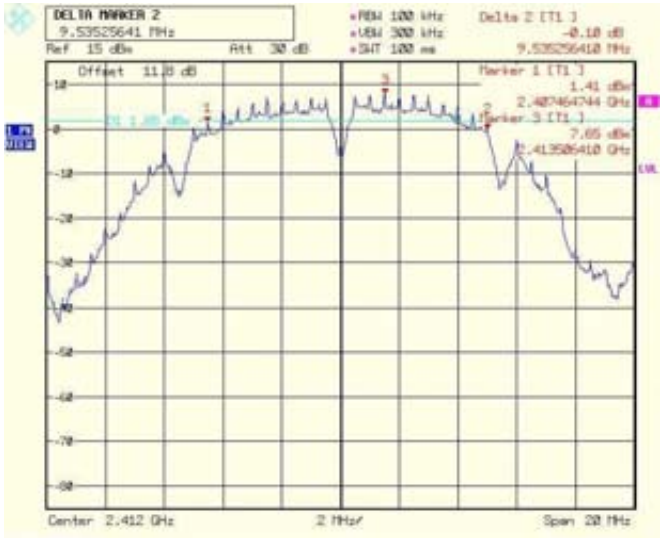
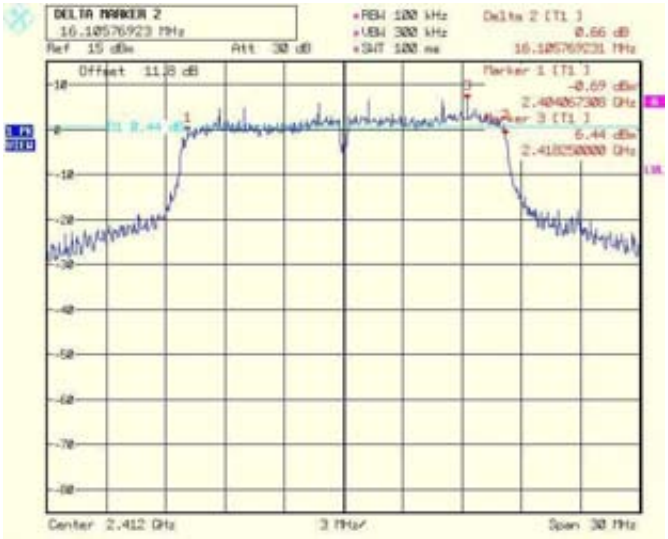


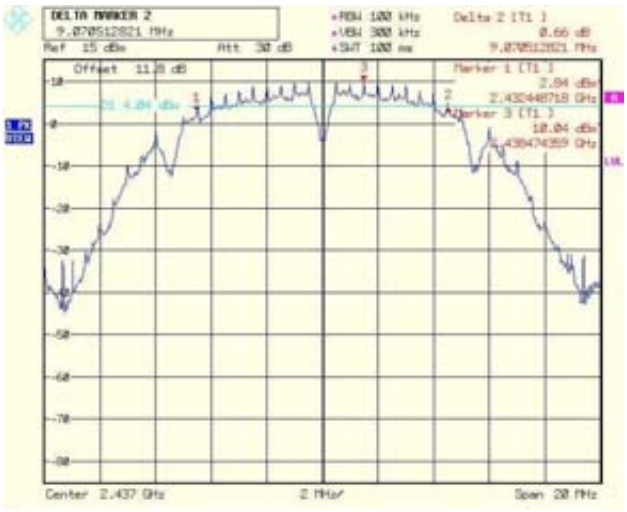
Plot # 143. Output 1. 6 dB Bandwidth. Low frequency. 1Mbps rate.



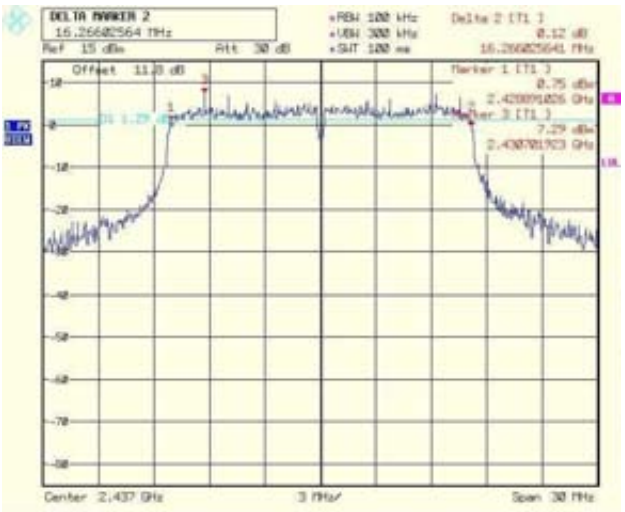
Plot # 144. Output 1. 6 dB Bandwidth. Low frequency. 6Mbps rate.

Plot # 145. Output 3. 6 dB Bandwidth. High frequency. 1Mbps rate.

Plot # 146. Output 3. 6 dB Bandwidth. High frequency. 6Mbps rate.

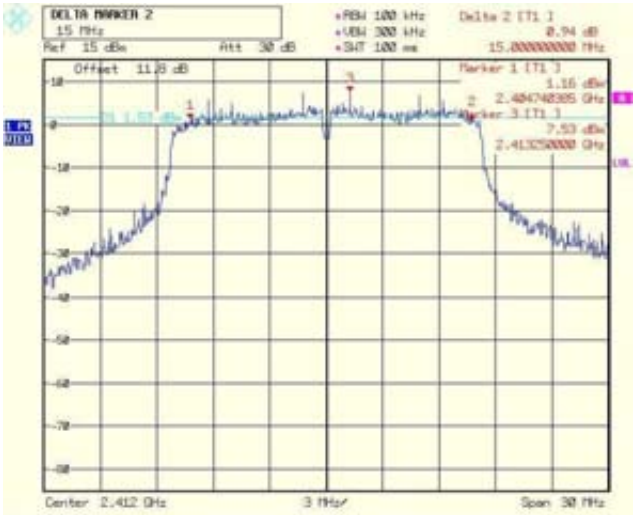


Plot # 147. Output 3. 6 dB Bandwidth. Middle frequency. 1Mbps rate.

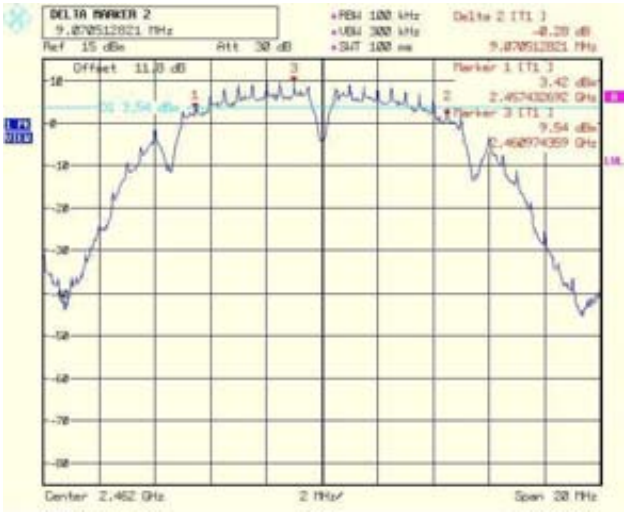


Plot # 148. Output 3. 6 dB Bandwidth. Middle frequency. 6Mbps rate.

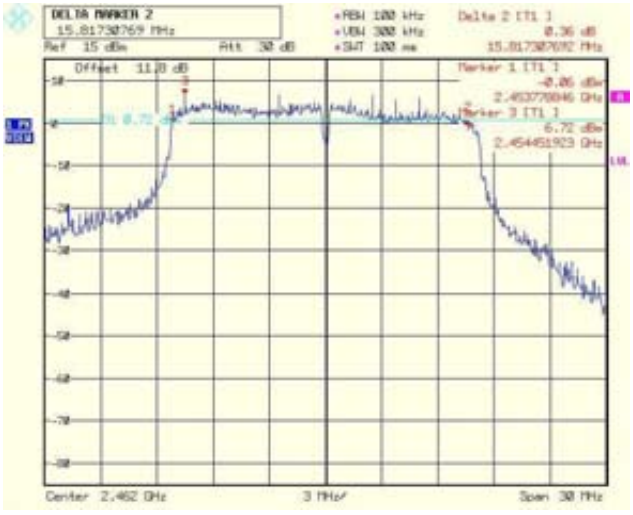
Plot # 149. Output 3. 6 dB Bandwidth. Low frequency. 1Mbps rate.



Plot # 150. Output 3. 6 dB Bandwidth. Low frequency. 6Mbps rate.

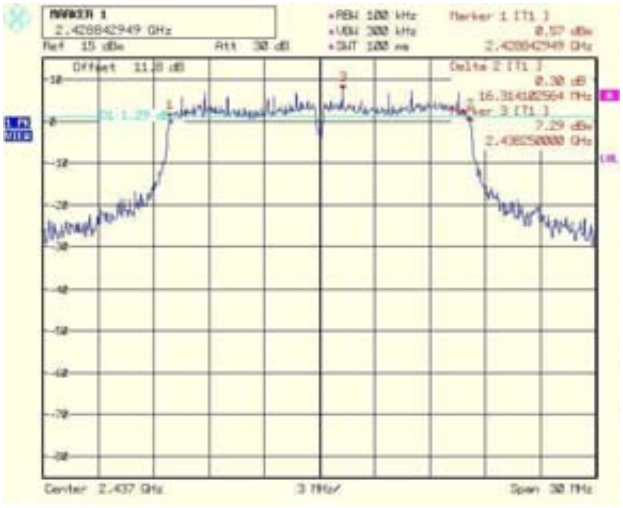


Plot # 151. Output 5. 6 dB Bandwidth. High frequency. 1Mbps rate.

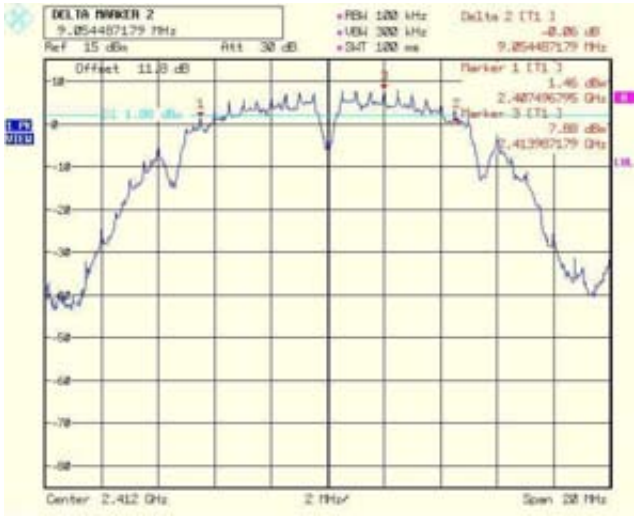


Plot # 152. Output 5. 6 dB Bandwidth. High frequency. 6Mbps rate.

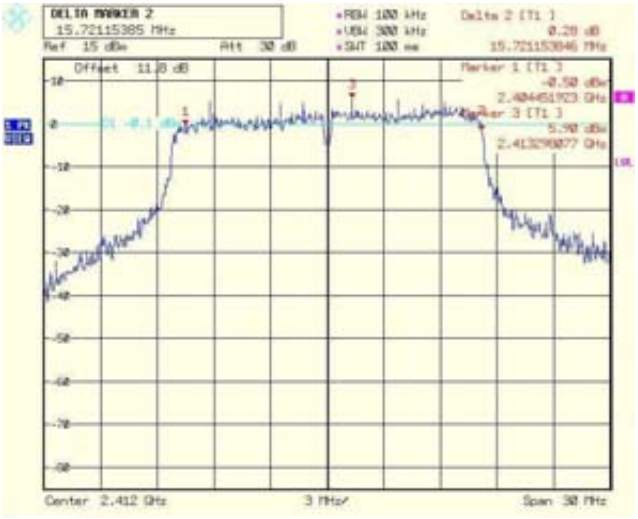
Plot # 153. Output 5. 6 dB Bandwidth. Middle frequency. 1Mbps rate.



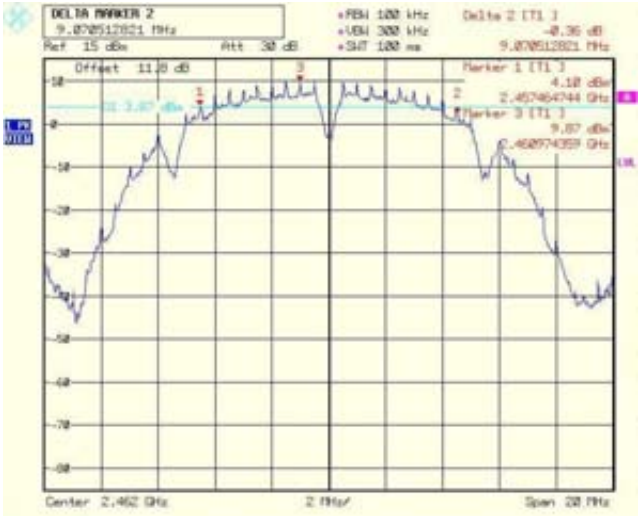
Plot # 154. Output 5. 6 dB Bandwidth. Middle frequency. 6Mbps rate.



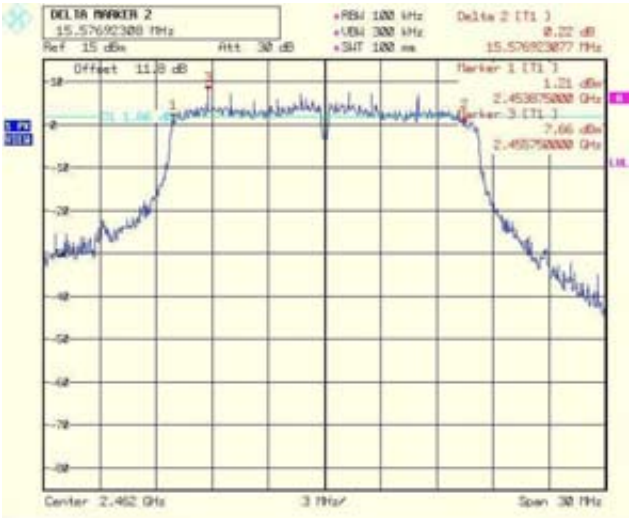
Plot # 155. Output 5. 6 dB Bandwidth. Low frequency. 1Mbps rate.



Plot # 156. Output 5. 6 dB Bandwidth. Low frequency. 6Mbps rate.

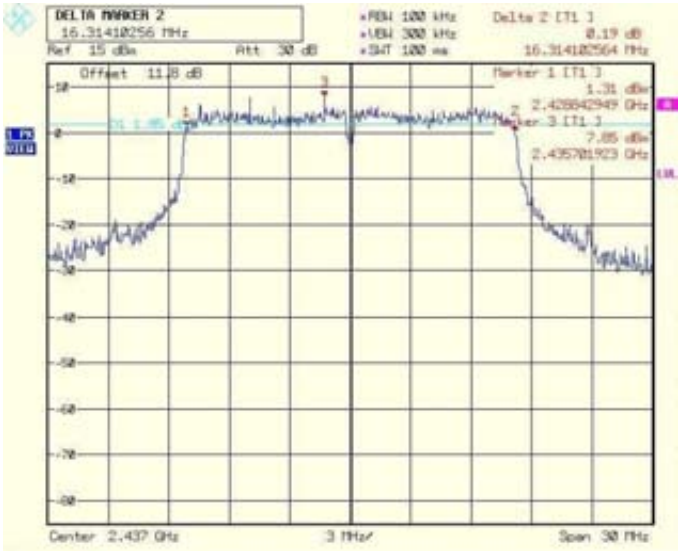


Plot # 157. Output 6. 6 dB Bandwidth. High frequency. 1Mbps rate.



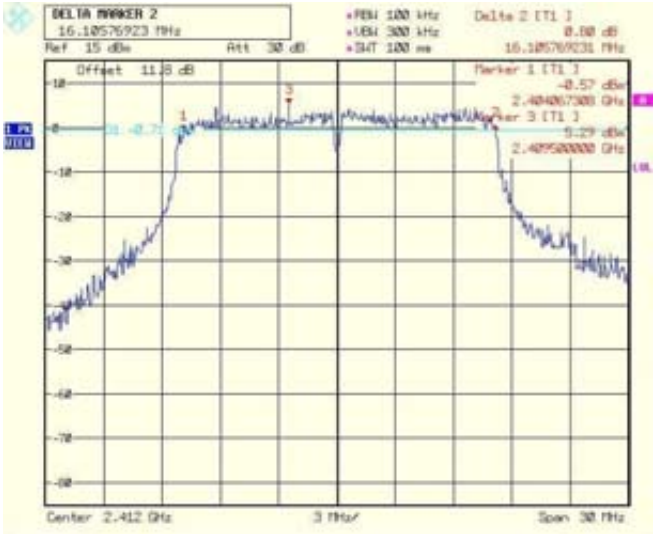
Plot # 158. Output 6. 6 dB Bandwidth. High frequency. 6Mbps rate.

Plot # 159. Output 6. 6 dB Bandwidth. Middle frequency. 1Mbps rate.



Plot # 160. Output 6. 6 dB Bandwidth. Middle frequency. 6Mbps rate.

Plot # 161. Output 6. 6 dB Bandwidth. Low frequency. 1Mbps rate.



Plot # 162. Output 6. 6 dB Bandwidth. Low frequency. 6Mbps rate.

Final measurements

In a reason of large margin received in pre-compliance testing the final configuration was yet based on clause 7.5.4.

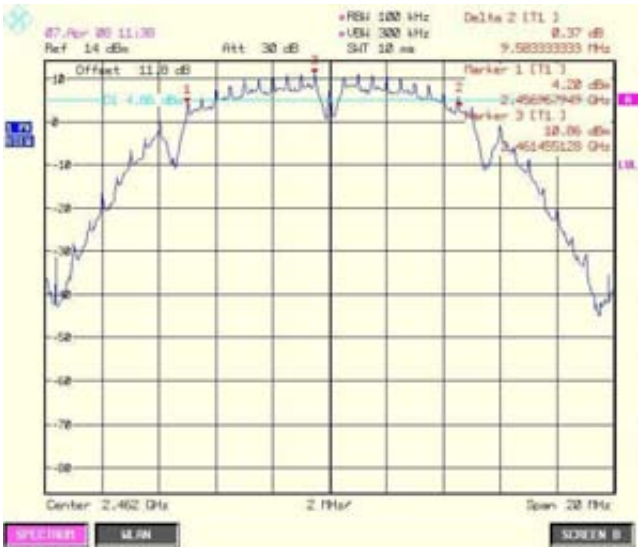
The final configuration has been built with 6 Skyworks RF filters.

