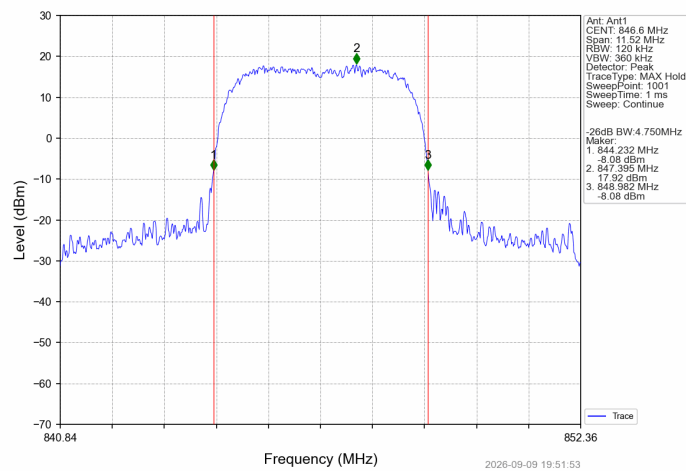
Band5_HSUPA_LCH_826.4MHz_Subtest 1_NTNV



Band5_HSUPA_MCH_836.6MHz_Subtest 1_NTNV



Band5_HSUPA_HCH_846.6MHz_Subtest 1_NTNV



4. Peak-Average Ratio

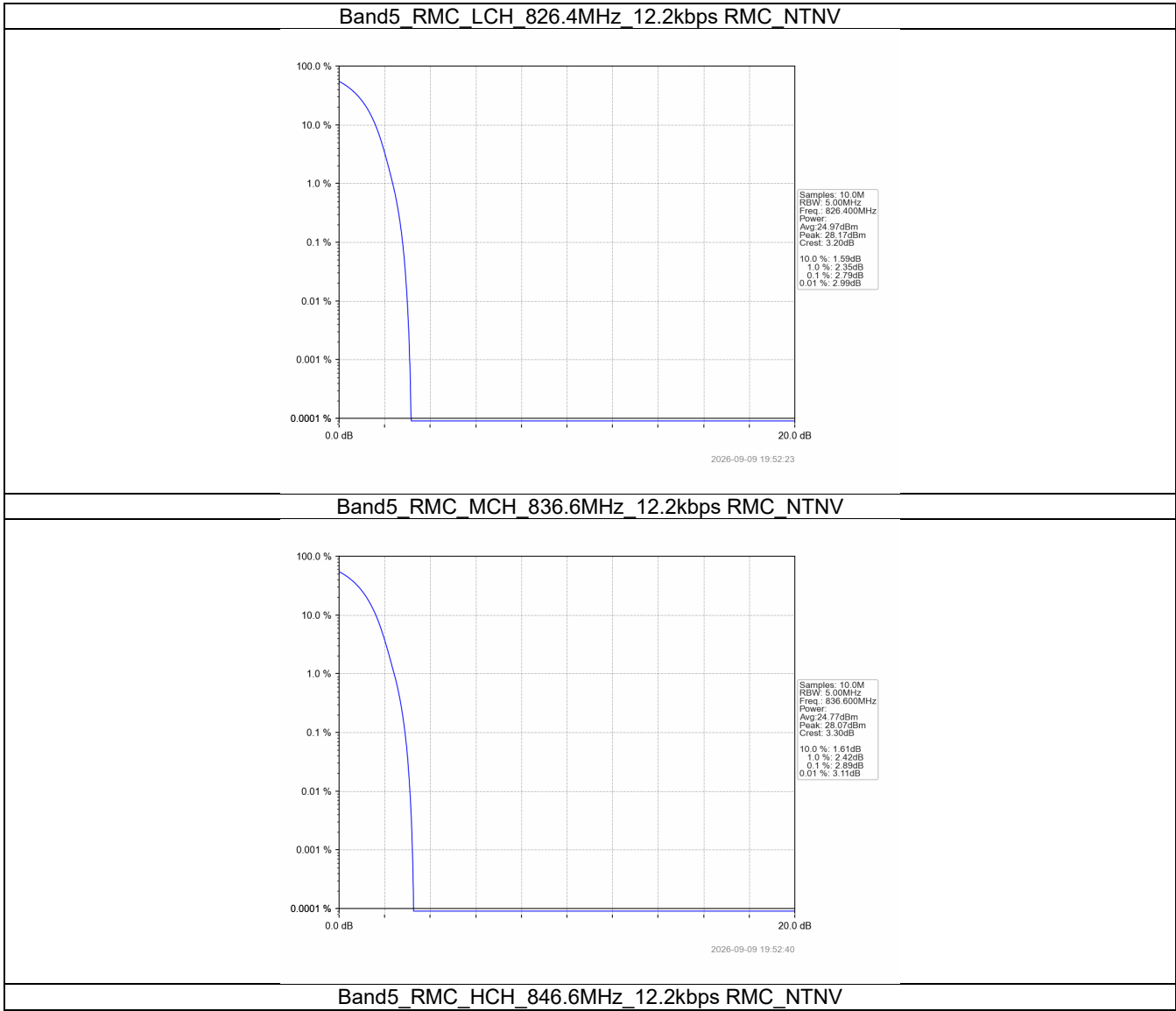
4.1 Test Result

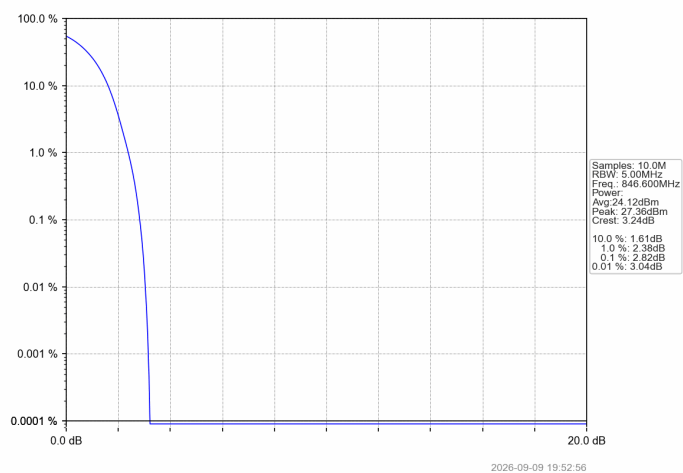
4.1.1 Band5

Band: 5						
ENV	Mode		Frequency (MHz)	Peak-Average Ratio (dB)		Verdict
	Network	Subset		Result	Limit	
NTNV	RMC	12.2kbps RMC	826.4	2.79	<=13	Pass
			836.6	2.89	<=13	Pass
			846.6	2.82	<=13	Pass
	HSDPA	Subtest 1	826.4	5.68	<=13	Pass
			836.6	5.73	<=13	Pass
			846.6	5.73	<=13	Pass
	HSUPA	Subtest 1	826.4	6.51	<=13	Pass
			836.6	6.83	<=13	Pass
			846.6	6.65	<=13	Pass