The summaries of final minimum bandwidth measurements from output 4 are shown in Table 8.

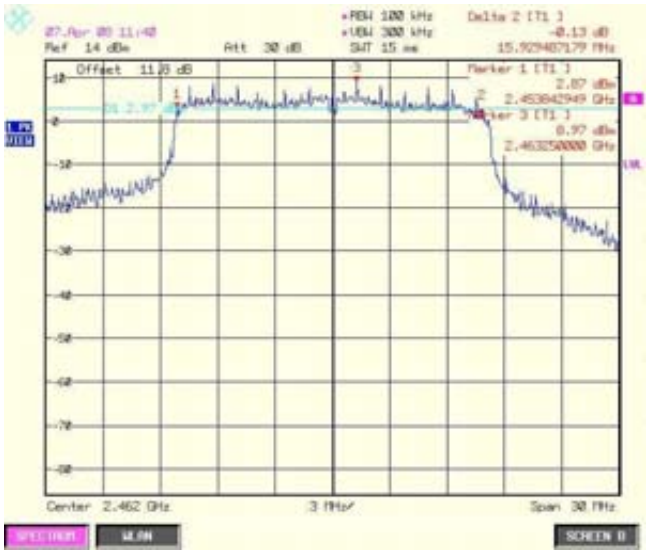
The minimum measured bandwidth for all configurations is 9058 kHz that is comply with standard required bandwidth.

Frequency MHz	Rate Mbps	Modulation Mode	6dB Bandwidth [kHz]	Minimum Limit [kHz]	Verdict	Plot number
2412	1	802.11b	9551	500	Pass	167
	6	802.11g	15897	500	Pass	168
2437	1	802.11b	9058	500	Pass	165
	6	802.11g	16346	500	Pass	166
2462	1	802.11b	9583	500	Pass	163
	6	802.11g	15929	500	Pass	164

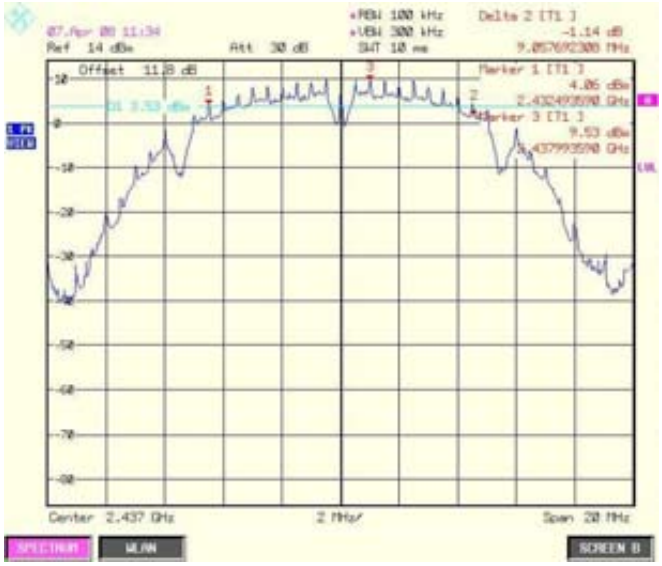
Table 8. 6dB bandwidth results



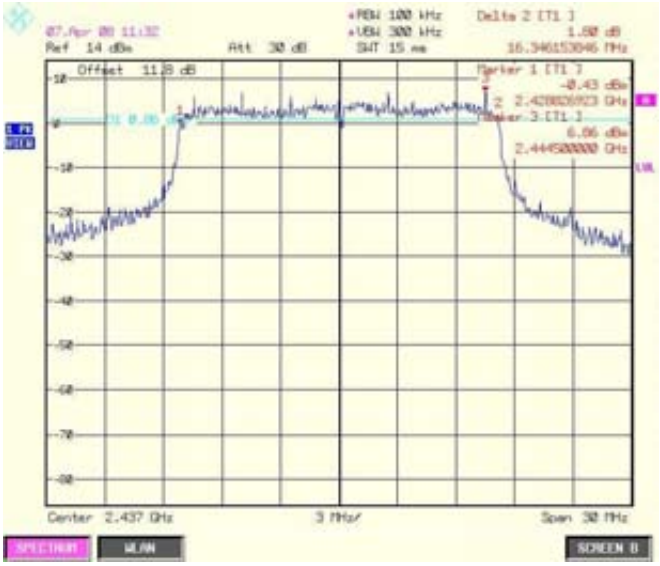
Plot # 163. 6 dB Bandwidth. High frequency. 1Mbps rate.



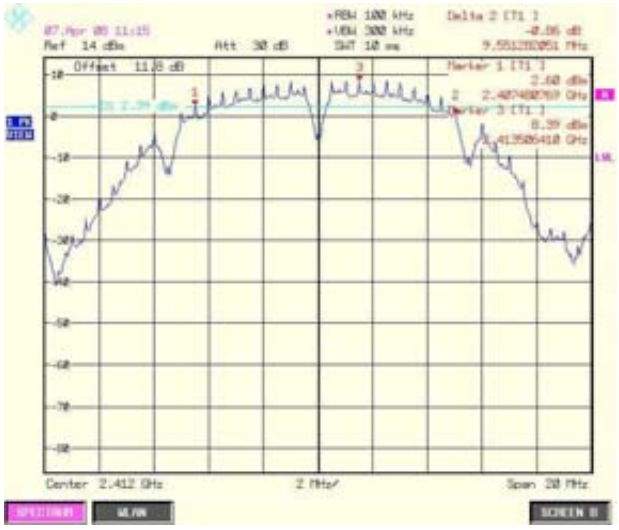
Plot # 164. 6 dB Bandwidth. High frequency. 6Mbps rate.



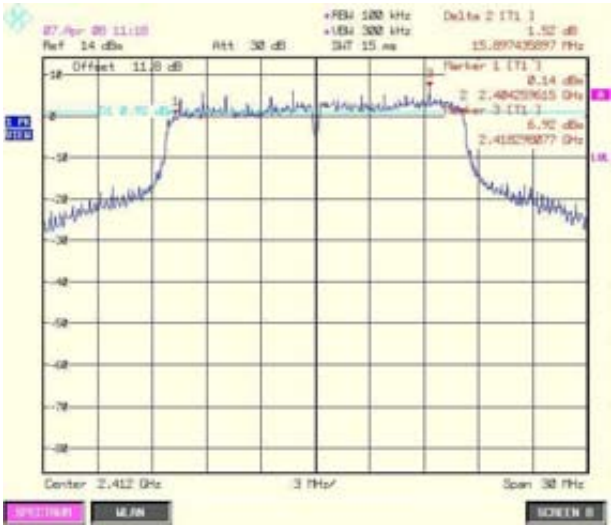
Plot # 165. 6 dB Bandwidth. Middle frequency. 1Mbps rate.



Plot # 166. 6 dB Bandwidth. Middle frequency. 6Mbps rate.



Plot # 167. 6 dB Bandwidth. Low frequency. 1Mbps rate.



Plot # 168. 6 dB Bandwidth. Low frequency. 6Mbps rate.

7.9. Maximum peak output power

7.9.1. Requirements:

The maximum peak output power shall not exceed 1 Watt as required in sec. 15.247 (b). 15.247 (b) (4): The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi. Applying the restrictions from (c)(2)(ii), the conducted output poweris derived as follows:

- The antenna element gain is 7.4 dBi.
- The maximum directional antenna gain is $7.4+10*\log_{10}(6) = 15.2$ dBi.
- The maximum aggregate peak output limit is 30 dBm – (15.2-6)/3 =26.9 dBm.
- The maximum peak output limit for each transmit output for each beam is $26.9-10*\log_{10}(6)=19.1$ dBm.

7.9.2. Test procedure:

The tested configuration has been built with 6 Skyworks RF filters.
The measurements were performed in normal (transmitting) mode of operation for carrier (channel) frequency at low, middle and the high of the 2.412 - 2.462 GHz frequency range at each transmit output under 2 data transfer bit rates that reflect to the worst test results.
Additionally, combined maximum peak output power was calculated and presented in table 10.

Detector type	Sample
RBW	1MHz
VBW	3 MHz

7.9.3. Test results:

All test results met the requirements.
The summaries of Peak Power measurements are shown in Tables 9-11.

Frequency MHz	Rate Mbps	Modulation mode	Output 1 Peak Power [dBm]	Output 2 Peak Power [dBm]	Output 3 Peak Power [dBm]	FCC Limit Per 15.247(b) [dBm]	Calculated Limit [dBm]	Margin [dB] Output 1	Plot number	Margin [dB] Output 2	Plot number	Margin [dB] Output 3	Plot number
2412	1	802.11b	17.55	17.86	17.63	30	19.1	1.55	169	1.24	175	1.47	181
	6	802.11g	17.86	17.94	17.69	30	19.1	1.24	170	1.16	176	1.41	182
2437	1	802.11b	17.96	19.00	18.19	30	19.1	1.14	171	0.10	177	0.91	183
	6	802.11g	18.18	18.40	18.33	30	19.1	0.92	172	0.70	178	0.77	184
2462	1	802.11b	18.74	18.08	18.94	30	19.1	0.36	173	1.02	179	0.16	185
	6	802.11g	18.51	17.72	18.57	30	19.1	0.59	174	1.38	180	0.53	186

Table 9.
Peak Power (Outputs 1-3) test results.

Frequency MHz	Rate Mbps	Modulation mode	Output 4 Peak Power [dBm]	Output 5 Peak Power [dBm]	Output 6 Peak Power [dBm]	FCC Limit Per 15.247(b) [dBm]	Calculated Limit [dBm]	Margin [dB] Output 4	Plot number	Margin [dB] Output 5	Plot number	Margin [dB] Output 6	Plot number
2412	1	802.11b	17.33	17.13	17.21	30	19.1	1.77	187	1.97	193	1.89	199
	6	802.11g	17.49	17.31	17.26	30	19.1	1.61	188	1.79	194	1.84	200
2437	1	802.11b	18.38	18.08	18.05	30	19.1	0.72	189	1.02	195	1.89	201
	6	802.11g	18.46	18.26	18.22	30	19.1	0.64	190	0.84	196	1.84	202
2462	1	802.11b	18.74	18.58	18.39	30	19.1	0.36	191	0.52	197	0.71	203
	6	802.11g	18.35	18.43	18.18	30	19.1	0.75	192	0.67	198	0.92	204

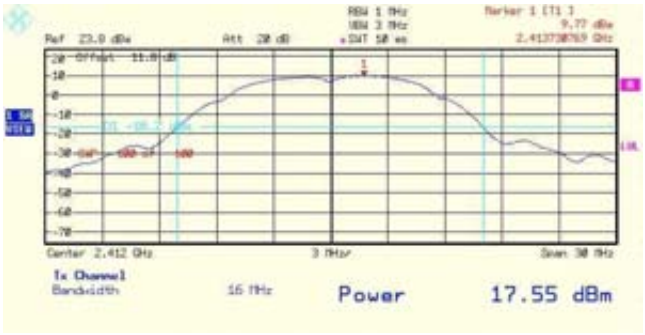
Table 10.
Peak Power (Outputs 4-6) test results.

Frequency MHz	Rate Mbps	Modulation mode	Calculated Limit [dBm]	FCC Limit Per 15.247(b) [dBm]	FCC Limit Per 15.247(b) [W]	Calculated Limit [W]	Calculated Combined (max) Output *, Peak Power [W]	Margin [W]
2412	1	802.11b	26.9	30	1	0.49	0.33	0.16
	6	802.11g	26.9	30	1	0.49	0.35	0.14
2437	1	802.11b	26.9	30	1	0.49	0.40	0.09
	6	802.11g	26.9	30	1	0.49	0.41	0.08
2462	1	802.11b	26.9	30	1	0.49	0.43	0.06
	6	802.11g	26.9	30	1	0.49	0.41	0.08

Table 11.
Peak Power (combined output) test results.

(*) - Calculated Combined (max) Output, Peak Power [W] is the sum of the measured Power from all Output terminals, where each result (output power from separate output terminal) mathematically conversed from Logarithm to linear units. The results were present in Watt.
For example, the calculation for 2412 MHz frequency (1 Mbps bit rate, 802.11b modulation) is the following:

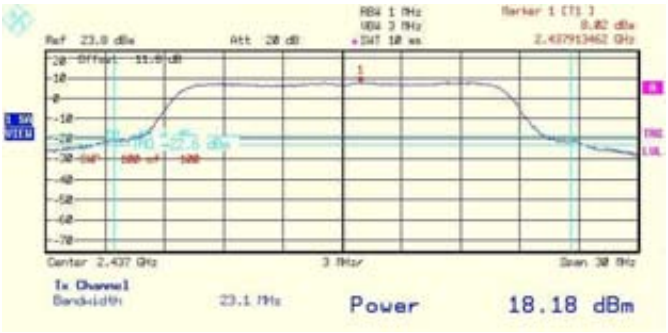
1. 17.55dBm = 0.057W; 17.86dBm = 0.061W; 17.63dBm = 0.058W; 17.33dBm = 0.054W; 17.13dBm = 0.052W; 17.21dBm = 0.053W.
2. 0.057+0.061+0.058+0.054+0.052+0.053=0.33[W]



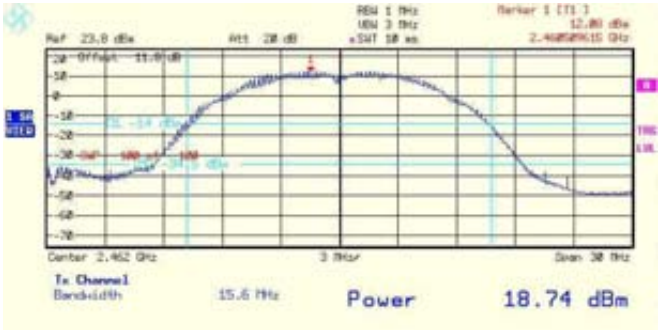
Plot # 169. Output 1 peak power. Lower frequency. 1Mbps rate.

Plot # 170. Output 1 peak power. Lower frequency. 6Mbps rate.

Plot # 171. Output 1 peak power. Middle frequency. 1Mbps rate.

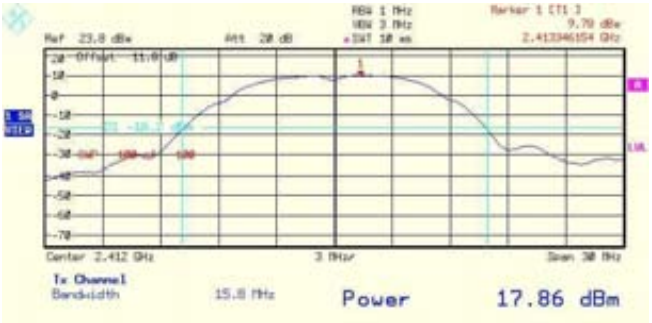


Plot # 172. Output 1 peak power. Middle frequency. 6Mbps rate.



Plot # 173. Output 1 peak power. High frequency. 1Mbps rate.

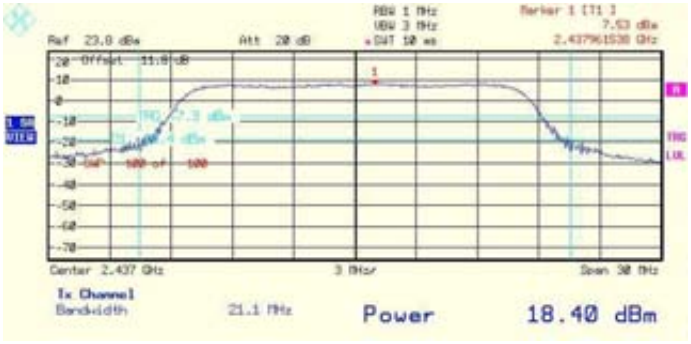
Plot # 174. Output 1 peak power. High frequency. 6Mbps rate.



Plot # 175. Output 2 peak power. Lower frequency. 1Mbps rate.

Plot # 176. Output 2 peak power. Lower frequency. 6Mbps rate.

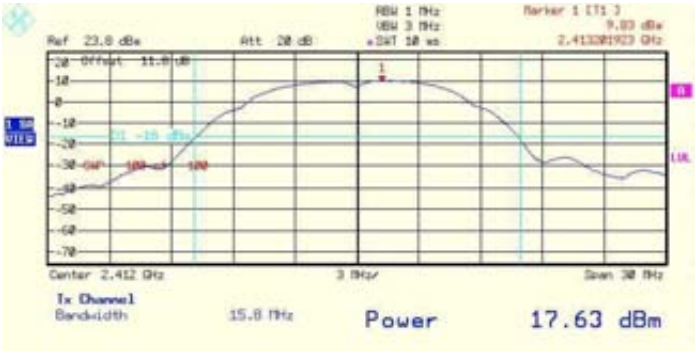
Plot # 177. Output 2 peak power. Middle frequency. 1Mbps rate.



Plot # 178. Output 2 peak power. Middle frequency. 6Mbps rate.

Plot # 179. Output 2 peak power. High frequency. 1Mbps rate.

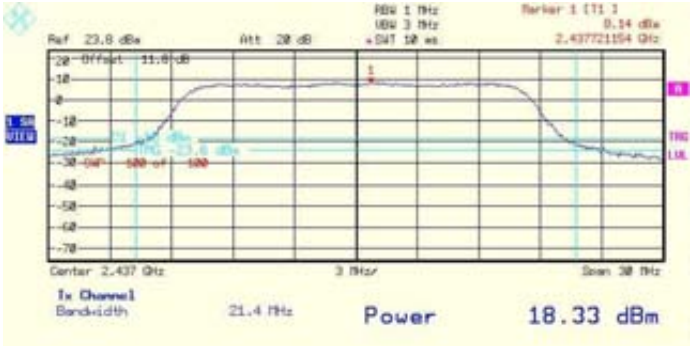
Plot # 180. Output 2 peak power. High frequency. 6Mbps rate.



Plot # 181. Output 3 peak power. Lower frequency. 1Mbps rate.