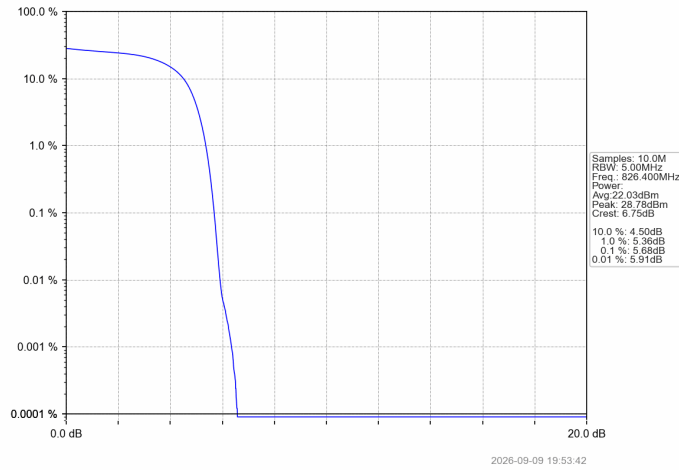
4.2 Test Graph

4.2.1 Band5

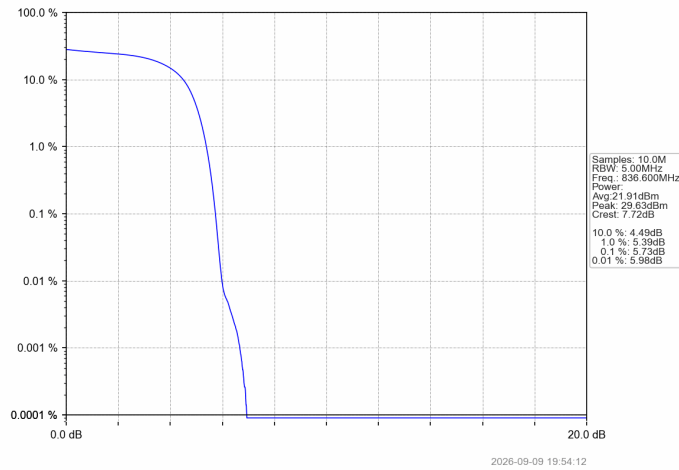




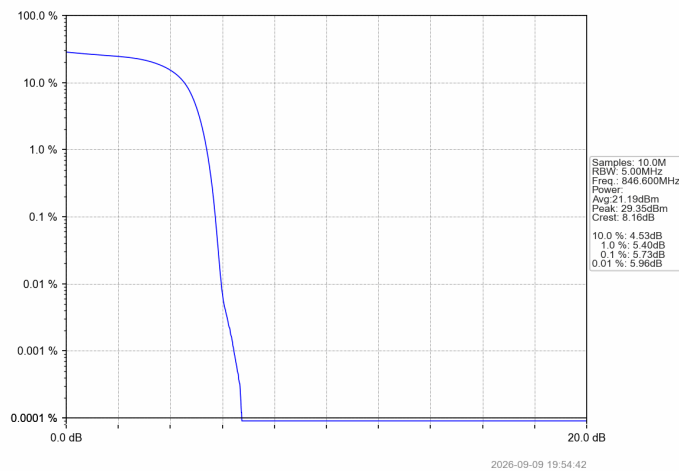
Band5_HSDPA_LCH_826.4MHz_Subtest 1_NTNV



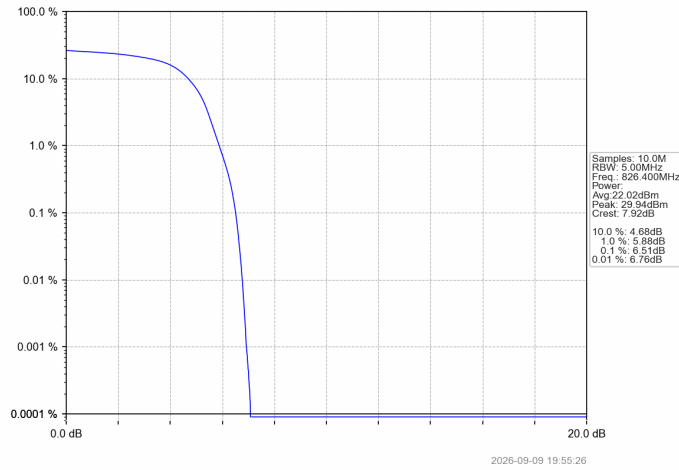
Band5_HSDPA_MCH_836.6MHz_Subtest 1_NTNV



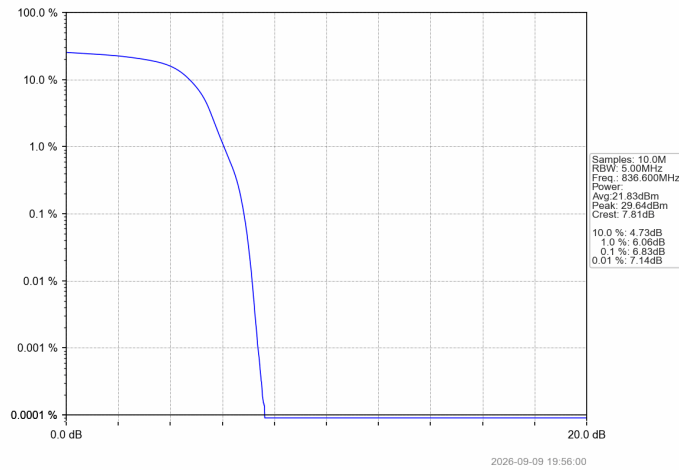
Band5_HSDPA_HCH_846.6MHz_Subtest 1_NTNV