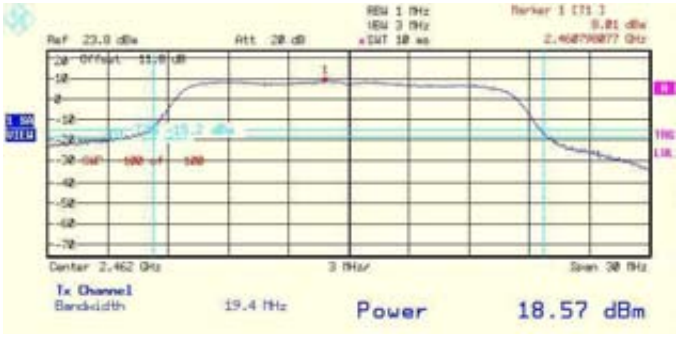
Plot # 182. Output 3 peak power. Lower frequency. 6Mbps rate.

Plot # 183. Output 3 peak power. Middle frequency. 1Mbps rate.

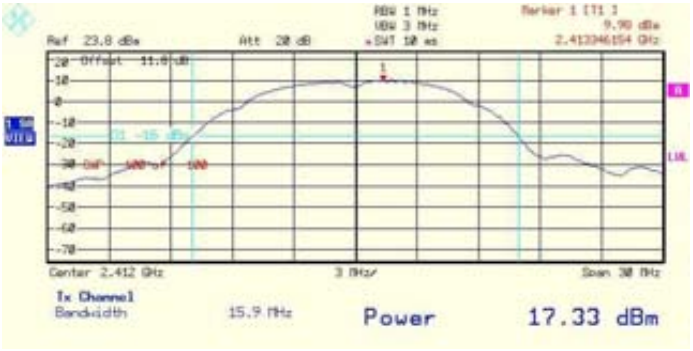


Plot # 184. Output 3 peak power. Middle frequency. 6Mbps rate.

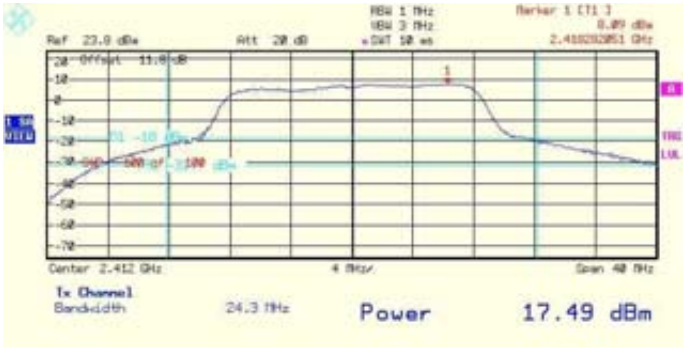
Plot # 185. Output 3 peak power. High frequency. 1Mbps rate.



Plot # 186. Output 3 peak power. High frequency. 6Mbps rate.

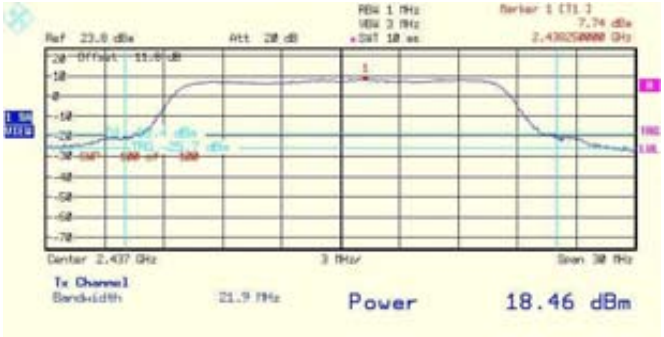


Plot # 187. Output 4 peak power. Lower frequency. 1Mbps rate.



Plot # 188. Output 4 peak power. Lower frequency. 6Mbps rate.

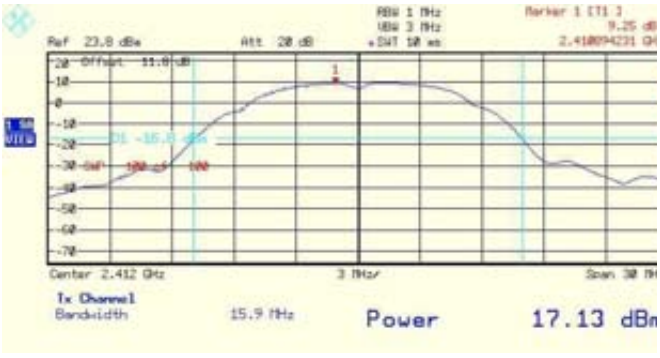
Plot # 189. Output 4 peak power. Middle frequency. 1Mbps rate.



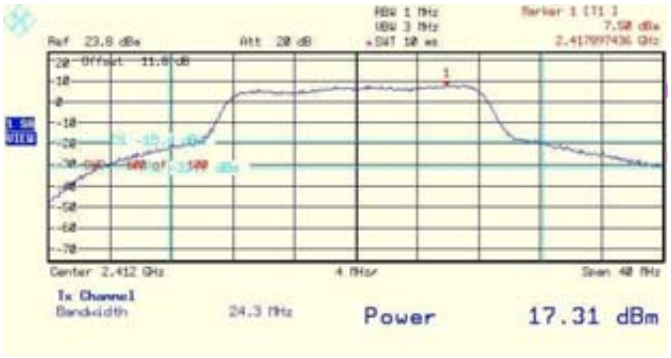
Plot # 190. Output 4 peak power. Middle frequency. 6Mbps rate.

Plot # 191. Output 4 peak power. High frequency. 1Mbps rate.

Plot # 192. Output 4 peak power. High frequency. 6Mbps rate.



Plot # 193. Output 5 peak power. Lower frequency. 1Mbps rate.



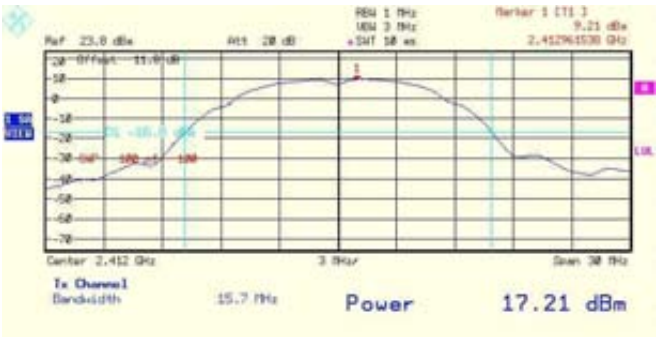
Plot # 194. Output 5 peak power. Lower frequency. 6Mbps rate.

Plot # 195. Output 5 peak power. Middle frequency. 1Mbps rate.

Plot # 196. Output 5 peak power. Middle frequency. 6Mbps rate.

Plot # 197. Output 5 peak power. High frequency. 1Mbps rate.

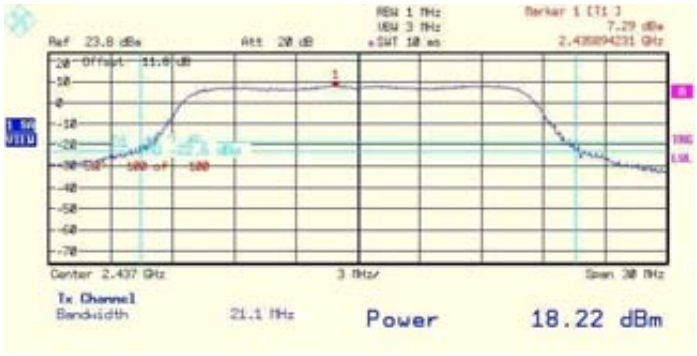
Plot # 198. Output 5 peak power. High frequency. 6Mbps rate.



Plot # 199. Output 6 peak power. Lower frequency. 1Mbps rate.

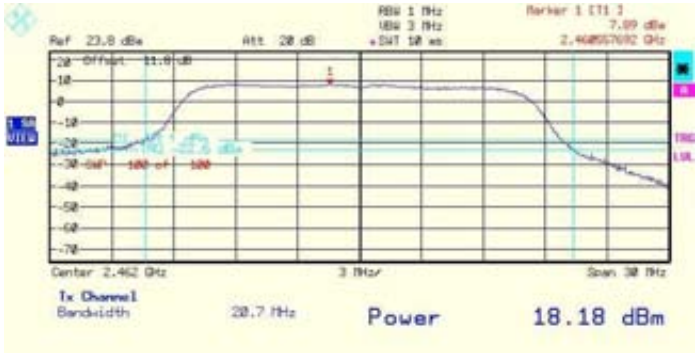
Plot # 200. Output 6 peak power. Lower frequency. 6Mbps rate.

Plot # 201. Output 6 peak power. Middle frequency. 1Mbps rate.



Plot # 202. Output 6 peak power. Middle frequency. 6Mbps rate.

Plot # 203. Output 6 peak power. High frequency. 1Mbps rate.



Plot # 204. Output 6 peak power. High frequency. 6Mbps rate.

7.10. Peak power spectral density of digital modulated systems according to § 15.247(d)

7.10.1. Requirements:

The peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission

7.10.2. Pre-test scanning:

In order to find the "worst case" sample, which can represent all kinds of RF filters, each filter was pre-tested. The following filters were pre-tested: Murata, Comnav, Bitel, Skyworks. After all PSD tests the Skyworks models were chosen as the "worst case", all final measurements were performed with 6 Skyworks filters.

7.10.3. Test Procedure:

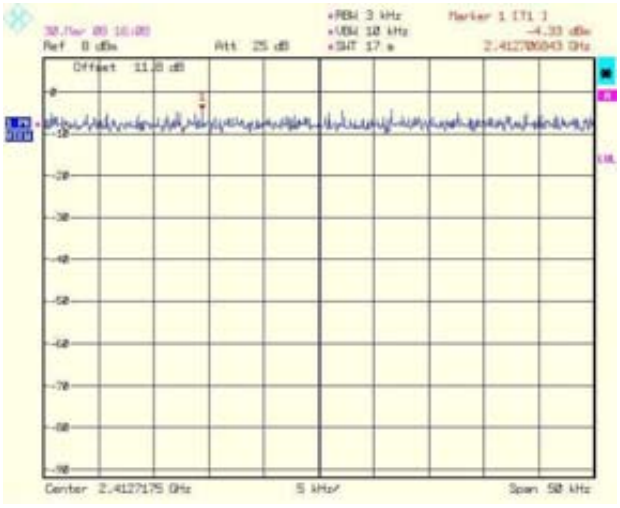
The measurements were performed in normal (transmitting) mode of operation for carrier (channel) frequency at bottom, middle and the top of the 2.412 - 2.462 GHz frequency range. The EUT RF output was connected to the Spectrum Analyzer and accounted with cable loss in measurement. The maximum level in a 3kHz bandwidth is measured with: RBW=3kHz; VBW>3kHz, sweep time=span/3kHz and video averaging is turned off. The PSD is the highest level found across the emission in any 3kHz band.
Additionally, the peak power spectral density from combined (max.) output was calculated and presented in table 13.

7.10.4. Test Results:

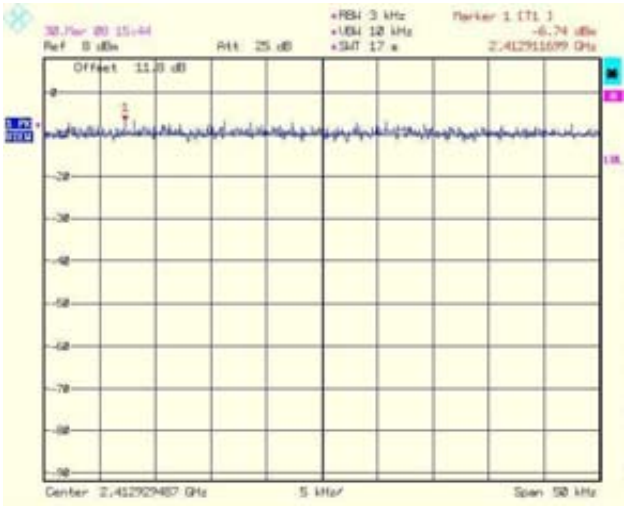
The WBS-2400 configurations for preliminary tests was as following: 2 RF filters Skyworks, 1 RF filter Comnav, 2 RF filter Bitel, 1 RF filter Murata.
The summaries of preliminary PSD measurements are shown in Table 7 and were found with large margin. The plots of pre-scan for each RF filters (outputs 1-6 accordantly) are presented on the plots 205-240.

Frequency MHz	Rate Mbps	Limit [dBm]	Output 1 PSD [dBm]	Output 2 PSD [dBm]	Output 3 PSD [dBm]	Output 4 PSD [dBm]	Output 5 PSD [dBm]	Output 6 PSD [dBm]
			Skyworks	Skyworks	Comnav	Bitel	Bitel	Murata
2412	1	8	-4.33	-4.65	-3.11	-2.86	-5.57	-4.18
	6	8	-6.74	-6.63	-4.64	-4.73	-9.25	-5.28
2437	1	8	-4.10	-3.88	-3.86	-4.04	-5.10	-4.54
	6	8	-5.55	-5.64	-5.27	-5.85	-7.59	-5.32
2462	1	8	-5.16	-2.67	-3.70	-2.31	-3.64	-2.73
	6	8	-5.29	-5.24	-6.81	-5.06	-4.43	-4.41

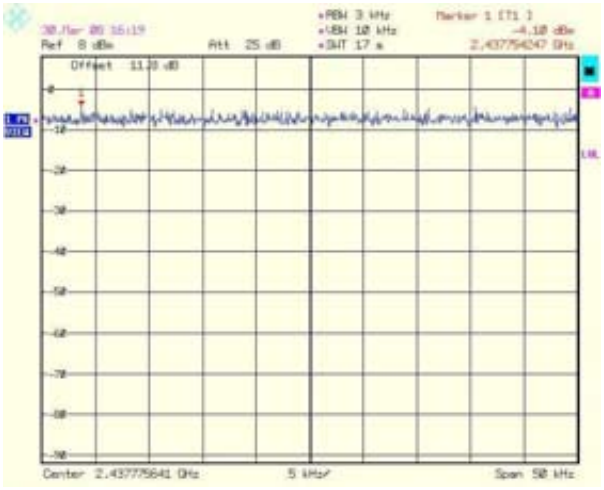
Table 12.
Preliminary PSD test results.



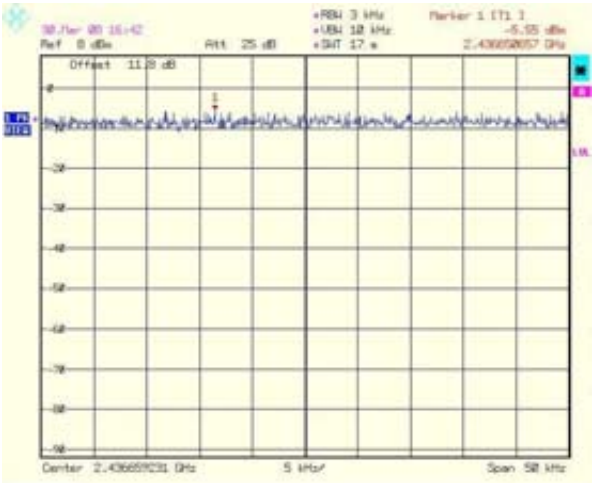
Plot # 205. Transmitter output 1. Peak Power Spectral Density.
Low frequency. 1Mbps rate.



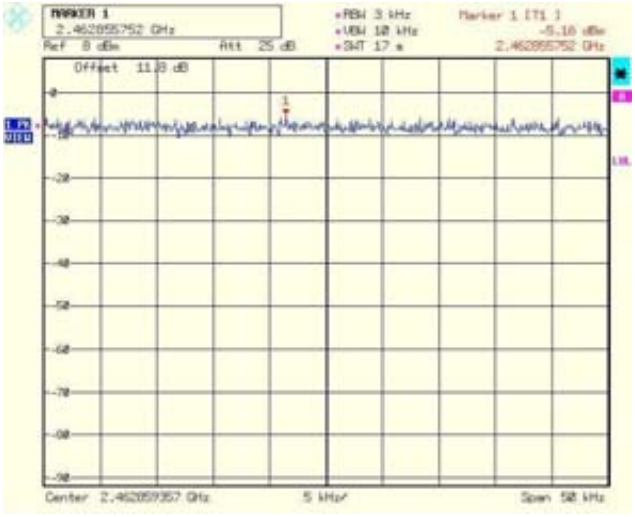
Plot # 206. Transmitter output 1. Peak Power Spectral Density.
Low frequency. 6Mbps rate.



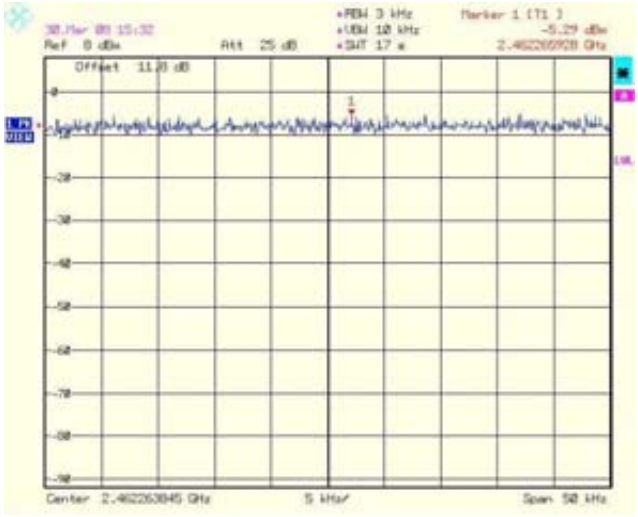
Plot # 207. Transmitter output 1. Peak Power Spectral Density.
Middle frequency. 1Mbps rate.



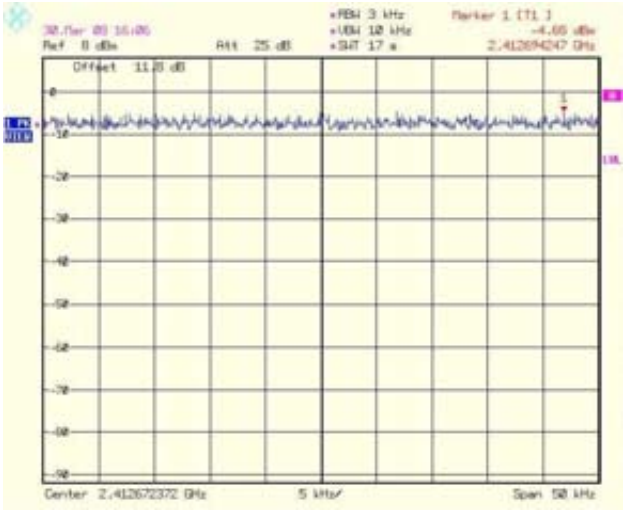
Plot # 208. Transmitter output 1. Peak Power Spectral Density.
Middle frequency. 6Mbps rate.



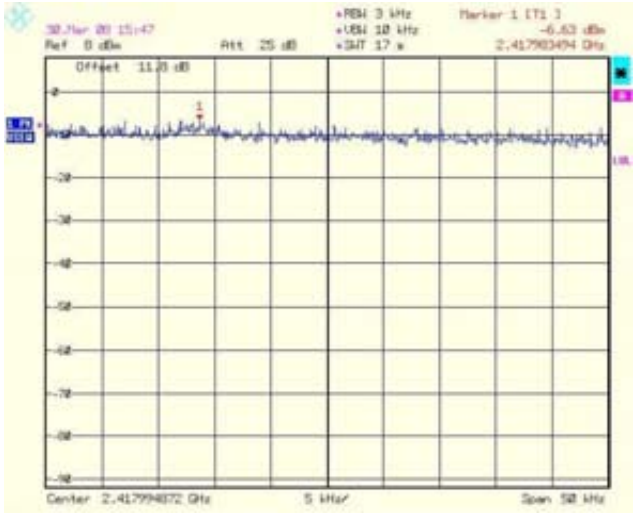
Plot # 209. Transmitter output 1.
Peak Power Spectral Density.
High frequency. 1Mbps rate.



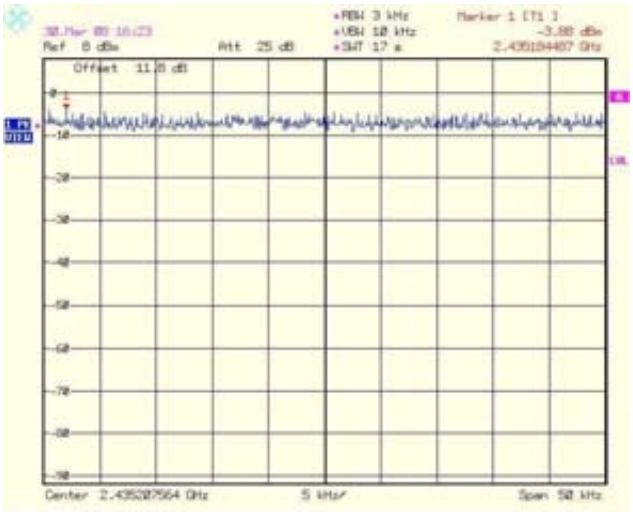
Plot # 210. Transmitter output 1.
Peak Power Spectral Density.
High frequency. 6Mbps rate.



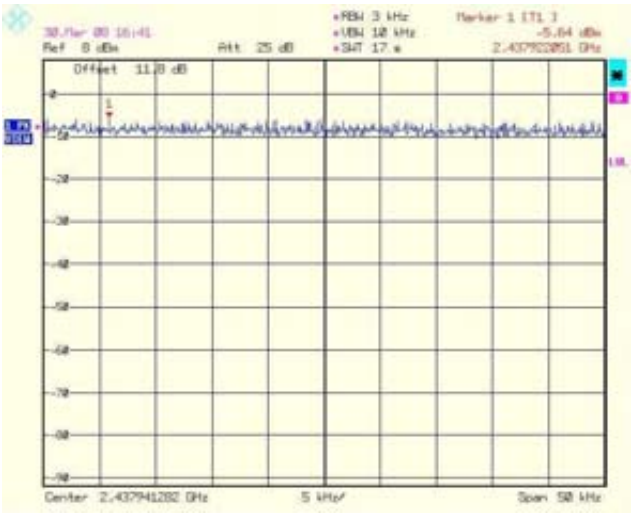
Plot # 211. Transmitter output 2.
Peak Power Spectral Density.
Low frequency. 1Mbps rate.



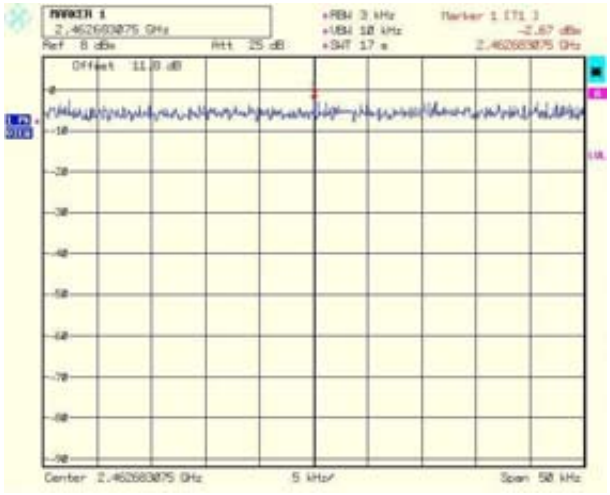
Plot # 212. Transmitter output 2.
Peak Power Spectral Density.
Low frequency. 6Mbps rate.



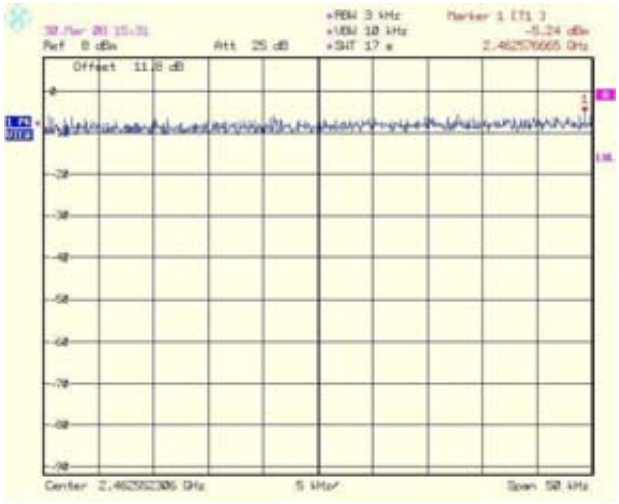
Plot # 213. Transmitter output 2.
Peak Power Spectral Density.
Middle frequency. 1Mbps rate.



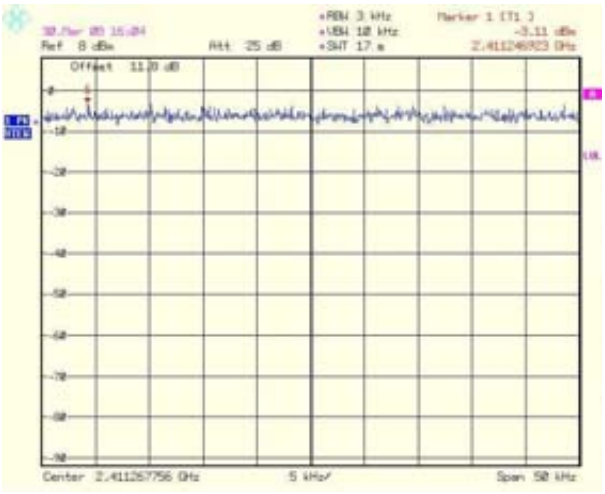
Plot # 214. Transmitter output 2.
Peak Power Spectral Density.
Middle frequency. 6Mbps rate.



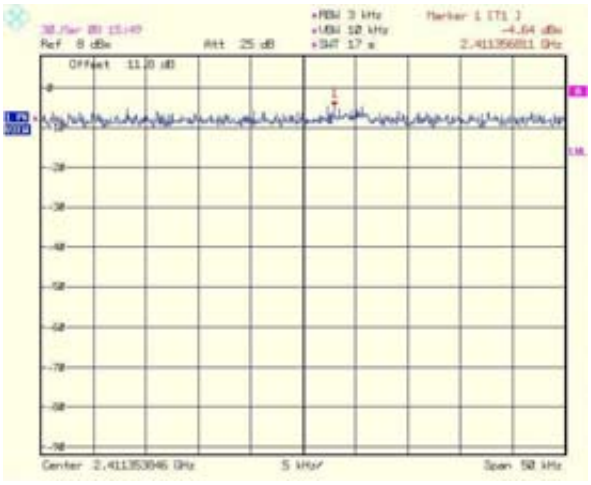
Plot # 215. Transmitter output 2.
Peak Power Spectral Density.
High frequency. 1Mbps rate.



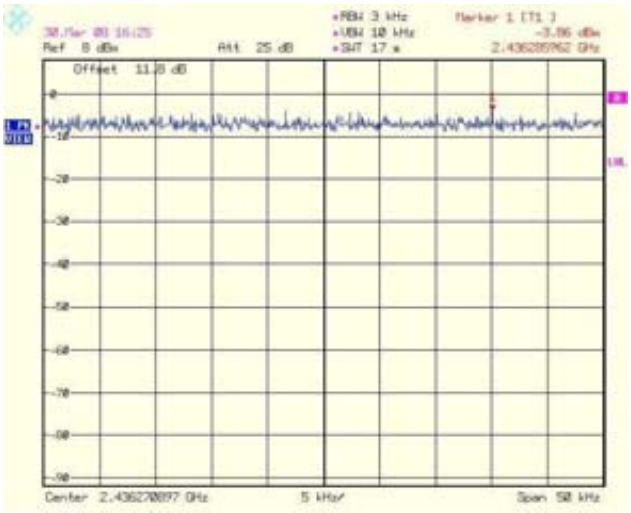
Plot # 216. Transmitter output 2.
Peak Power Spectral Density.
High frequency. 6Mbps rate.



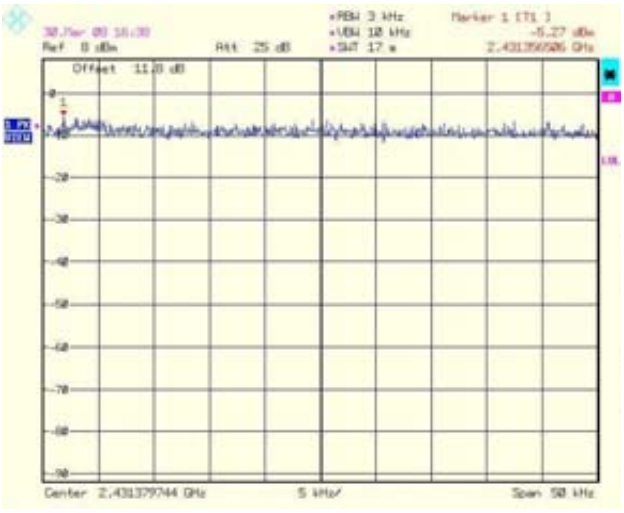
Plot # 217. Transmitter output 3.
Peak Power Spectral Density.
Low frequency. 1Mbps rate.



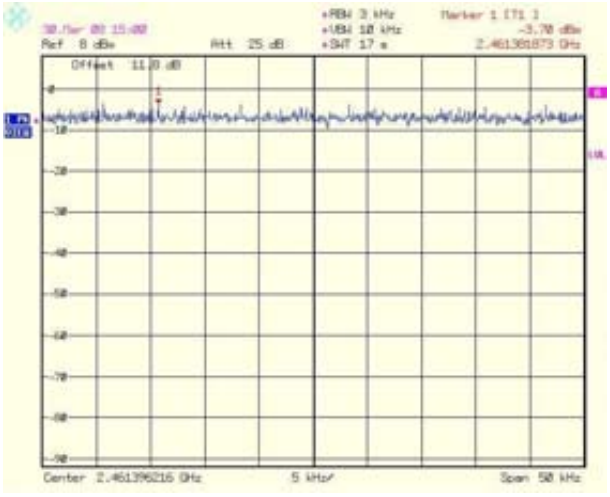
Plot # 218. Transmitter output 3.
Peak Power Spectral Density.
Low frequency. 6Mbps rate.



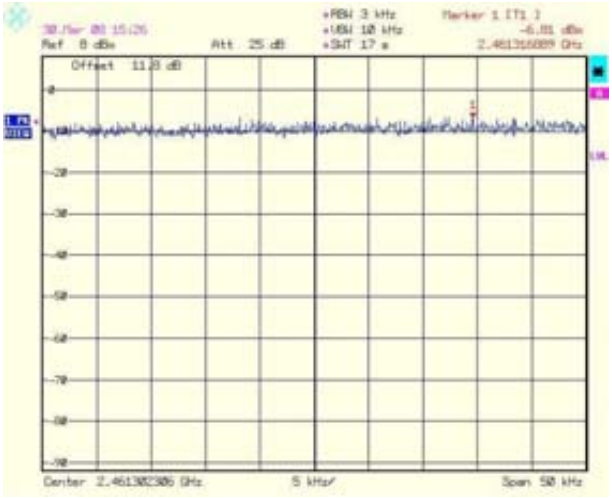
Plot # 219. Transmitter output 3.
Peak Power Spectral Density.
Middle frequency. 1Mbps rate.



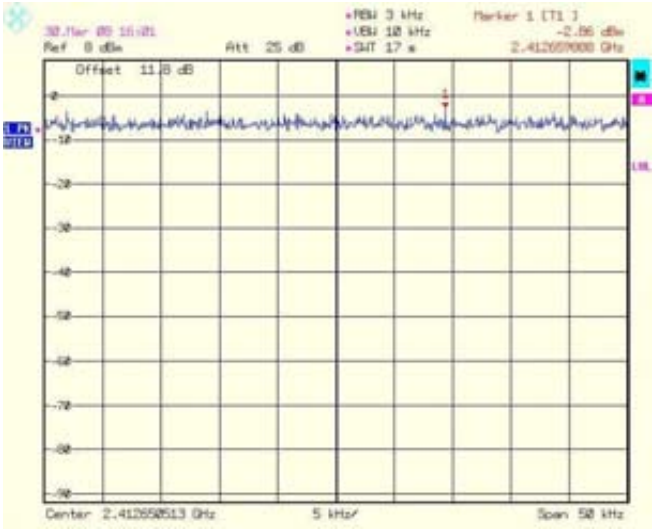
Plot # 220. Transmitter output 3.
Peak Power Spectral Density.
Middle frequency. 6Mbps rate.



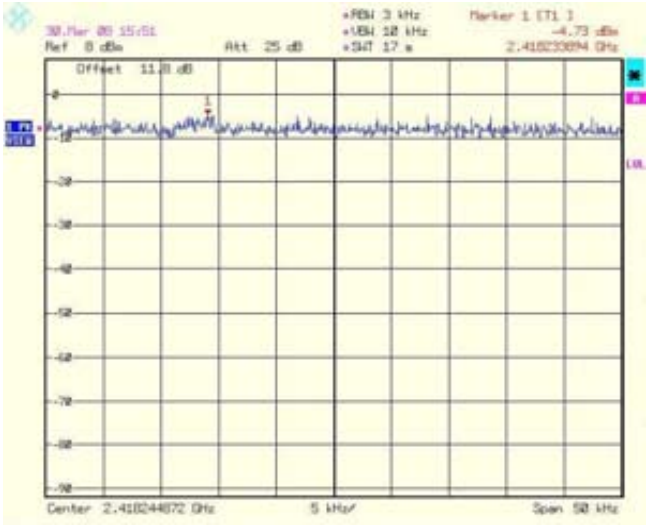
Plot # 221. Transmitter output 3.
Peak Power Spectral Density.
High frequency. 1Mbps rate.



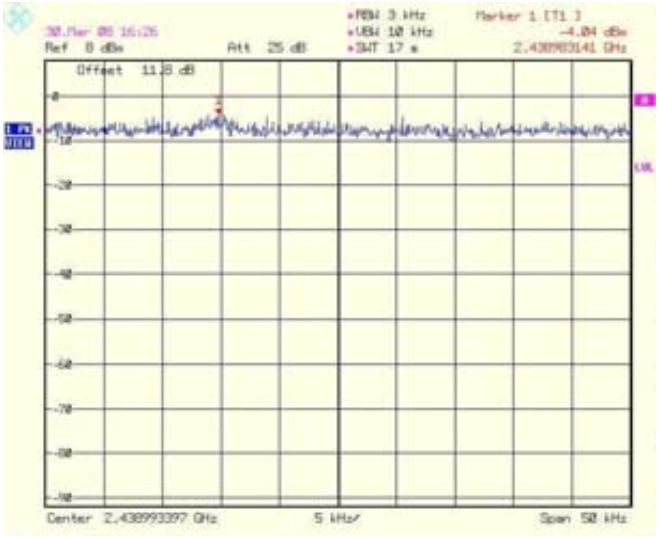
Plot # 222. Transmitter output 3.
Peak Power Spectral Density.
High frequency. 6Mbps rate.



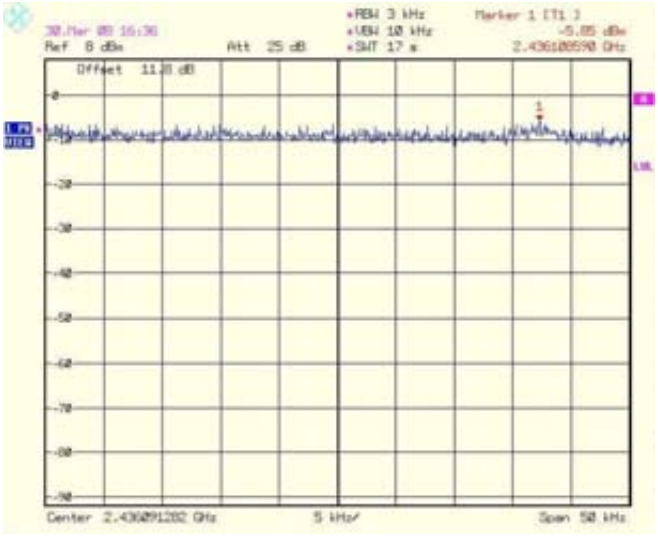
Plot # 223. Transmitter output 4.
Peak Power Spectral Density.
Low frequency. 1Mbps rate.



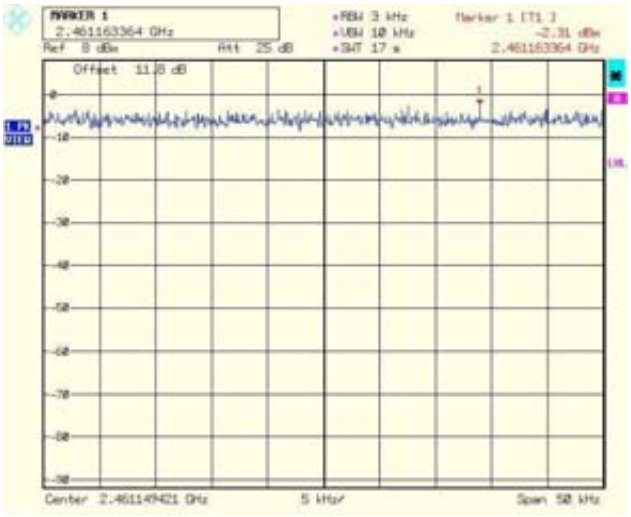
Plot # 224. Transmitter output 4.
Peak Power Spectral Density.
Low frequency. 6Mbps rate.