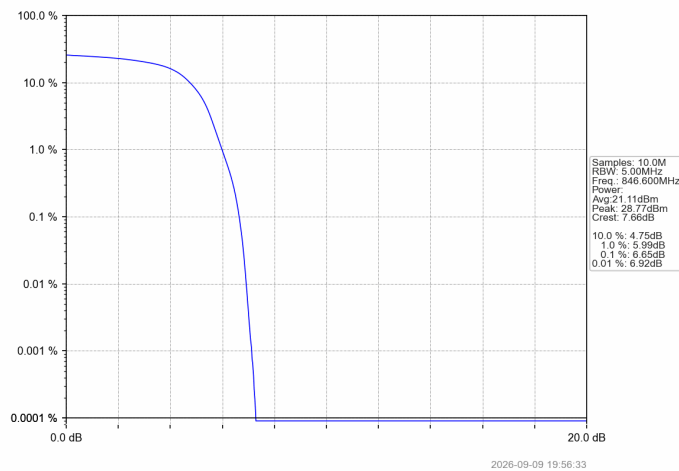
Band5_HSUPA_LCH_826.4MHz_Subtest 1_NTNV



Band5_HSUPA_MCH_836.6MHz_Subtest 1_NTNV



Band5_HSUPA_HCH_846.6MHz_Subtest 1_NTNV



5. Spurious Emission and Band Edge

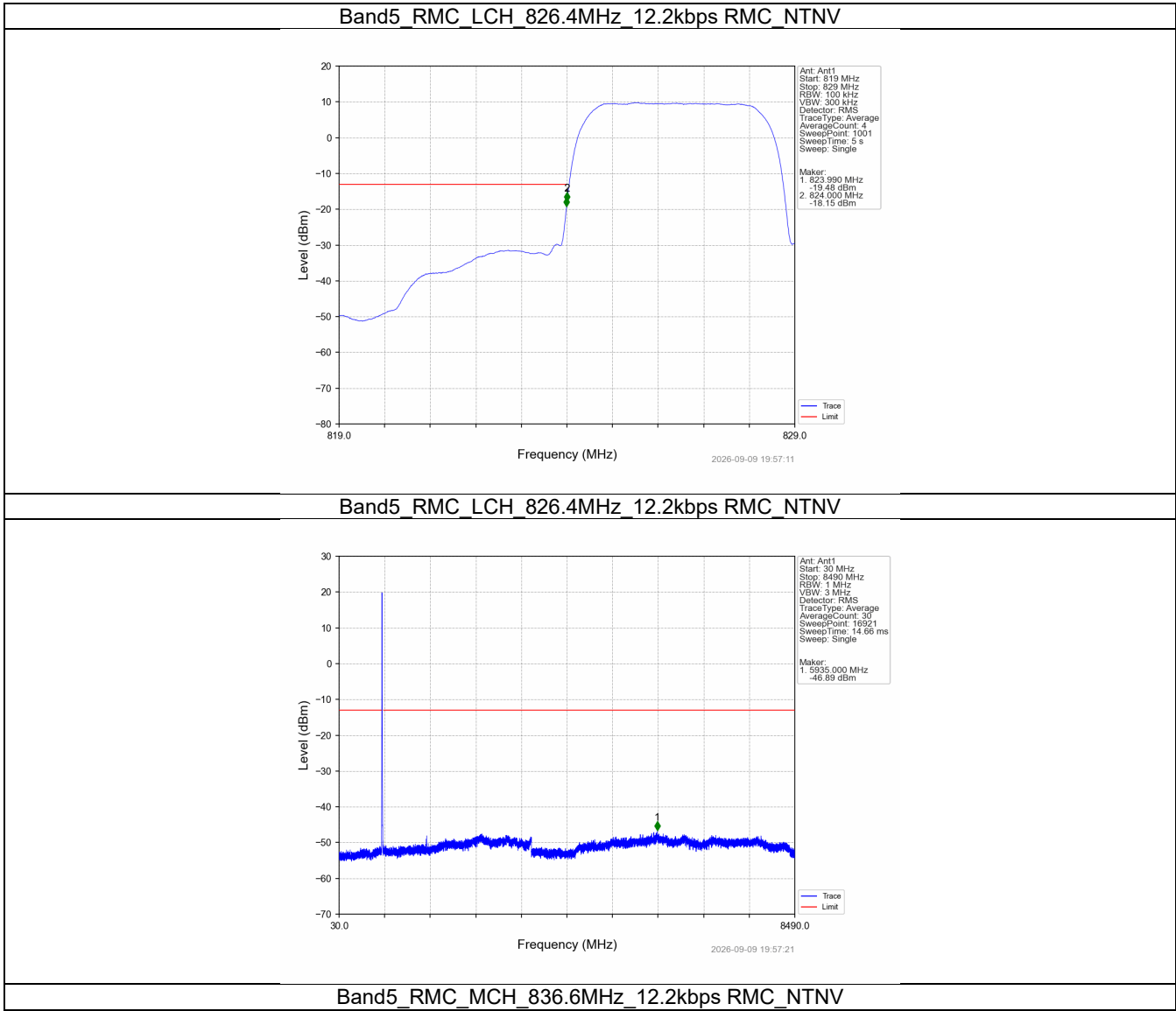
5.1 Test Result

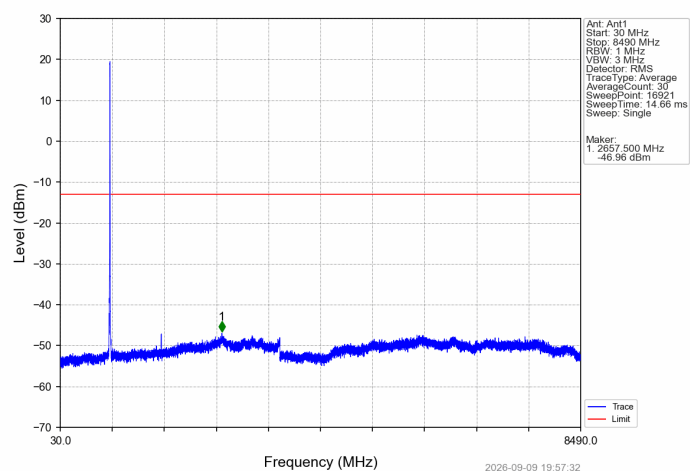
5.1.1 Band5

Band: 5						
ENV	Mode		Frequency (MHz)	Spurious Emission		Verdict
	Network	Subset		Result	Limit	
NTNV	RMC	12.2kbps RMC	826.4	Refer To Test Graph	Pass	
			836.6	Refer To Test Graph	Pass	
			846.6	Refer To Test Graph	Pass	
	HSDPA	Subtest 1	826.4	Refer To Test Graph	Pass	
			836.6	Refer To Test Graph	Pass	
			846.6	Refer To Test Graph	Pass	
	HSUPA	Subtest 1	826.4	Refer To Test Graph	Pass	
			836.6	Refer To Test Graph	Pass	
			846.6	Refer To Test Graph	Pass	