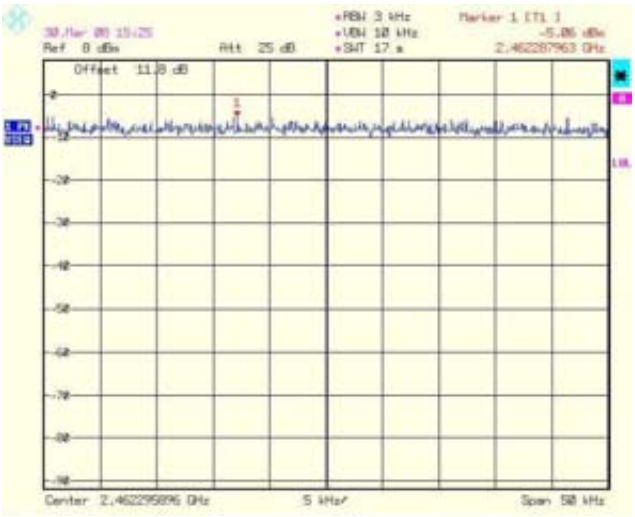
Plot # 225. Transmitter output 4.
Peak Power Spectral Density.
Middle frequency. 1Mbps rate.



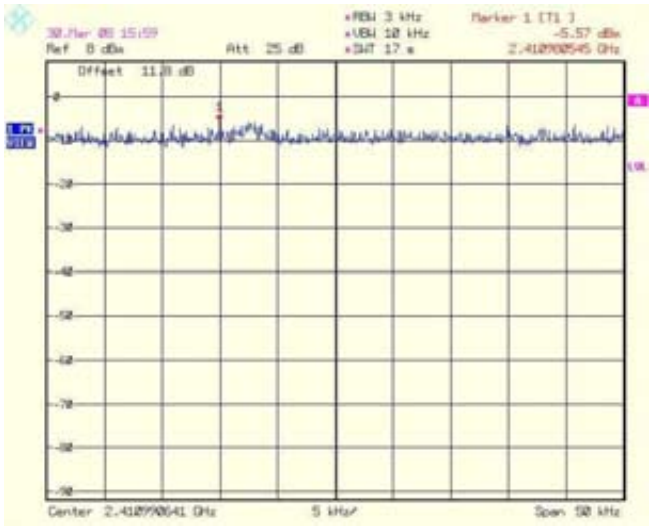
Plot # 226. Transmitter output 4.
Peak Power Spectral Density.
Middle frequency. 6Mbps rate.



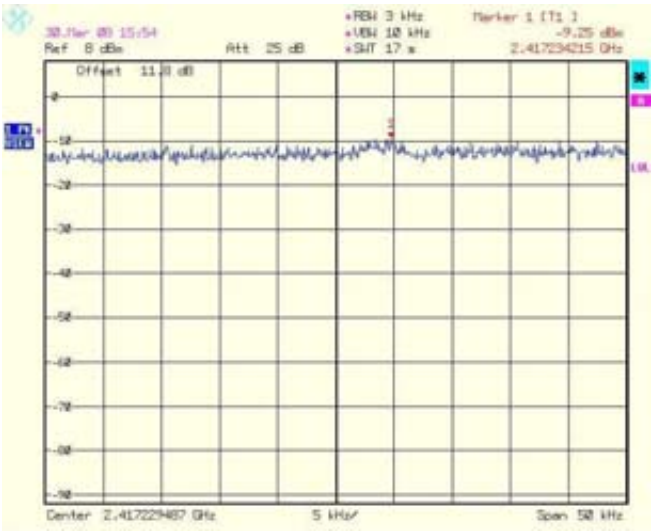
Plot # 227. Transmitter output 4.
Peak Power Spectral Density.
High frequency. 1Mbps rate.



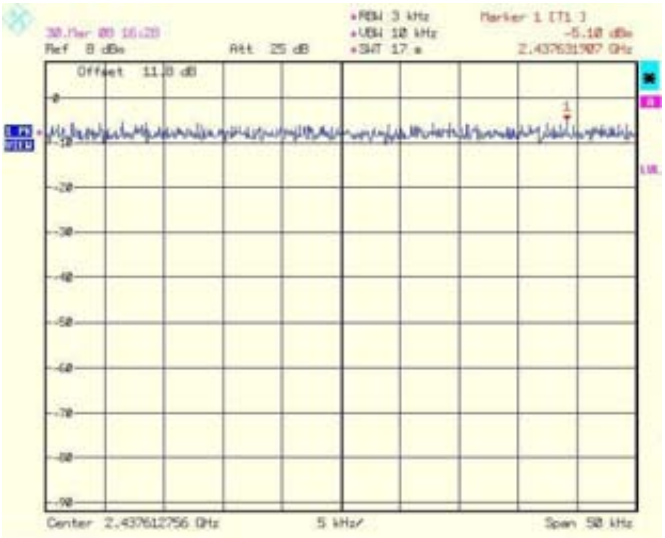
Plot # 228. Transmitter output 4.
Peak Power Spectral Density.
High frequency. 6Mbps rate.



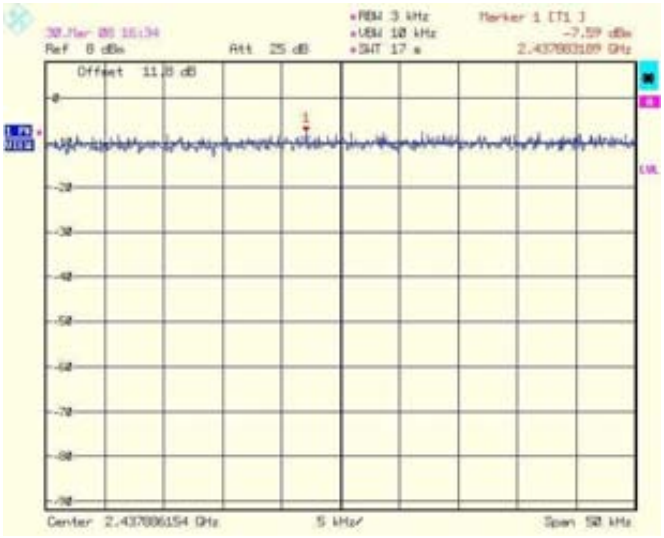
Plot # 229. Transmitter output 5.
Peak Power Spectral Density.
Low frequency. 1Mbps rate.



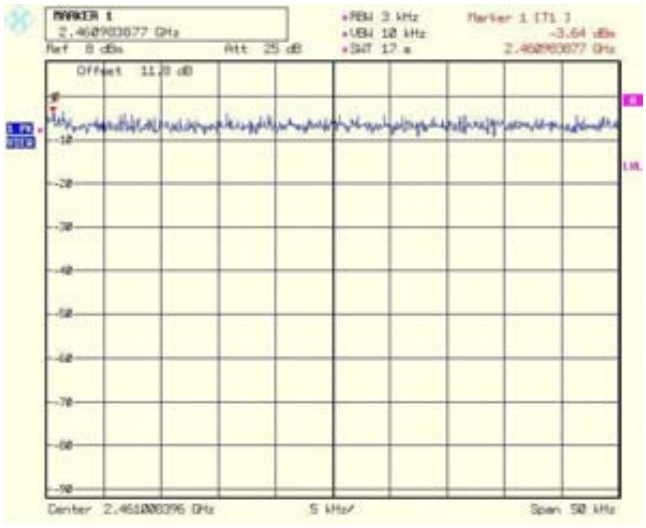
Plot # 230. Transmitter output 5.
Peak Power Spectral Density.
Low frequency. 6Mbps rate.



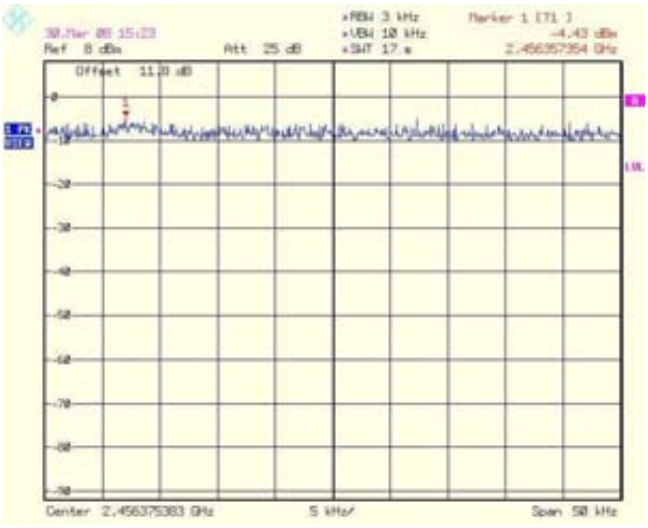
Plot # 231. Transmitter output 5.
Peak Power Spectral Density.
Middle frequency. 1Mbps rate.



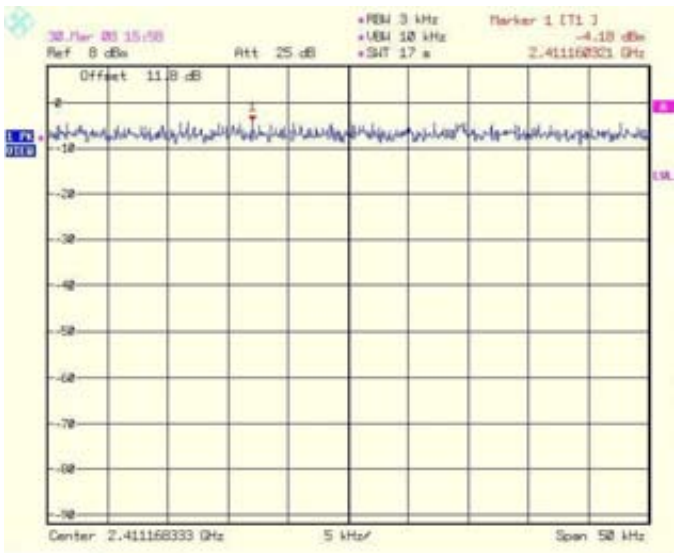
Plot # 232. Transmitter output 5.
Peak Power Spectral Density.
Middle frequency. 6Mbps rate.



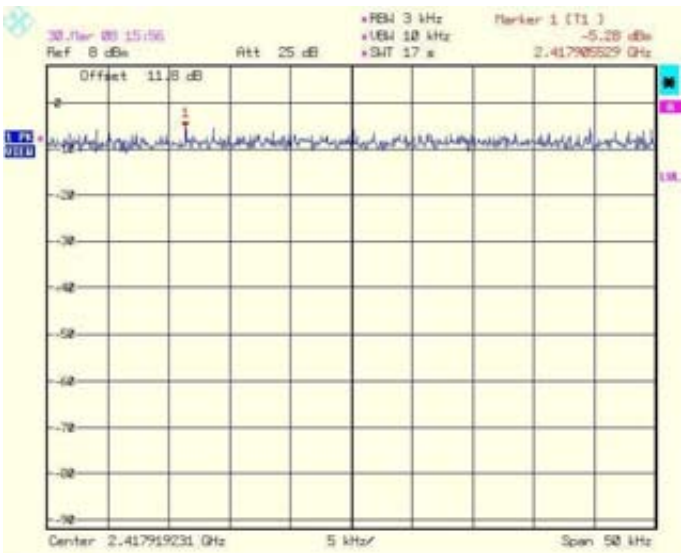
Plot # 233. Transmitter output 5.
Peak Power Spectral Density.
High frequency. 1Mbps rate.



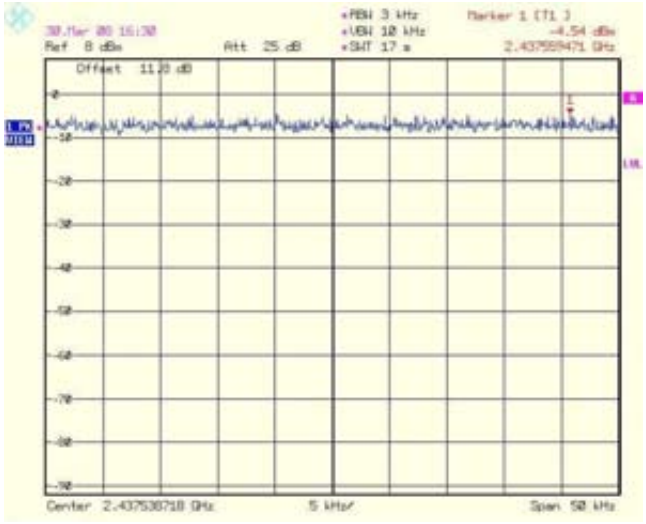
Plot # 234. Transmitter output 5.
Peak Power Spectral Density.
High frequency. 6Mbps rate.



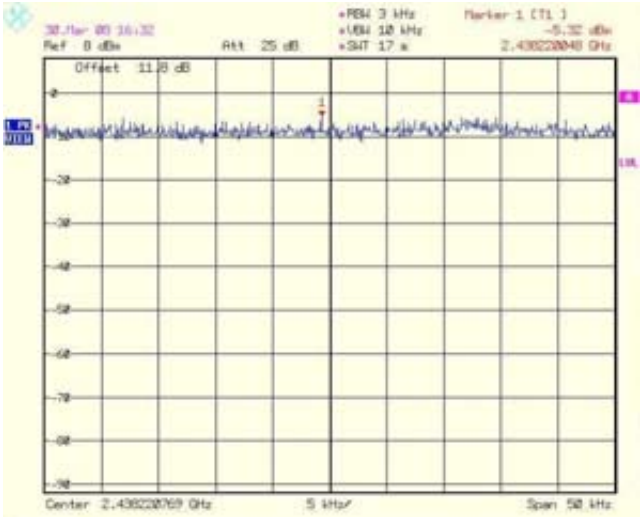
Plot # 235. Transmitter output 6.
Peak Power Spectral Density.
Low frequency. 1Mbps rate.



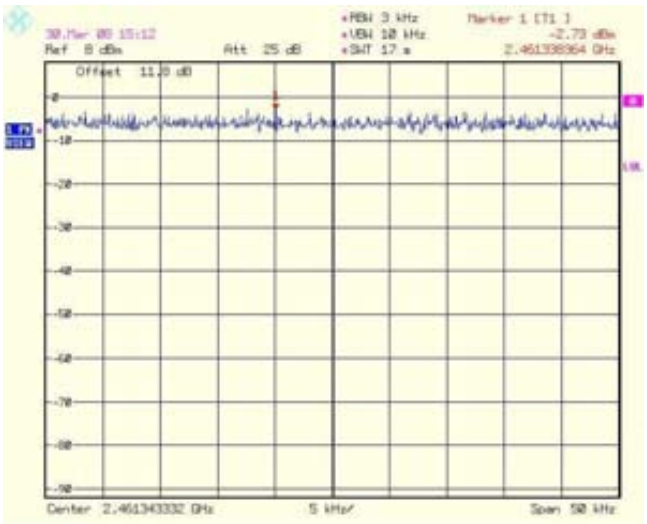
Plot # 236. Transmitter output 6.
Peak Power Spectral Density.
Low frequency. 6Mbps rate.



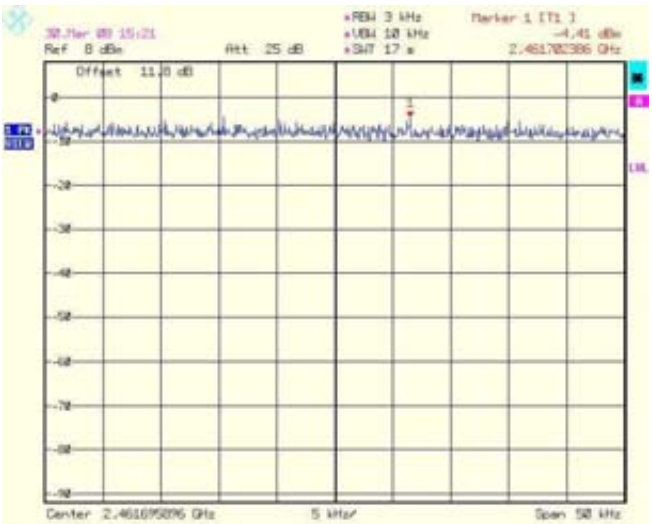
Plot # 237. Transmitter output 6.
Peak Power Spectral Density.
Middle frequency. 1Mbps rate.



Plot # 238. Transmitter output 6.
Peak Power Spectral Density.
Middle frequency. 6Mbps rate.



Plot # 239. Transmitter output 6.
Peak Power Spectral Density.
High frequency. 1Mbps rate.



Plot # 240. Transmitter output 6.
Peak Power Spectral Density.
High frequency. 6Mbps rate.

In a reason of large margin received in pre-compliance testing the final configuration was yet based on clause 7.5.4.
The final configuration has been built with 6 Skyworks RF filters.
The summaries of final minimum bandwidth measurements from output 4 are shown in Tables 13-15.
All test results met the requirements and presented on the plots 243-276.
The tests were performed with the worst case, which is higher power level.

Frequency MHz	Rate Mbps	Modulation mode	Output 1 PSD [dBm]	Output 2 PSD [dBm]	Output 3 PSD [dBm]	Limit [dBm]	Margin [dB] Output 1	Plot number	Margin [dB] Output 2	Plot number	Margin [dB] Output 3	Plot number
2412	1	802.11b	-4.75	-2.98	-3.68	8	12.75	241	10.98	247	11.68	253
	6	802.11g	-5.80	-4.98	-5.05	8	13.80	242	12.98	248	13.05	254
2437	1	802.11b	-2.48	-2.10	-4.25	8	10.48	243	10.10	249	12.25	255
	6	802.11g	-6.10	-3.98	-5.52	8	14.10	244	11.98	250	13.52	256
2462	1	802.11b	-3.08	-3.01	-3.20	8	11.08	245	11.01	251	11.20	257
	6	802.11g	-6.00	-3.98	-5.72	8	14.00	246	11.98	252	13.72	258

Table 13.
PSD (Outputs 1-3) test results.