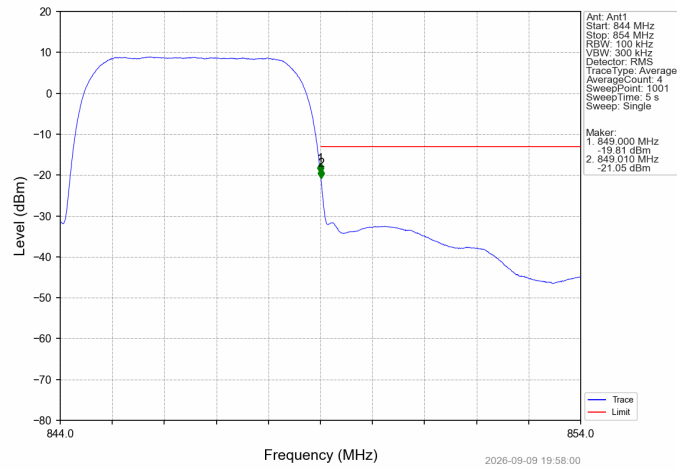
5.2 Test Graph

5.2.1 Band5

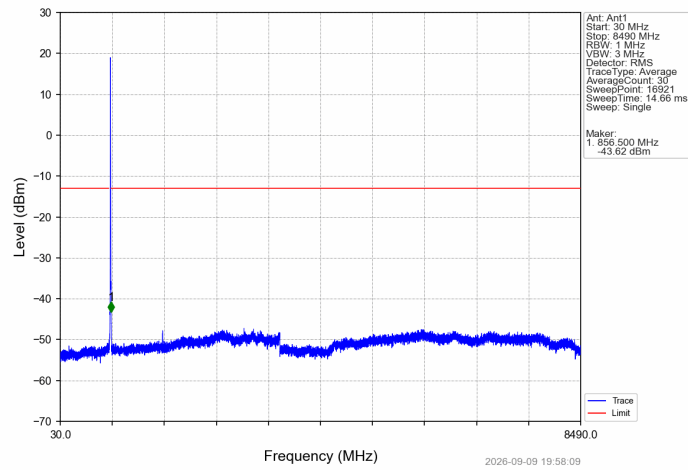




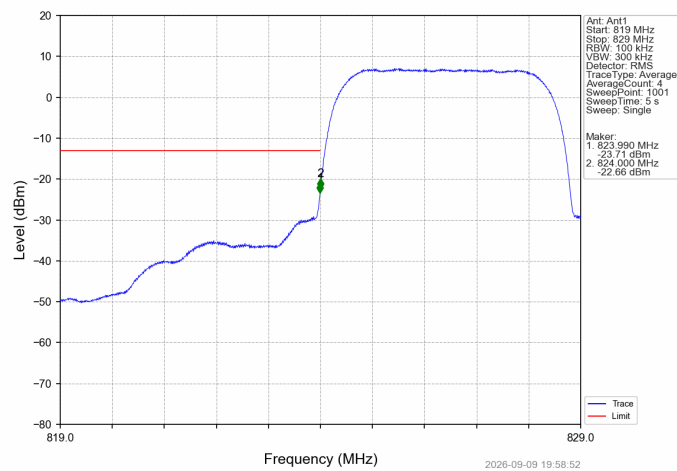
Band5_RMC_HCH_846.6MHz_12.2kbps_RMC_NTNV



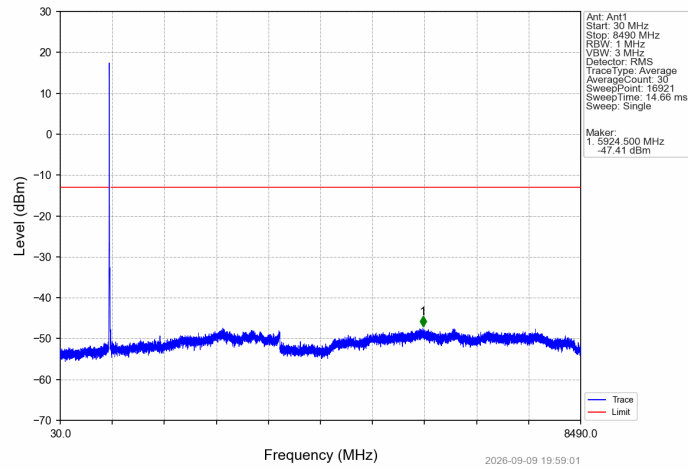
Band5_RMC_HCH_846.6MHz_12.2kbps_RMC_NTNV



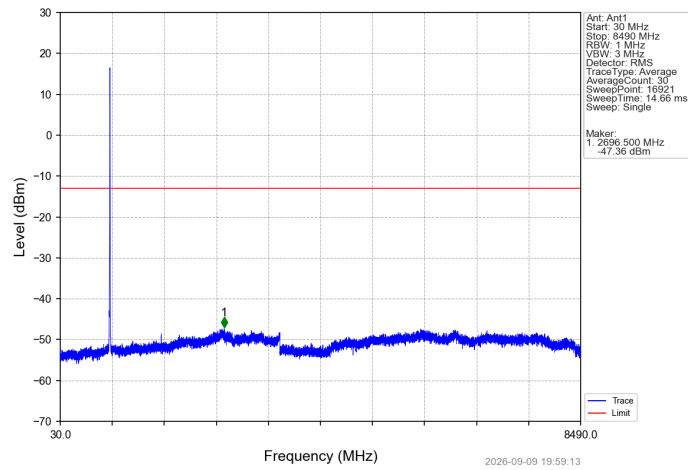
Band5_HSDPA_LCH_826.4MHz_Subtest 1_NTNV



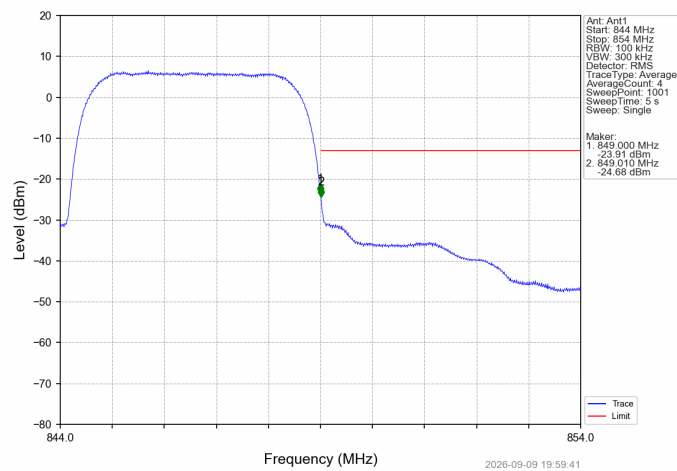
Band5_HSDPA_LCH_826.4MHz_Subtest_1_NTNV



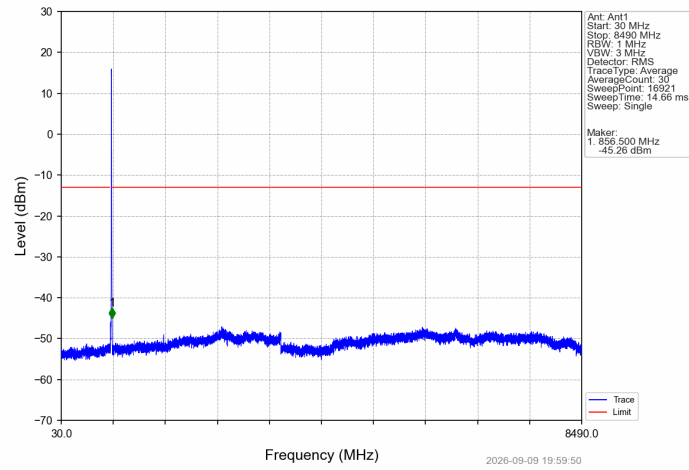
Band5_HSDPA_MCH_836.6MHz_Subtest_1_NTNV



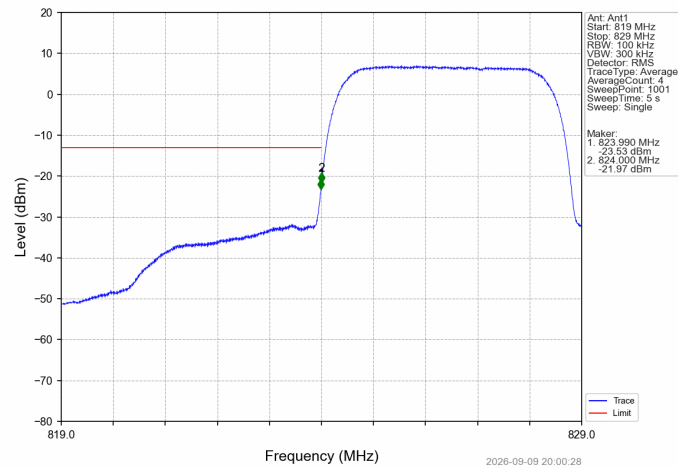
Band5_HSDPA_HCH_846.6MHz_Subtest_1_NTNV



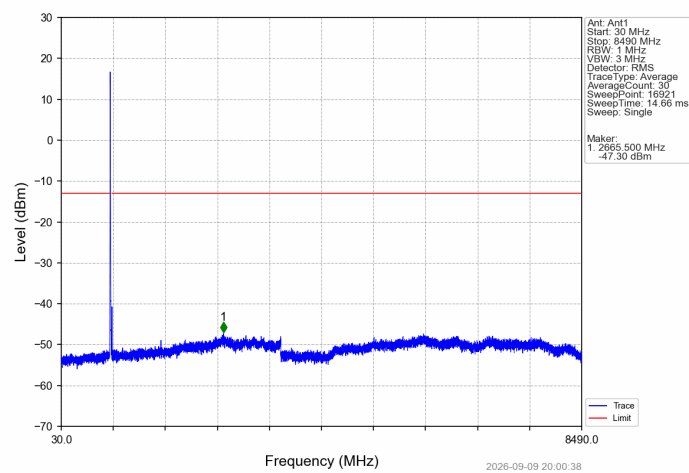