Frequency MHz	Rate Mbps	Modulation mode	Output 4 PSD [dBm]	Output 5 PSD [dBm]	Output 6 PSD [dBm]	Limit [dBm]	Margin [dB] Output 4	Plot number	Margin [dB] Output 5	Plot number	Margin [dB] Output 6	Plot number
2412	1	802.11b	-4.30	-4.70	-3.87	8	12.30	259	12.70	265	11.87	271
	6	802.11g	-6.54	-6.36	-6.88	8	14.54	260	14.36	266	14.88	272
2437	1	802.11b	-3.46	-3.68	-3.76	8	11.46	261	11.68	267	11.76	273
	6	802.11g	-3.37	-5.54	-5.63	8	11.37	262	13.54	268	13.63	274
2462	1	802.11b	-2.49	-3.11	-2.88	8	10.49	263	11.11	269	10.88	275
	6	802.11g	-5.40	-3.77	-4.84	8	13.40	264	11.77	270	12.84	276

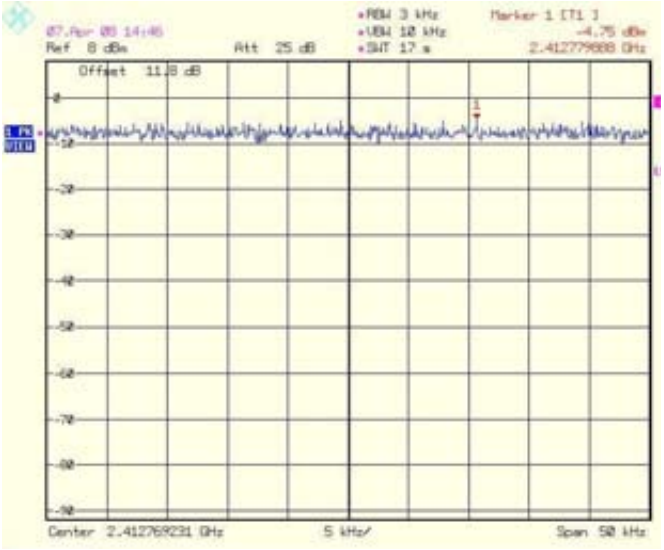
Table 14.
PSD (Outputs 4-6) test results.

Frequency MHz	Rate Mbps	Modulation mode	Limit [dBm]	Calculated Combined (max) Output *, PSD [dBm]	Margin [dB]
2412	1	802.11b	8	3.78	4.22
	6	802.11g	8	1.91	6.09
2437	1	802.11b	8	4.56	3.44
	6	802.11g	8	2.88	5.12
2462	1	802.11b	8	4.83	3.17
	6	802.11g	8	2.91	5.09

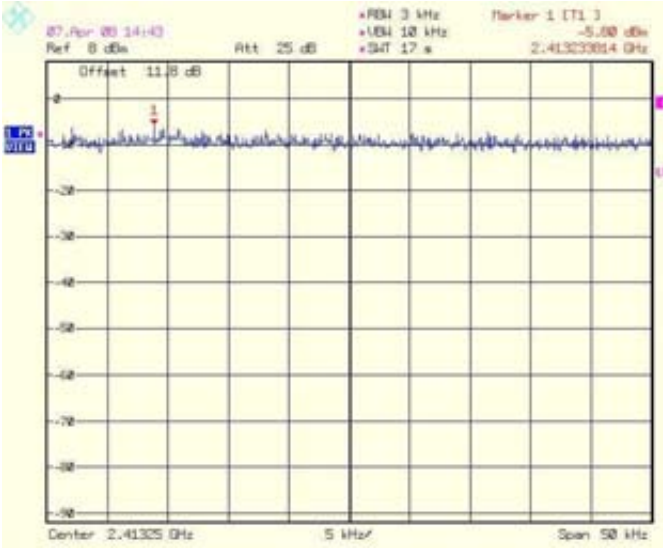
Table 15.
PSD (Combined Output) test results.

(*)- Calculated Combined (max) Output, PSD [dBm] is the sum of the measured PSD from all Output terminals, where each result (PSD from separate output terminal) mathematically conversed from Logarithm to linear units. The results were present in dBm.
For example, the calculation for 2412 MHz frequency (1 Mbps bit rate, 802.11b modulation) is the following:

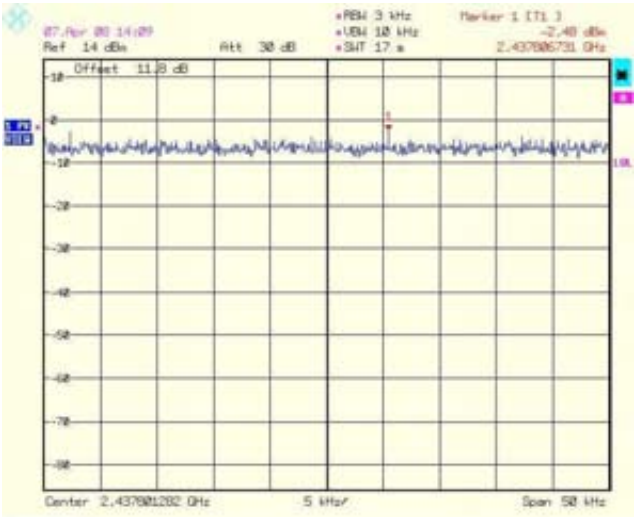
1. (-4.75) dBm = 0.33mW; (-2.98) dBm = 0.50mW; (-3.68) dBm = 0.43mW; (-4.30) dBm = 0.37mW; (-4.70) dBm = 0.34mW; (-3.87) dBm = 0.41 mW
2. 0.33+0.50+0.43+0.37+0.34+0.41 =2.39 [mW]
3. 2.39 mW = 3.78 dBm



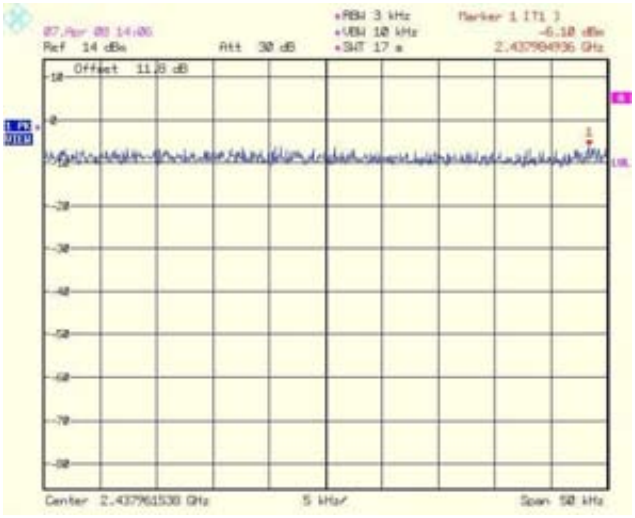
Plot # 241. Transmitter output 1. Peak Power Spectral Density.
Low frequency. 1Mbps rate.



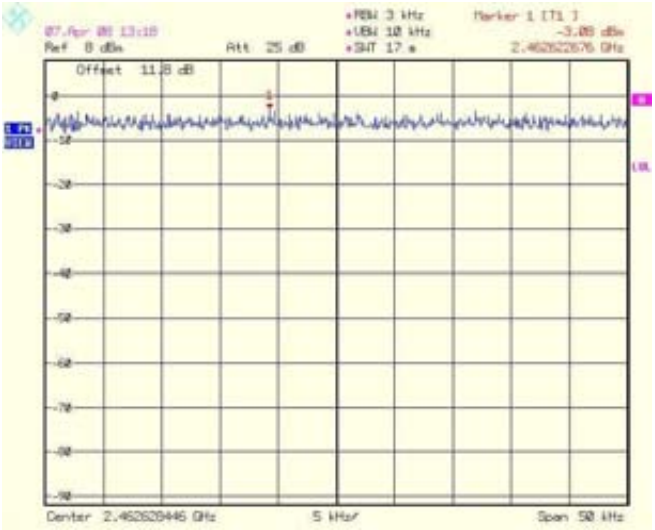
Plot # 242. Transmitter output 1. Peak Power Spectral Density.
Low frequency. 6Mbps rate.



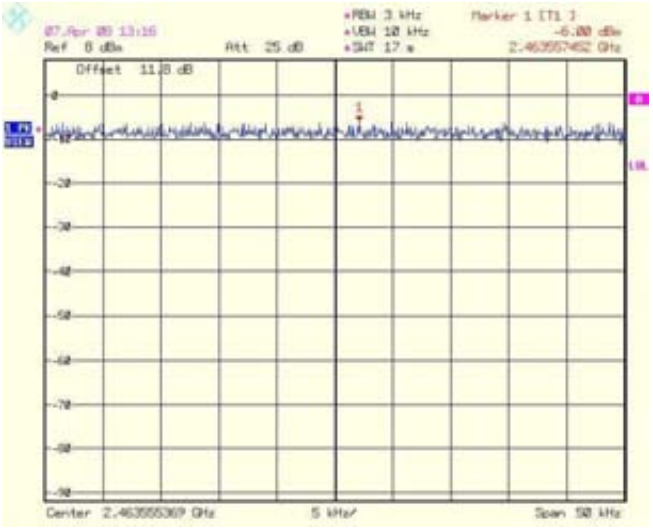
Plot # 243. Transmitter output 1. Peak Power Spectral Density.
Middle frequency. 1Mbps rate.



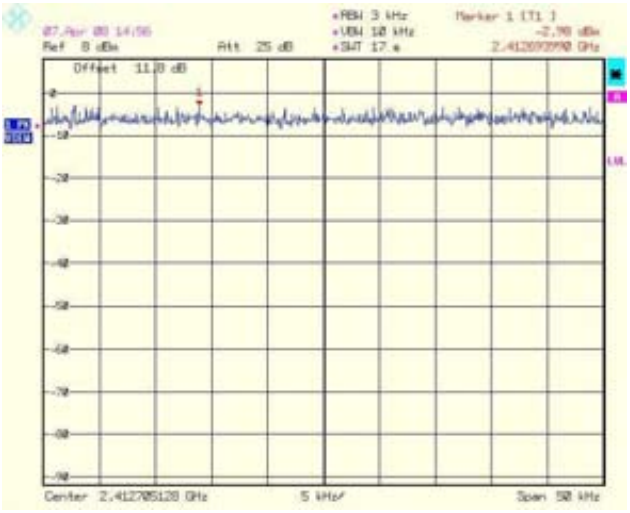
Plot # 244. Transmitter output 1. Peak Power Spectral Density.
Middle frequency. 6Mbps rate.



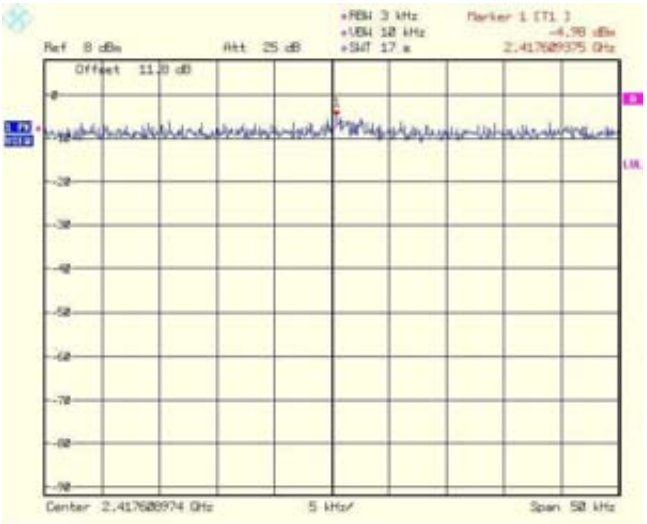
Plot # 245. Transmitter output 1.
Peak Power Spectral Density.
High frequency. 1Mbps rate.



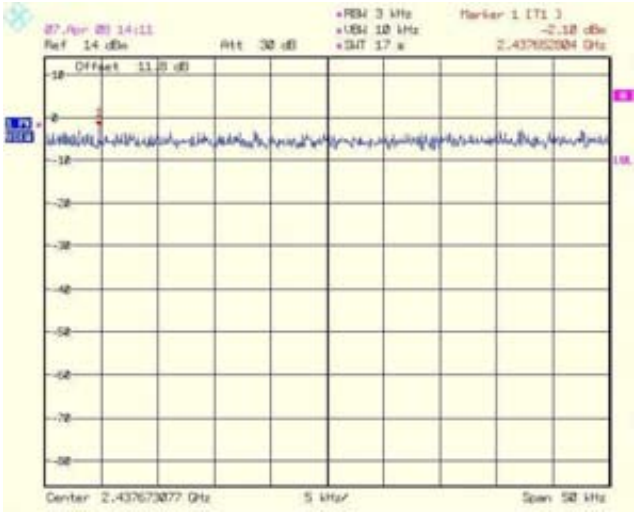
Plot # 246. Transmitter output 1.
Peak Power Spectral Density.
High frequency. 6Mbps rate.



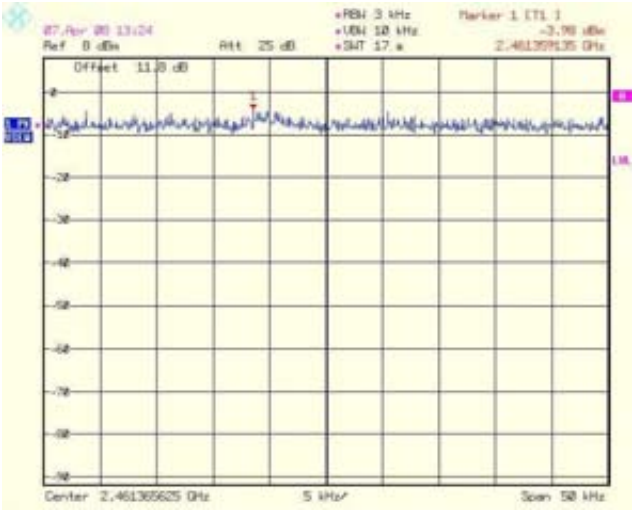
Plot # 247. Transmitter output 2.
Peak Power Spectral Density.
Low frequency. 1Mbps rate.



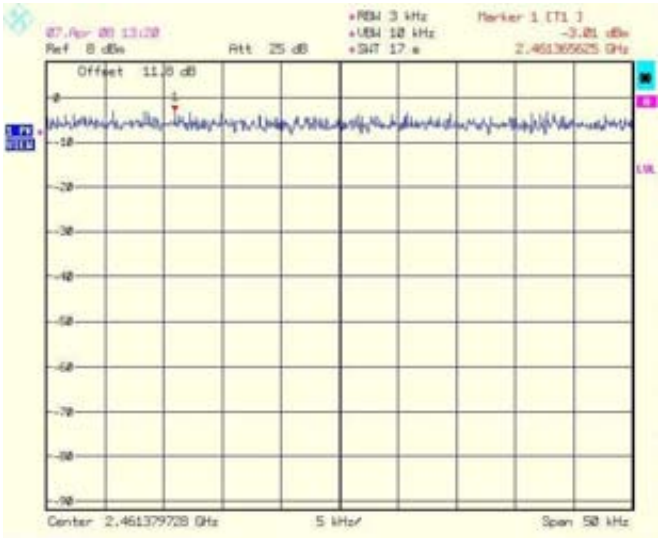
Plot # 248. Transmitter output 2.
Peak Power Spectral Density.
Low frequency. 6Mbps rate.



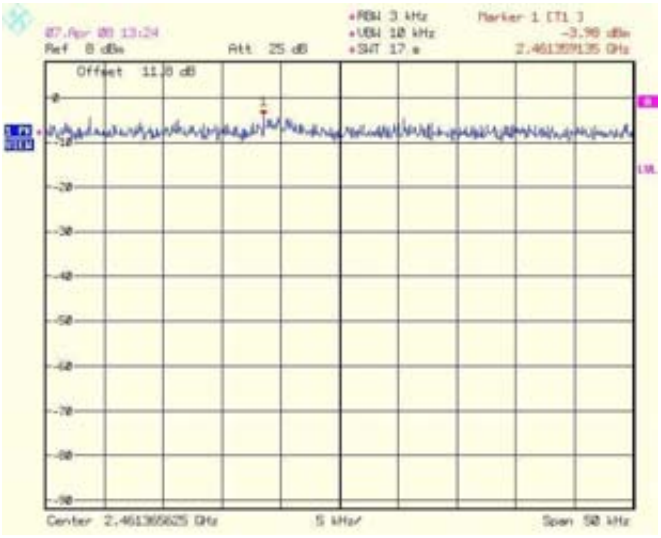
Plot # 249. Transmitter output 2.
Peak Power Spectral Density.
Middle frequency. 1Mbps rate.



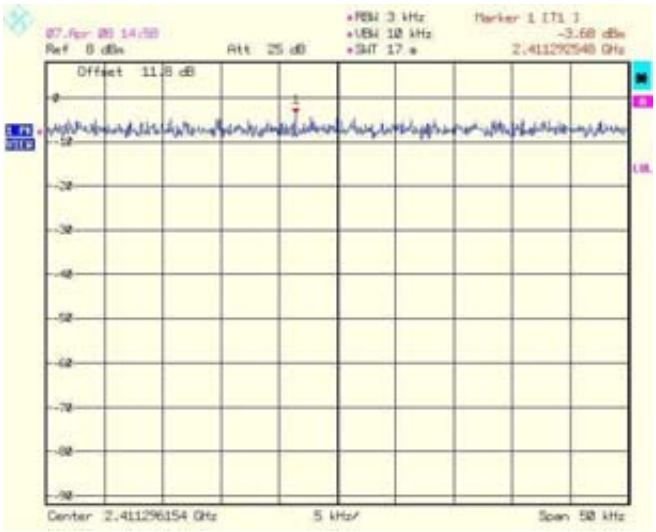
Plot # 250. Transmitter output 2.
Peak Power Spectral Density.
Middle frequency. 6Mbps rate.



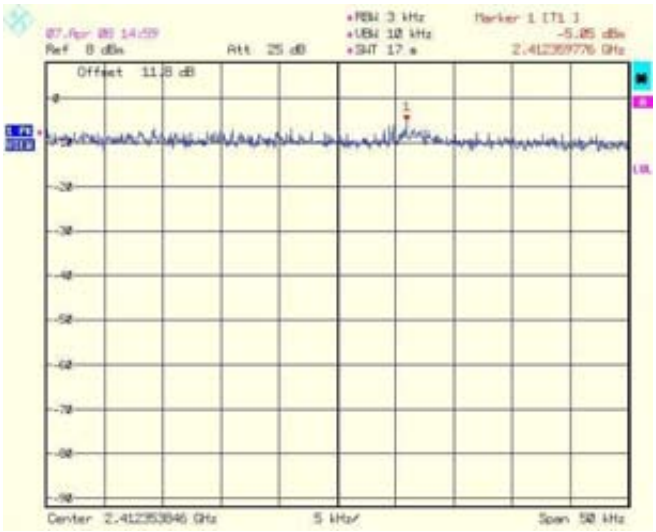
Plot # 251. Transmitter output 2.
Peak Power Spectral Density.
High frequency. 1Mbps rate.