Band5_HSDPA_HCH_846.6MHz_Subtest 1_NTNV



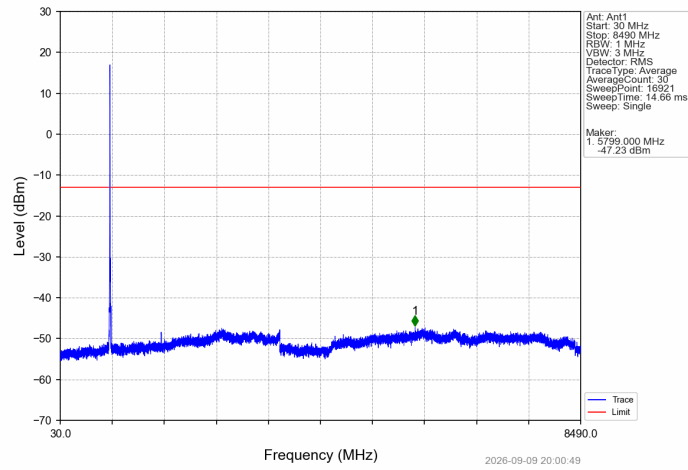
Band5_HSUPA_LCH_826.4MHz_Subtest 1_NTNV



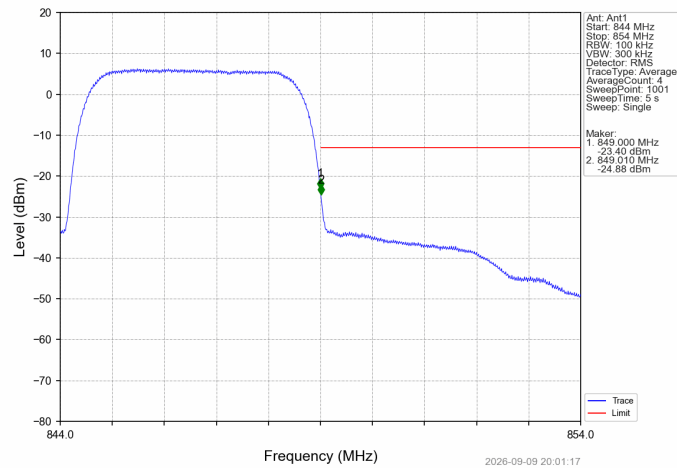
Band5_HSUPA_LCH_826.4MHz_Subtest 1_NTNV



Band5_HSUPA_MCH_836.6MHz_Subtest_1_NTNV



Band5_HSUPA_HCH_846.6MHz_Subtest_1_NTNV



Band5_HSUPA_HCH_846.6MHz_Subtest_1_NTNV