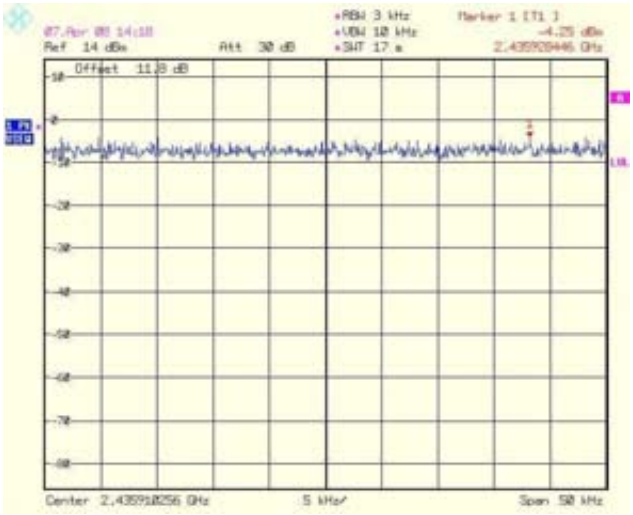
Plot # 252. Transmitter output 2.
Peak Power Spectral Density.
High frequency. 6Mbps rate.



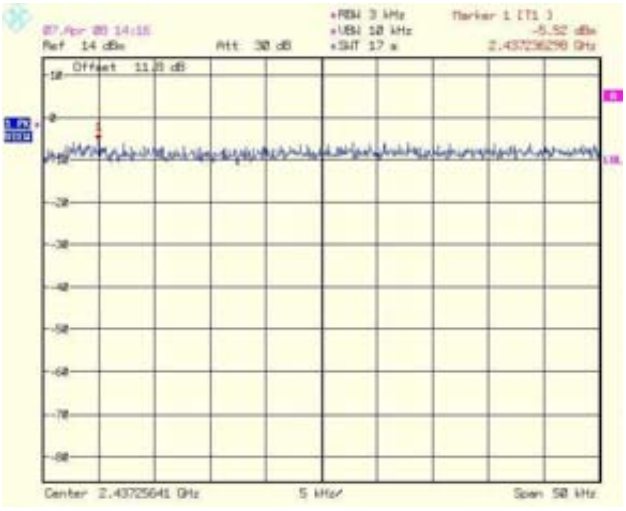
Plot # 253. Transmitter output 3.
Peak Power Spectral Density.
Low frequency. 1Mbps rate.



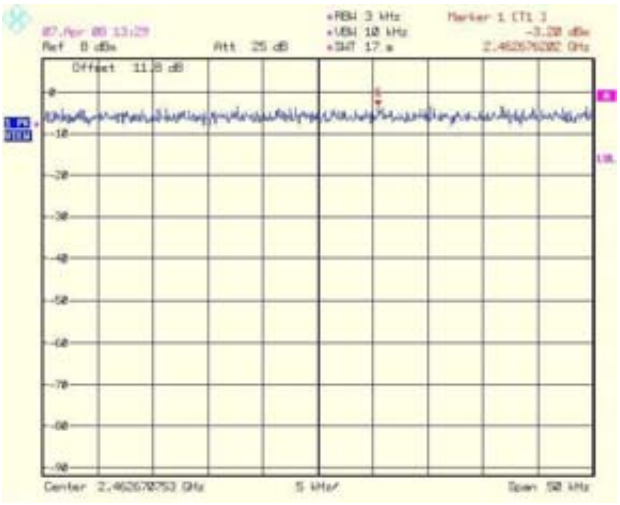
Plot # 254. Transmitter output 3.
Peak Power Spectral Density.
Low frequency. 6Mbps rate.



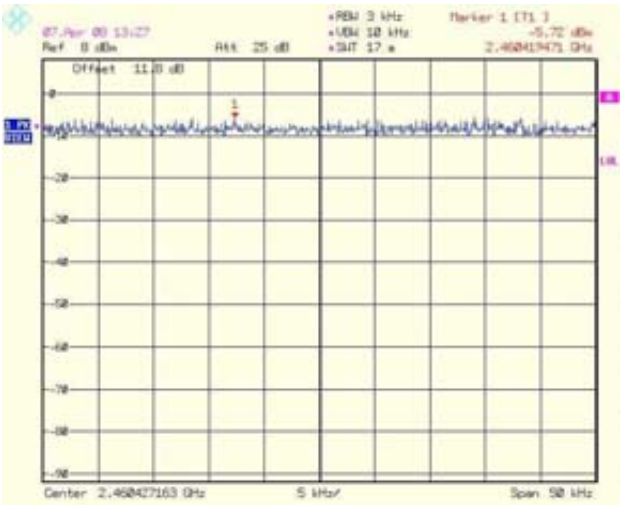
Plot # 255. Transmitter output 3.
Peak Power Spectral Density.
Middle frequency. 1Mbps rate.



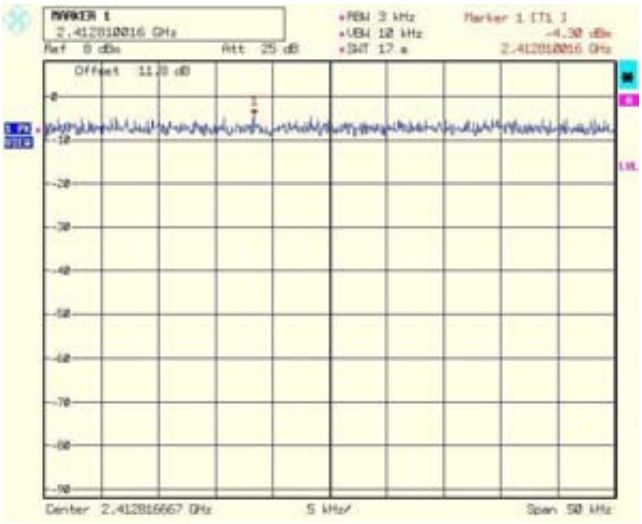
Plot # 256. Transmitter output 3.
Peak Power Spectral Density.
Middle frequency. 6Mbps rate.



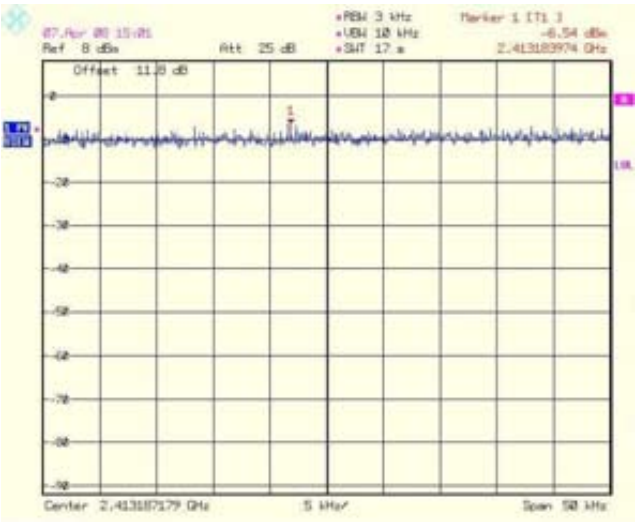
Plot # 257. Transmitter output 3.
Peak Power Spectral Density.
High frequency. 1Mbps rate.



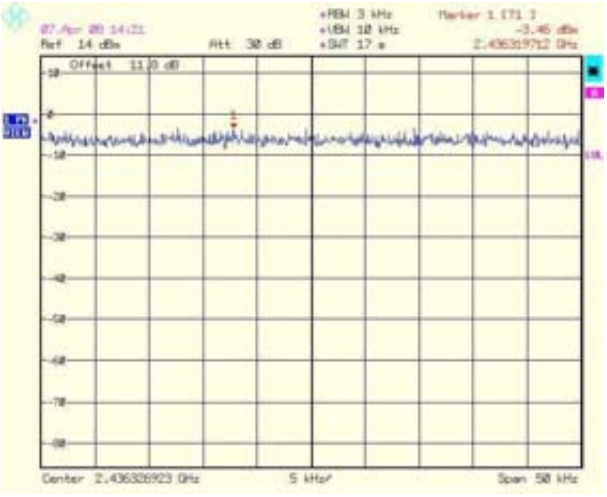
Plot # 258. Transmitter output 3.
Peak Power Spectral Density.
High frequency. 6Mbps rate.



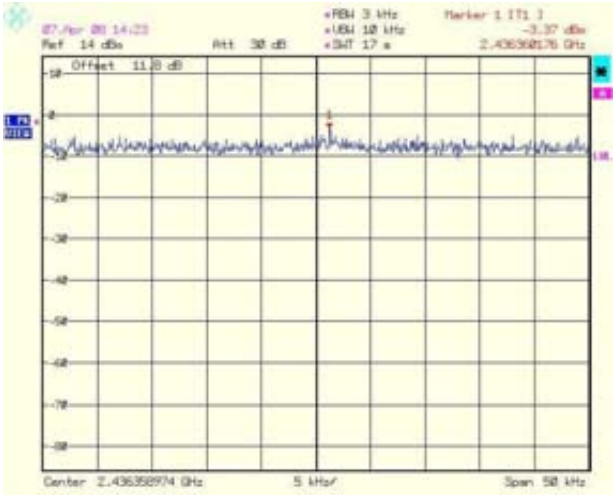
Plot # 259. Transmitter output 4.
Peak Power Spectral Density.
Low frequency. 1Mbps rate.



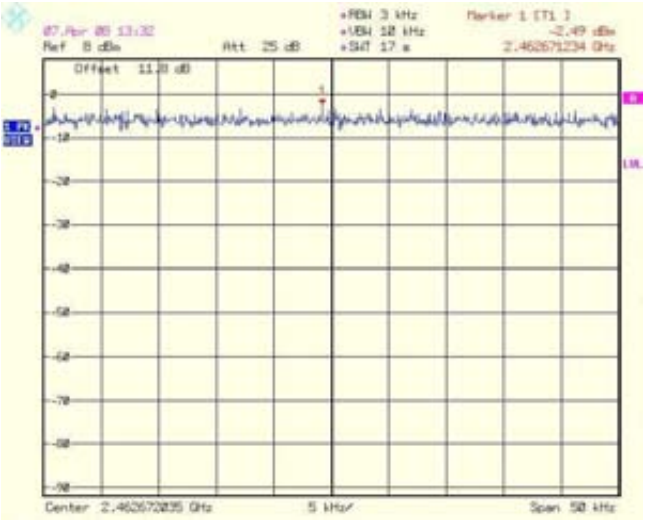
Plot # 260. Transmitter output 4.
Peak Power Spectral Density.
Low frequency. 6Mbps rate.



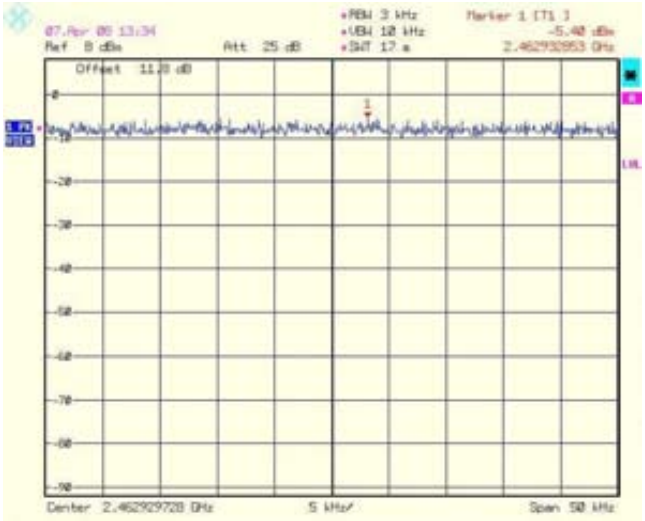
Plot # 261. Transmitter output 4.
Peak Power Spectral Density.
Middle frequency. 1Mbps rate.



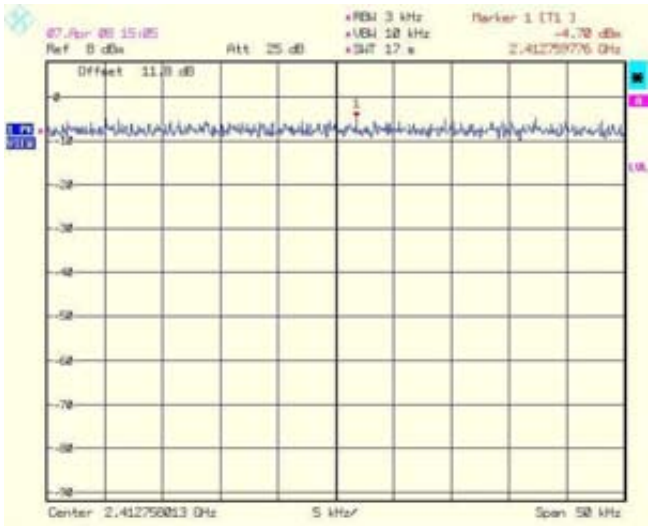
Plot # 262. Transmitter output 4.
Peak Power Spectral Density.
Middle frequency. 6Mbps rate.



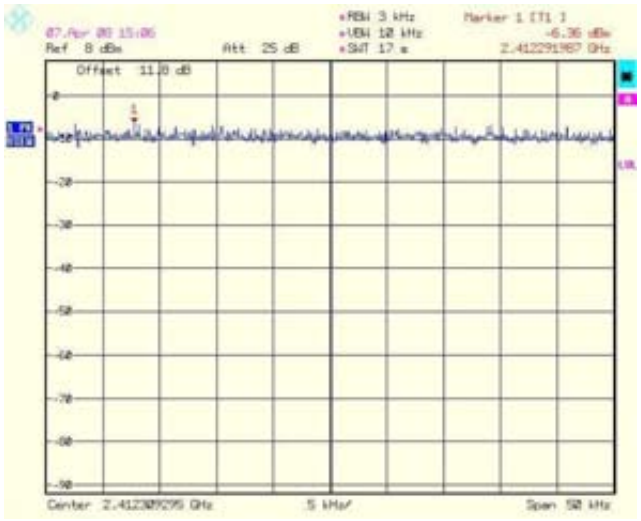
Plot # 263. Transmitter output 4.
Peak Power Spectral Density.
High frequency. 1Mbps rate.



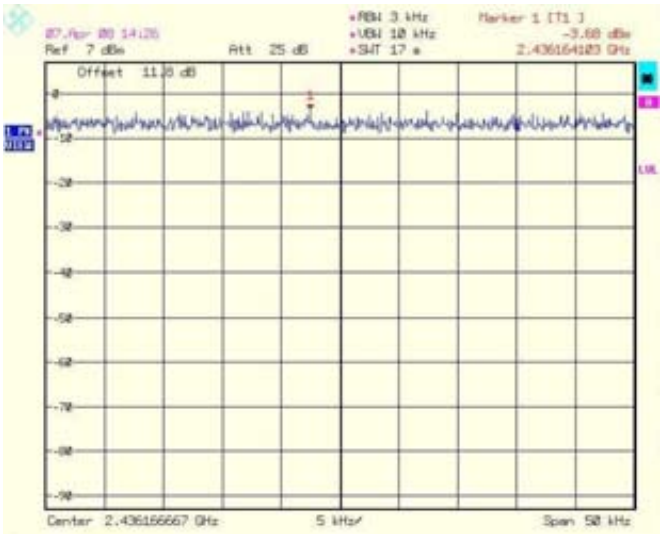
Plot # 264. Transmitter output 4.
Peak Power Spectral Density.
High frequency. 6Mbps rate.



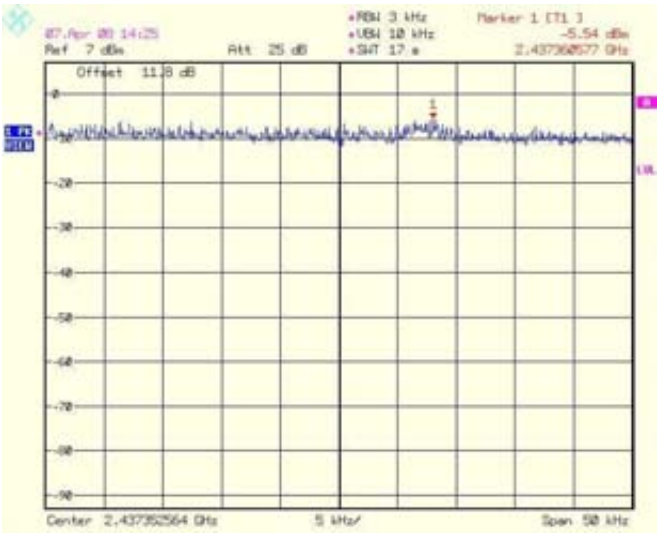
Plot # 265. Transmitter output 5.
Peak Power Spectral Density.
Low frequency. 1Mbps rate.



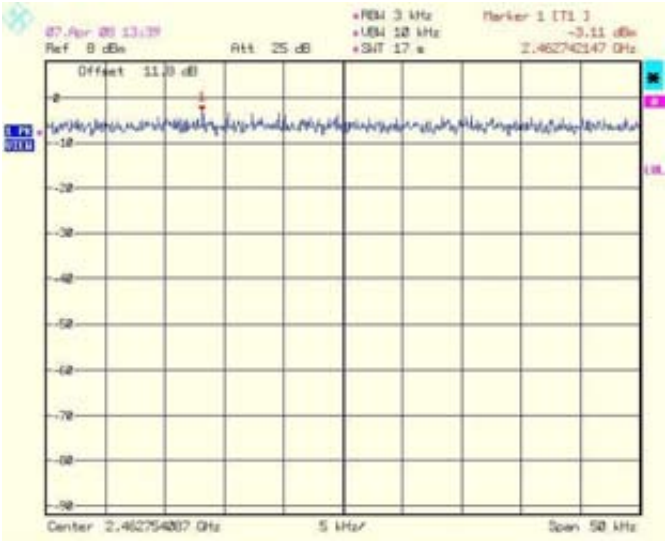
Plot # 266. Transmitter output 5.
Peak Power Spectral Density.
Low frequency. 6Mbps rate.



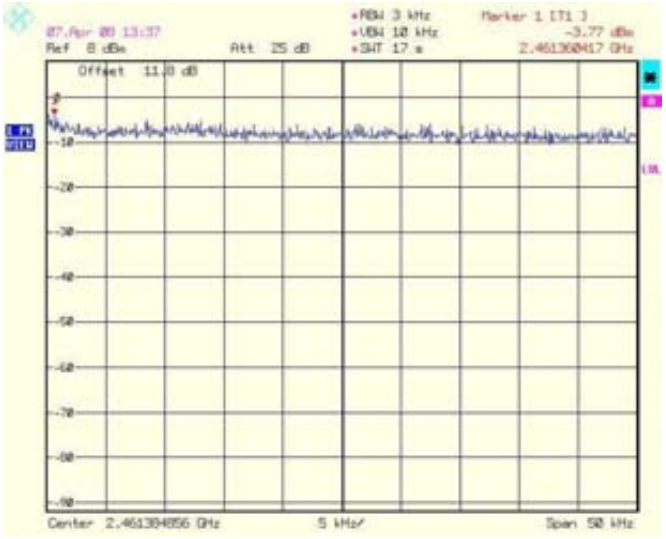
Plot # 267. Transmitter output 5.
Peak Power Spectral Density.
Middle frequency. 1Mbps rate.



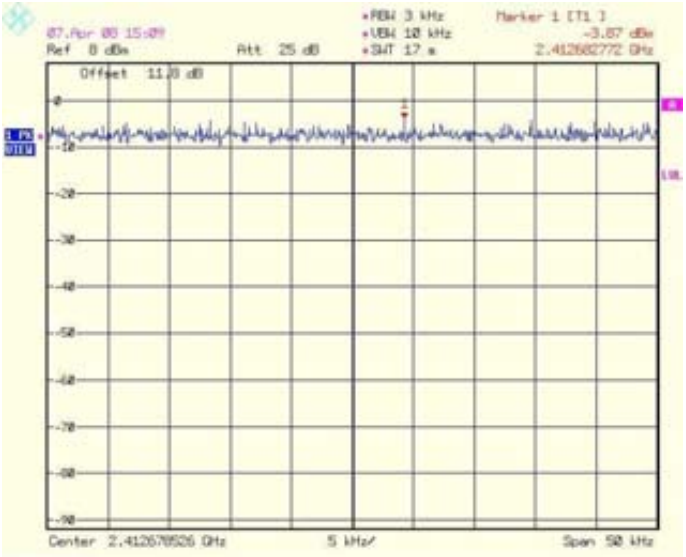
Plot # 268. Transmitter output 5.
Peak Power Spectral Density.
Middle frequency. 6Mbps rate.



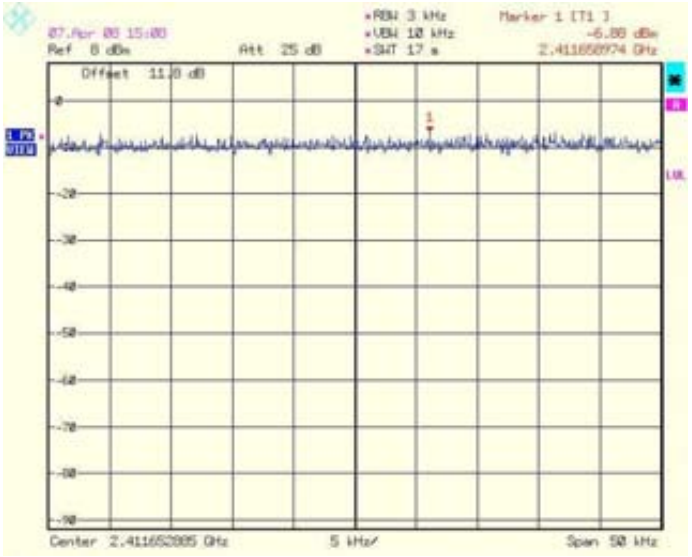
Plot # 269. Transmitter output 5.
Peak Power Spectral Density.
High frequency. 1Mbps rate.



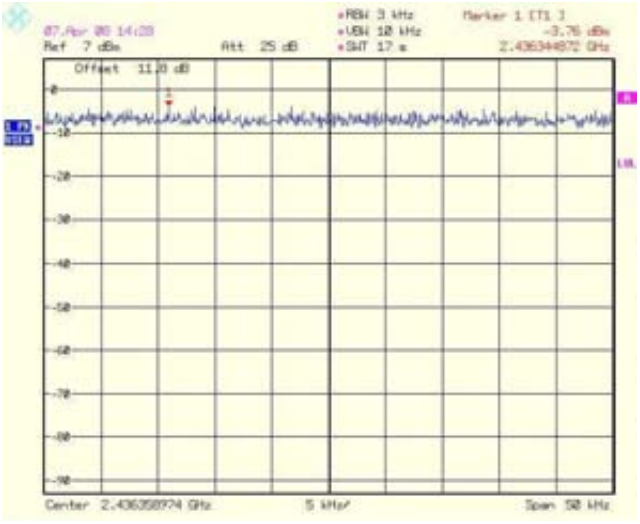
Plot # 270. Transmitter output 5.
Peak Power Spectral Density.
High frequency. 6Mbps rate.



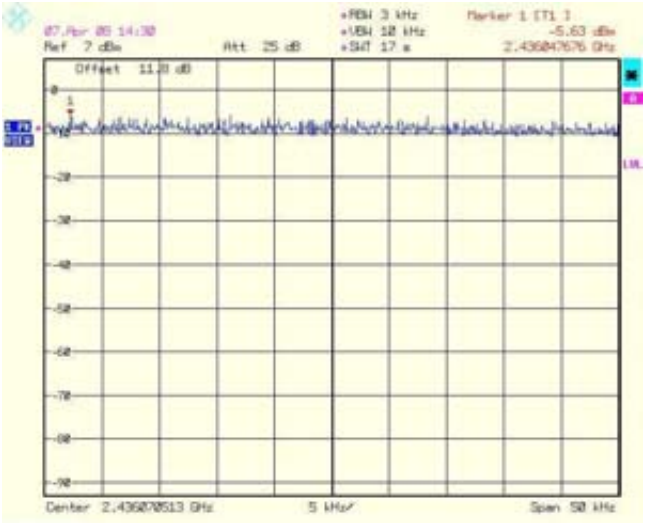
Plot # 271. Transmitter output 6.
Peak Power Spectral Density.
Low frequency. 1Mbps rate.



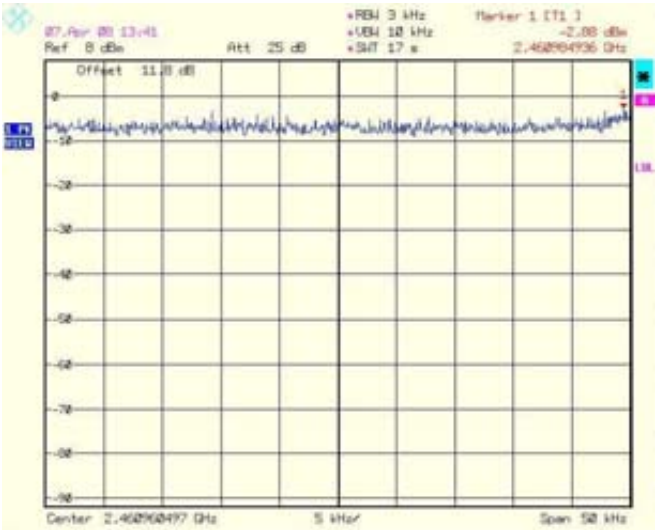
Plot # 272. Transmitter output 6.
Peak Power Spectral Density.
Low frequency. 6Mbps rate.



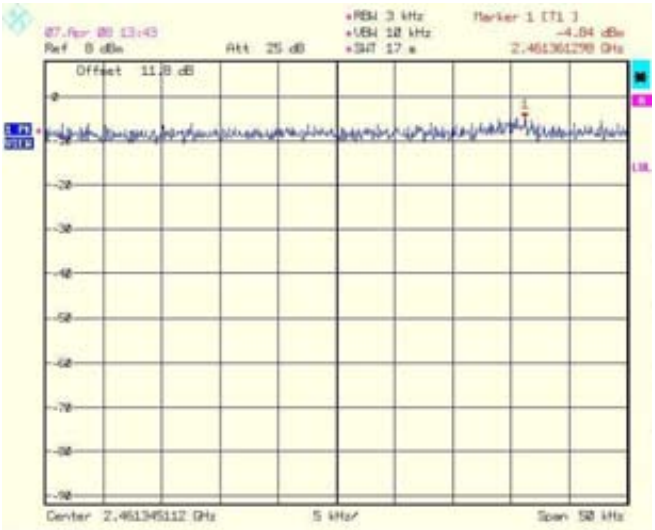
Plot # 273. Transmitter output 6.
Peak Power Spectral Density.
Middle frequency. 1Mbps rate.



Plot # 274. Transmitter output 6.
Peak Power Spectral Density.
Middle frequency. 6Mbps rate.



Plot # 275. Transmitter output 6.
Peak Power Spectral Density.
High frequency. 1Mbps rate.



Plot # 276. Transmitter output 6.
Peak Power Spectral Density.
High frequency. 6Mbps rate.

8. Appendix 1: Test equipment used

All measurements equipment is on SII calibration schedule with a recalibration interval not exceeding one year.

Instrument	Manufacturer	Model	Serial No.	Due calibration date
Signal Analyzer	Rohde&Schwarz	FSQ 8	100647	11/08
EMI Analyzer	HP	E7405A	SII 4944	10/08
Antenna Double Ridge 1-18 GHz	EMCO	3115	SII 4873	-
Antenna SHF-EHF Horn 15-40 GHz	Schwarzbeck	BBHA 9170	SII 5854	-
Biconilog Antenna 30 – 2000 MHz	Schaffner-Chase	CBL-6112D	S/N 23181	05/08
Antenna Mast	R&S	HCM	-	N/A
Metallic turntable	R&S	HCT12	100001	N/A
Positioning controller	R&S	HCC	-	N/A
LISN 9 kHz – 30 MHz	FCC	LISN-50/250-32-4-16	SII 5023	03.09
Transient limiter 0.009-200 MHz	HP	11947A	31074A3105	03.09

9. Appendix 2 Antenna Factor and Cable Loss

Cable Loss (10m cable + Mast)

Point	Frequency (MHz)	Cable Loss (dB)	Point	Frequency (MHz)	Cable Loss (dB)
1	30	0.53	21	1000	3.68
2	50	0.75	22	1100	3.82
3	100	1.08	23	1200	4.07
4	150	1.39	24	1300	4.24
5	200	1.61	25	1400	4.43
6	250	1.752	26	1500	4.6
7	300	2.00	27	1600	4.7
8	350	2.15	28	1700	4.85
9	400	2.26	29	1800	4.98
10	450	2.383	30	1900	5.19
11	500	2.52	31	2000	5.34
12	550	2.606	32	2100	5.51
13	600	2.75	33	2200	5.69
14	650	2.856	34	2300	5.89
15	700	3.06	35	2400	6.07
16	750	3.201	36	2500	6.22
17	800	3.27	37	2600	6.28
18	850	3.38	38	2700	6.41
19	900	3.46	39	2800	6.53
20	950	3.55	40	2900	6.84

Antenna Factor

For Bilog Antenna, Model Number: CBL 6112D, S/N: 23181

No.	f /(MHz)	AF / dB/m	f /(MHz)	AF / dB/m	f /(MHz)	AF / dB/m	f /(MHz)	AF / dB/m
1	30	17.90	170	9.40	530	17.70	1040	22.20
2	32	16.70	175	9.00	540	18.25	1060	22.50
3	34	15.55	180	8.50	550	18.60	1080	22.50
4	36	14.35	185	8.45	560	14.45	1100	22.40
5	38	13.30	190	8.60	570	18.40	1120	22.60
6	40	12.20	195	8.85	580	18.50	1140	22.45
7	42	11.05	200	8.95	590	18.60	1160	22.50
8	44	9.95	205	8.80	600	18.60	1180	22.40
9	46	8.90	210	8.50	610	18.80	1200	22.80
10	48	8.05	215	8.20	620	18.99	1220	22.95
11	50	7.30	220	8.50	630	19.05	1240	23.10
12	52	6.80	225	9.00	640	19.23	1260	23.40
13	54	6.45	230	9.65	650	19.10	1280	23.35
14	56	6.00	235	10.30	660	19.13	1300	23.62
15	58	5.70	240	11.00	670	19.04	1320	23.64
16	60	5.45	245	11.60	680	19.00	1340	23.86
17	62	5.30	250	12.00	690	19.17	1360	23.95
18	64	5.20	255	12.45	700	19.28	1380	23.90
19	66	5.30	260	12.85	710	19.25	1400	24.45
20	68	5.30	265	12.50	720	19.45	1420	24.74
21	70	5.35	270	12.45	730	19.75	1440	24.93
22	72	5.50	275	12.40	740	19.95	1460	25.03
23	74	5.80	280	12.55	750	20.07	1480	25.45
24	76	6.00	285	12.65	760	19.85	1500	25.30
25	78	6.60	290	12.75	770	19.80	1520	25.25
26	80	6.70	295	12.95	780	19.85	1540	25.36
27	82	7.15	300	13.00	790	19.95	1560	25.58
28	84	7.60	310	13.35	800	20.05	1580	25.50
29	86	8.10	320	13.75	810	20.10	1600	25.65
30	88	8.50	330	13.85	820	20.35	1620	25.60
31	90	8.90	340	14.10	830	20.40	1640	25.70
32	92	9.20	350	14.50	840	20.35	1660	25.83
33	94	9.75	360	14.70	850	20.46	1680	25.97
34	96	9.95	370	14.90	860	20.39	1700	26.10
35	98	10.20	380	15.10	870	20.29	1720	26.25
36	100	10.50	390	15.45	880	20.24	1740	26.04
37	105	11.25	400	16.00	890	20.35	1760	26.14
38	110	11.70	410	16.40	900	20.55	1780	26.20
39	115	11.70	420	16.70	910	20.45	1800	26.40
40	120	11.80	430	16.35	920	20.60	1820	26.64
41	125	11.80	440	16.30	930	20.60	1840	26.86
42	130	11.70	450	16.30	940	20.66	1860	27.12
43	135	11.35	460	16.70	950	20.88	1880	27.00
44	140	10.95	470	17.05	960	21.11	1900	27.25
45	145	10.35	480	17.20	970	20.93	1920	27.36
46	150	10.05	490	17.30	980	21.03	1940	27.68
47	155	9.70	500	17.40	990	21.05	1960	27.10
48	160	9.70	510	17.50	1000	21.10	1980	27.06
49	165	9.45	520	17.60	1020	21.40	2000	27.25

Antenna Factor

For Double Ridge Guide Antenna Model Number: 3115, S/N: 5802
3 m Calibration (Vertical and Horizontal polarizations)

Point	Frequency (MHz)	Antenna Factor (dB/m)
1	1000	23.9
2	2000	28.3
3	3000	31.0
4	4000	33.1
5	4500	32.5
6	5000	32.4
7	6000	53.7
8	6500	35.6
9	7000	36.4
10	7500	36.9
11	8000	37.0
12	8500	38.0
13	9000	38.6
14	9500	38.4
15	10000	38.4
16	10500	38.4
17	11000	38.9
18	11500	39.6
19	12000	39.4
20	12500	39.2
21	13000	40.3
22	13500	41.0
23	14000	41.2
24	14500	41.3
25	15000	40.0
26	15500	38.0
27	16000	38.1
28	16500	40.3
29	17000	42.2
30	17500	44.6
31	18000	46.2

For SHF-EHF Horn Antenna Model Number: BBHA 9170, S/N: 5854
1m Calibration (Vertical and Horizontal polarizations)

Point	Frequency (GHz)	Antenna Factor (dB/m)
1	15	38.5
2	16	37.7
3	17	38.1
4	18	37.9
5	19	38.0
6	20	38.0
7	21	37.9
8	22	38.2
9	23	39.6
10	24	39.6
11	25	39.3
12	26	39.5
13	28	39.6
14	30	40.1
15	32	41.2
16	34	41.5
17	35	41.9
18	36	42.2
19	38	43.8
20	40	43.2

10. Appendix 3: Test configuration illustration

Photo # 1.
Radiated emission test on open site. Front side / overall view

Photo # 2.
Radiated emission test on open site. Rear view

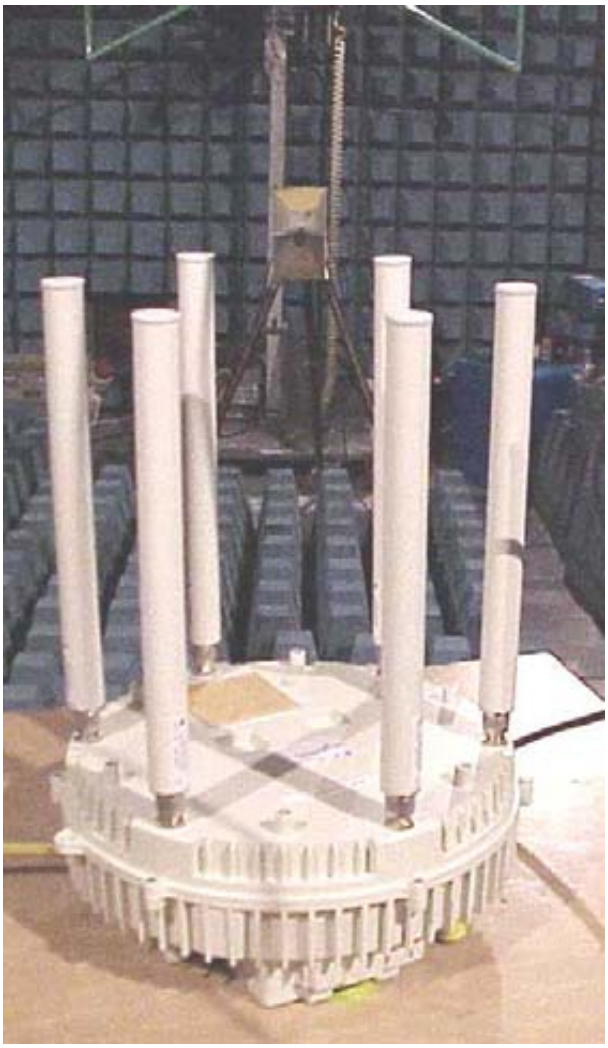


Photo # 3.
Radiated emission test on Radio Unit – spurious & restricted bands.

Photo # 4.
Spurious emission test

Photo # 5.
Power Spectral Density test